RECREATION OUTDOORS COALITION
4000 Beacon Drive
Anderson, CA 96007
Phone: 530-365-4732
Cell: 530-949-6743

February 1, 2010

USDA Forest Service
ATTN: Data Quality Official
Mail Stop 1143
1400 Independence Ave, SW
Washington, DC 20250-1143

Subject: Data Quality Act Request for Correction

Dear Sir/Madame:

The Recreation Outdoors Coalition (ROC) is requesting a correction of information under the Department of Agriculture's Information Quality Guidelines (also see Exhibit 1). ROC asks you to conduct a second level peer review of the Lassen National Forest's (LNF) engineering reports for proposed motorized mixed use roads.

Description of the Information to Correct:

On December 14, 2009, the Lassen National Forest issued their Final Environmental Impact Statement (FEIS) for a Motor Vehicle Travel Management Plan. The Recreation Outdoors Coalition reviewed the LNF's engineering reports for proposed motorized mixed use (MMU) roads that accompanied the FEIS (Exhibit 2). MMU allows highway legal vehicles and non-highway legal vehicles such as ATVs and dirt bikes to share the same roadway.

We found the LNF's engineering reports for motorized mixed use contradict the conclusions of experienced County Public Works Directors and mixed use decisions on similar unpaved county roads, which connect to the LNF's road system (Exhibit 3). They are also inconsistent with engineering reports from the adjacent Modoc National Forest. The conclusions in LNF's reports are based on volume, vehicle class and average travel speed data that are not statistically valid.

The Lassen NF FEIS did not reference or consider a 2005 Traffic Study on selected maintenance level (ML) 3 and 4 roads that was prepared by a California licensed traffic engineer using State and national traffic surveillance protocols (Exhibit 4). His methodology was peer reviewed by other senior FS staff.[1]

[1] Ed Gilliland, principle author of "Guidelines for Engineering Analysis of Motorized Mixed Use on National Forest System Roads,"(EM-7700-30, 12/05) and Sue Kocis, National Program Leader for National Visitor Use Monitoring on each national forest.

Many comments in the LNF's analyses are erroneous, contradict data from the 2005 Traffic Study or cannot be substantiated in any meaningful way. The LNF's MMU analysis reflects a well-known bias by the Forest's engineering staff against continuing to allow motorized mixed use on unpaved Forest roads that have had no known MMU crashes or other safety problems.

On November 10, 2009, the Forest Supervisor for the adjacent Modoc National Forest issued his Record of Decision for the Forest Travel Management Plan. Under the Modoc NF Plan, motorized mixed use will continue on most of the Forest's unpaved ML 3 roads, except for a seasonal closure of all motor vehicle travel on selected roads during the winter period. Their motorized mixed use analyses indicated their ML 3 road system has a history of low vehicle use (both highway legal and non-highway legal vehicles) and no mixed use accidents. As a result, the vehicle class was changed on 513 miles of ML 3 roads (89.2 percent of 573 miles) to accept non-highway legal vehicles (Exhibit 5).

Since there are no documented mixed use accidents, low traffic volumes, low OHV use and low travel speeds on LNF roads, the Forest's engineering reports should be comparable to the Modoc NF's reports. **When two adjacent national forests reach significantly different conclusions, a peer review is required. The LNF's engineering reports should also conform with mixed use decisions on unpaved county roads with similar maintenance levels and with the California Vehicle Code.**[2]

Explanation of Noncompliance with USDA Information Quality Guidelines:

a. Objectivity of Statistical Information

Under the Data Quality Act and USDA supplementary guidelines, "objectivity" focuses on whether the disseminated information is presented in an accurate, clear, complete and unbiased manner. To ensure objectivity,

> "USDA agencies and offices will strive to ensure that the information they disseminate is substantively accurate, reliable, and unbiased and presented in an accurate, clear, complete, and unbiased manner."[3]

The LNF 2009 engineering reports are not a statistically valid survey of traffic volume and class of vehicle on LNF roads. This information forms the basis for Forest Supervisor decisions on whether to continue to allow motorized mixed use on the surveyed roads. The first step in any traffic surveillance program is to determine the existing users and purpose of the information to be collected. In this case, the collection of traffic volume, average speed data, vehicle class, and roadway information is useful for analyzing the potential safety risk of continuing to allow motorized mixed use on these unpaved LNF roads.

The LNF's data collection was not based on accepted "traffic engineering" methodology for traffic surveillance programs. The engineering reports fail to comply with the National Environmental Policy Act for methodology and scientific accuracy. The Act requires:

---

[2] Letter from CHP Deputy Commissioner J.A. Farrow to Regional Forester Randy Moore, 12/19/07 (Exhibit 6).

[3] USDA Information Quality Activities at: http://www.ocio.usda.gov/qi_guide/index.html

"Agencies shall insure the professional integrity, including scientific integrity, of the discussion and analyses in environmental impact statements. They shall identify any methodologies used and shall make explicit reference by footnote to the scientific and other sources relied upon for conclusions in the statement." [4]

Several professional engineering documents discuss traffic survey methodology, which would have allowed the LNF to collect valid data for the analysis of motorized mixed use on unpaved roads. These include:

US Department of Commerce, Bureau of Public Roads, "Guide for Traffic Volume Counting Manual," 2/1965.
UC Berkeley, Institute of Transportation and Traffic Engineering, "Fundamentals of Traffic Engineering," 6th edition, 1966.
USDA Forest Service, California Region, "Traffic Surveillance," 8/1969.
Transportation Research Board, National Academy of Sciences, "Low Volume Roads," 6/1975.

Traffic counters or loops for travel time information cannot provide this information as they are subject to malfunction and do not record vehicle class. Cameras or field data recorders (people) are required for the best accuracy.

The LNF engineering reports are based on statistically invalid survey samples, incomplete data, and personal biases that have influenced their findings. The analyses lack measurable indicators or benchmarks for ensuring objectivity and public confidence in their motorized mixed use assessments.

Explanation of the Effect of the Alleged Error:

As a result of the LNF's MMU analysis in the engineering reports, the original 85 miles of proposed mixed use ML 3 and 4 roads were reduced to 9.3 miles in the FEIS's preferred alternative (Modified Alternative 5) due to safety concerns. [5] The other 75.7 miles were dropped. There are 693 miles of unpaved ML 3 and 4 roads on the LNF. These roads have been safely used by non-highway legal vehicles (OHVs) for decades with no history of mixed use accidents on the Forest. Under FEIS Modified Alternative 5, the LNF is proposing mixed use on only 1.3 percent of the Forest's unpaved ML 3 and 4 roads. Future OHV travel on the remainder of the Forest's ML 3 and 4 road systems (98.7%) will be prohibited.

The LNF FEIS states: ". . . without motorized mixed use or downgrading road maintenance levels on some ML 3-4 roads, enthusiasts would be constrained to a collection of ML 2 roads and trails that provide limited loop or circuit riding opportunities.[6] According to the 2005 LNF visitor survey data, this affects over 71,369 visitors who participated in some form of OHV recreation during their stay on the Forest.[7]

---

[4] National Environmental Policy Act implementing regulations at 40 CFR 1502.24.
[5] LNF FEIS, pages 68 and 86.
[6] LNF FEIS, page 106.
[7] LNF FEIS, page 121.

Recommendation and Justification for How the Information Should Be Corrected:

As a result of the deficiencies in the LNF's engineering reports, ROC requests a second level peer review under the Data Quality Act. This review should consider data from the 2005 Traffic Study, the engineering reports prepared by the Modoc National Forest, the Agency's "Guidelines for Engineering Analysis of Motorized Mixed Use on National Forest System Roads" (EM-7700-30, December 2005), national Forest Service direction, and the California Vehicle Code (CVC).

ROC's specific comments on the Forest's MMU analysis in the engineering reports are found in Exhibit 1. All **bold** statements require a correction in the analysis. These comments were prepared by H. Richard Tatman, Jr., retired LNF Forest Engineer. Mr. Tatman also performed the MMU analysis for the Klamath National Forest as a subcontractor for Lampe Engineering. Mr. Don Lampe is also a retired Forest Engineer. Appendix H of Exhibit 4 describes Mr. Tatman's qualifications for performing this review. Please contact him at bobs@team-tnt.com or call 530-253-3054 for any questions or explanations pertaining to these comments.

After reviewing the conclusions in the 2005 Traffic Study, the previous Forest Supervisor proposed to allow mixed use on all the ML 3 and 4 roads that were sampled, comprising 72 miles of a proposed mixed use loop around Lassen Volcanic National Park (Laurie Tippin letter, file designation 2350, dated 10/14/05, found in Exhibit 4 on the last page). Data collected in this Study is representative of all the Forest's unpaved ML 3 and 4 roads. The 2009 LNF engineering reports conflict with the 2005 data.

Until the LNF conducts a statistically valid traffic surveillance program at least equal to the 2005 Traffic Study, ROC requests the Forest Supervisor delay her decision on motorized mixed use and continue to allow OHV travel on all unpaved ML 3 and 4 roads. If the LNF chooses to conduct a valid traffic surveillance program, ROC would like the opportunity to peer review the Forest's proposed methodology before the study begins to ensure scientific objectivity.

There are two conflicting interpretations of the California Vehicle Code (CVC). The Region 5 (R5) Regional Forester has his own interpretation while the California Highway Patrol and the Region 6 Regional Forester both have a different opinion. The R5 Regional Forester has chosen to significantly limit non-highway legal vehicle travel on unpaved ML 3 and 4 roads in California's national forests based on a flawed interpretation of the CVC. This conflict needs to be resolved.

Sincerely,

/s/ Sylvia Milligan

SYLVIA MILLIGAN
Recreation Outdoors Coalition

cc:
Kathleen Morse, Lassen National Forest
Randy Moore, R5 Regional Forester

Enclosures:

Exhibit 1: ROC's Review of Lassen National 2009 Engineering Reports of Motorized Mixed Use on National Forest System Roads

Exhibit 2: Lassen National 2009 Engineering Reports of Motorized Mixed Use on National Forest System Roads

Exhibit 3: County resolutions for motorized mixed use and statements from County Public Works Directors.

Exhibit 4: 2005 Traffic Study for motorized mixed use on the proposed Share the Dream Trail.

Exhibit 5: 2009 Engineering Reports for four proposed mixed use ML 3 roads on the Modoc National Forest.

Exhibit 6: California Highway Patrol, Deputy Commissioner J.A. Farrow letter to Regional Forester Randy Moore, dated December 19, 2007.

Exhibit 7: R5 Mixed Use Accidents for the Last 15 Years (1993-2008)

Exhibit 8: Lassen National Forest Temporary Forest Order (May 2009)

Exhibit 9: California Highway Patrol, Chief of Planning and Analysis Division, J.E. McLaughlin, letter to Marlene Finley, Regional Director of Recreation, Lands, Wilderness and Heritage Resources, dated February 3, 2009.

USDA United States Department of Agriculture | Forest Service | Washington Office | 1400 Independence Avenue, SW Washington, DC 20250

File Code: 1300/2350-5/7700
Date: FEB 25 2010

Ms Sylvia Milligan
Recreation Outdoors Coalition
4000 Beacon Drive
Anderson , CA 96007

Dear Ms Milligan,

This is an acknowledgement of your email letter dated February 1, 2010, which we received on February 2, 2010. On behalf of the Recreation Outdoors Coalition you submitted a Data Challenge to the Lassen National Forest Final Environmental Impact Statement for a Motor Vehicle Travel Management Plan, which was issued on December 14, 2009. This challenge was submitted under the provisions of the US Department of Agriculture (USDA) Information Quality Act Guidelines.

We have reviewed your challenge, under the same USDA provisions, and have accepted it. We are now in the process of developing our response. In accordance with the USDA guidelines, agencies will respond to all Data Challenges within 60 calendar days of receipt. If the request requires more than 60 calendar days to resolve, the agency will inform the complainant that more time is required and indicate the reason why and an estimated decision date.

If you have any administrative questions, please contact the Information Quality Officer, George Vargas at 202-205-0444 or via email at gvargas@fs.fed.us.

Sincerely,

Lorrie S. Parker

LORRIE S. PARKER
Acting Director, Office of Regulatory and Management Services

Exhibit 1
ROC's Review of the Lassen National Forest Engineering Reports for Proposed Motorized Mixed Use Roads

A. Introduction Section to the Engineering Reports (page 1)

The "Introduction" section to the engineering reports should comply with Forest Service Manual and Handbook direction, and also be consistent with factual data from the:

- 2005 Traffic Study on the Lassen National Forest,
- LNF INFRA Roads Database,
- LNF 2000 and 2005 National Visitor Use Monitoring (NVUM) data,
- LNF Land and Resource Management Plan,
- California 2000 Census data,
- County road management direction,
- California Vehicle Code, and
- long-standing, permitted OHV use on the LNF.

Without it, the descriptions in this section for each road are incomplete and misleading.

1. To set the context for the discussion that follows, some background information is helpful.

   National Forest System (NFS) roads are not public roads in the same sense as roads that are under the jurisdiction of State and county road agencies. NFS roads are not intended to meet the transportation needs of the public at large. Instead, they are authorized only for the use and administration of national forest lands. Although generally open and available for public use, that use is at the discretion of the Secretary of Agriculture. Through authorities delegated by the Secretary, the Forest Service may restrict, control or allow traffic to meet specific management direction. NFS roads are categorized by five maintenance levels (1-5) with 5 being the highest standard of maintenance and 1 being a closed road.

   A maintenance level 2 road is open for use by high-clearance vehicles, including non-highway legal vehicles. Standard passenger car traffic is allowed, but discouraged.

   The Forest Service calls ML 3-5 roads "passenger car" roads. A maintenance level 3 road is:

   "Assigned to roads open and maintained for travel by prudent drivers in a standard passenger car. User comfort and convenience are low priorities. Roads in this maintenance level typically are low speed, single lane with turnouts, and spot surfacing. Some roads may be fully surfaced with either native or processed material. These roads have the following attributes:

   - Subject to the Highway Safety Act and MUTCD.
   - Roads have low to moderate traffic volumes.
   - Typically connect to arterial and collector roads.
   - A combination of dips and culverts provide drainage.
   - May include some dispersed recreation roads.
   - Potholing or washboarding may occur."

A maintenance level 4 road is defined as:

"Assigned to roads that provide a moderate degree of user comfort and convenience at moderate travel speeds. Most roads are double lane and aggregate surfaced. However, some roads may be single lane. These roads have the following attributes:

- Subject to the Highway Safety Act and MUTCD.
- Roads have moderate traffic volume and speeds.
- May connect to county roads
- Culverts provide drainage.
- Usually a collector.
- May include some developed recreation roads."[8]

A maintenance level 5 road provides a high degree of user comfort. These roads are normally double lane paved roads or aggregate surfaced with dust abatement.

Section 38001(a) of the California Vehicle Code (CVC) states:

"For the purposes of this division, the term 'highway' does not include fire trails, logging roads, service roads regardless of surface composition, or other roughly graded trails and roads upon which vehicular travel by the public is permitted."

According to the California Highway Patrol (CHP) and CVC, unpaved ML 3 and 4 roads are not "highways." Non-highway legal vehicle (OHV) travel is legal on these roads.[9]

Forest Service Region 5 direction in 2006 and 2007 states NFS roads maintained for passenger cars (ML 3-5) are not considered roughly graded; therefore the operation of non-highway legal vehicles on these roads is not consistent with State traffic law. Further, Regional direction implies that vehicles on ML 3-5 roads must be highway legal and operated by licensed drivers. All ML 3-5 roads are considered "highways" under the CVC by Region 5. This conflict in each agency's interpretation of the CVC has a profound effect on OHV recreation in California.

2. Local County Boards of Supervisors and Public Works Directors do not consider unpaved county roads to be "highways" and non-highway legal vehicle travel is legal under State traffic law (County Resolutions and statements from County Public Works Directors found in Exhibit 3).

3. County and national forest road systems are intertwined and should operate as a seamless network for the public to use. The LNF's engineering reports and mixed use conclusions stand in stark contrast to what is authorized on unpaved county roads.

4. The LNF is a rural forest with no nearby population centers of any size within 80 miles (CA 2000 Census).

---

[8] "Guidelines for Road Maintenance Levels," 0577 1205-SDTDC, December 2005.

[9] Letter from CHP Deputy Commissioner J.A. Farrow to Regional Forester Randy Moore, 12/19/07 (Exhibit 6).

5. Traffic volumes on LNF unpaved ML 3 and 4 roads are generally less than 30 average daily traffic (ADT) and not likely to increase any time soon (2005 Traffic Study, 2006 LNF Roads Analysis Process, 2009 LNF Engineering Reports, and NVUM).

6. Non-highway legal vehicle travel on unpaved LNF ML 3 and 4 roads is extremely low (2005 Traffic Study, 2009 LNF Engineering Reports, and NVUM).

7. Visitor use on the Forest is declining according to LNF 2000 and 2005 NVUM surveys (from 656,000 national forest visits in 2000 to 607,000 visits in 2005).[10] Total OHV participation on the Forest is also declining from 6.9 percent in 2000 to 4.6 percent. In the 2000 NVUM, 11,376 visitors identified OHV use as the primary recreation activity for their stay, compared to 9,796 visitors in 2005.[11]

8. Traffic speeds on ML 3-4 roads are low (generally 25 mph or less) due to rough surfaces, dust and road hazards (2009 INFRA and 2005 Traffic Study).

9. All LNF unpaved roads are currently open to all motor vehicle classes, including non-highway legal vehicles. (This information was omitted in the engineering reports. A discussion of traffic volume and type including a history of OHV use on the roads is required (FSH 7709.55, Chapter 32.11, item 4, and EM-7700-30, pages 3-4.)

10. OHV operators assume paved roads are not open to OHV travel. They do not know or understand the distinction between unpaved ML 2, ML 3 and ML 4 roads or similar intersecting county roads. This situation is exacerbated by the difficulty in maintaining road signage in many areas of the LNF.

11. Decades of OHV use have resulted in no documented mixed use accidents on the LNF – ever! In the past 15 years, there have only been 11 mixed use accidents reported in California's national forests, 3 of which involved Forest Service employees and 1 involved a Deputy Sheriff crashing into an OHV (see Exhibit 7). OHV use on LNF unpaved ML 3-4 roads is a long-standing, accepted practice and common knowledge among users and LNF law enforcement officers.

12. LNF law enforcement officers have permitted OHV use on unpaved ML 3-4 roads unless operators failed to comply with Division 16.5, California Vehicle Code, and FS regulations.

13. The LNF can issue temporary forest orders (road closures) to prohibit OHV use on selected roads whenever there is commercial haul or for other reasons (FSH 7709.59, 23).

14. Appropriate road signs and maps in the future will alert the public that mixed use is authorized on these roads and increase driver safety (FSH 7709.59, 52.4). Although no signs exist now, there has never been a reported mixed use accident on the LNF.

---

[10] FEIS, page 117.
[11] FEIS, page 120-121

15. Proposed mixed use roads on the LNF will meet the following goals in the Forest's Land and Resource Management Plan (pages 4-24 to 4-25).

    "Provide a wide range of outdoor recreation opportunities to meet public demand by furnishing different levels of access, service, facilities, and information."

    "Provide diverse opportunities for off-highway vehicle (OHV) recreation."

16. Prohibiting mixed use in the future on LNF unpaved ML 3-4 roads will significantly limit OHV opportunities for long distance touring on intersecting unpaved county roads and the LNF's ML 2 road system. It will not be possible to use ML 3-4 connectors.[12]

Specific comments on the Forest's engineering analysis of road number 31N17 (a 1.9 mile segment) follows. These comments reflect ROC's concerns with all the proposed mixed use roads in the engineering reports that accompany the FEIS in Exhibit 2. The attached spreadsheet summarizes our analysis of the data on the other roads analyzed. None of the engineering reports meet the requirements in Section 38026, CVC for proposed combined-use highways as described in CHP's letter to the Regional Director of Recreation, Lands, Wilderness and Heritage Resources.[13]

B. Specific Comments on the Engineering Report for Road # 31N17

31N17, Page 2, Introduction:

Lines 7, 8 and 9–We question why the 17 road is even on forest highway list when the criteria in the Forest Service Manual are not met (FSM 7740.5, 7741.1, effective 8/24/2000 and FSM 7703.3, effective 1/8/09).

Forest Service Manual 7741.1 states:

> "Forest highways are a special classification of forest roads. They are specifically designated State or local government roads that meet the criteria listed in 23 CFR 660.105. The designation of forest highways is not intended to form a 'system' of roads. Instead, the purpose of the designation is to identify State and local government roads that qualify for construction and reconstruction funding under the forest highway program. (Underlining added for emphasis.)

Forest Service Manual 7740.5 defines a forest highway as:

> "A designated forest road under the jurisdiction of, and maintained by, a public authority that is subject to the Highway Safety Act."

In reference to "forest highways," Forest Service Manual 7703.3 says:

> "Wherever possible, transfer jurisdiction over an NFS road and associated forest transportation

---

[12] FEIS, page 121.

[13] CHP letter to Marlene Finley, Regional Director of Recreation, Lands, Wilderness and Heritage Resources, dated February 3, 2009 (Exhibit 9).

facilities (FSM 7705) to the appropriate public road authority when the road meets any of the following criteria:

a) More than half of the traffic on the road is not related to administration and use of NFS lands.
b) The road is necessary for mail, school, or other essential local governmental purposes.
c) The road serves yearlong residents within or adjacent to NFS lands."

31N17 meets none of the above criteria and has less than 10 ADT according to the 2005 Traffic Study.

R5 Regional Engineer George Kulick confirmed the description of "highways" in the Forest Service Manual:

> "In California, we have about 3,000 miles of Forest Highways officially identified. These highways are generally state or county roads that serve to connect National Forests."[14]

The Lassen NF has no written agreement from Caltrans, Shasta or Tehama County that they will assume jurisdiction and maintain this road when re-constructed to forest highway standards. This is 22 miles of road. All three agencies have told ROC that they will not add this road to their systems. **The LNF must justify their continued designation of 31N17 as a forest highway or delete these statements.**

Lines 11 and 12. The Engineering Report says: "The entire road is currently managed by LNF as open only to highway-legal vehicles." **This statement is incorrect.** It should say: This road has had consistent OHV use for decades with no record or knowledge of mixed use crashes. It is a popular connector route to other LNF roads for Mineral residents. The summer 2005 Traffic Study reported non-street legal vehicles were traveling on the road. The local FS law enforcement officer was not citing OHV operators.

31N17, Page 3:

Line 7 - Traffic Service Level. Given the average daily traffic reported in 2005 and traffic observed by LNF staff as reported in Exhibit 2, we believe the traffic service level should be "C" based on FSH 7709.56, Chapter 4 (effective 5/87). A road with a traffic service level of "B," as is the case of 31N17, has the capacity to accommodate up to 25 vehicles per hour. Vehicle counts on 31N17 are far below this at 8 ADT.

Line 8 - Objective Maintenance Level. Again, based upon ROC's observations for the past 5 years, we believe the <u>objective</u> maintenance level should be a 3 per FSM 7732.1 (effective 10/7/08). <u>If</u> and when a forest highway is constructed, it will be a two lane paved highway maintained by others and under their jurisdiction.

Line 9 - Operational Maintenance Level. Based upon the roadway conditions found during the 2005 Traffic Study, the <u>operational</u> maintenance levels ranged from 2 to 3 depending upon the road segment.[15] **The operational ML should be no more than a 2 now based on travel demand**

---

[14] E-mail from George Kulick to Elizabeth Norton, dated April 6, 2009.
[15] USDA Forest Service, "Guidelines for Road Maintenance Levels," #0577 1205-SDTDC.

and the LNF's constrained budget to maintain 3,278 miles of system roads. See further discussion on page 4, Box 2, Line 16.

Line 13 -"Any road use agreements . . . ?" **The checkbox should be No.** According to three different years of LNF INFRA roads data (2/14/07, 4/28/08 and 7/9/09), there were no agreements listed for 31N17. Also see comments for Box 1, Line 14 below.

Box 1, Line 14 under Description of Agreements or Encumbrances. When the 2005 study was conducted, LNF engineering staff said there was commuter traffic on the road. Therefore, ROC canvassed the Mineral and Viola areas to identify the extent of commute traffic. We found none. We contacted the Caltrans Maintenance Yard, the National Park Service Headquarters, and the US Postal Service in Mineral. None had any commuters (see Exhibit 4, Appendix D, last page). We obtained written confirmation of this and gave copies to the Forest. Viola is not a community with businesses, thus no commuters. During the traffic counting period of June-September 2005, we recorded one Park Service vehicle. **There is no encumbrance to the road; at least it certainly is not typical.**

Line 15 - Subject to the Highway Safety Act. This determination should be made based on a road's operational maintenance level. According to the ML definitions above, we believe many segments of 31N17 are actually ML 2 (not subject to the Highway Safety Act). See photos in Exhibit 4, Appendix D, count station 12. According to the FEIS, the Forest's road maintenance funds are not likely to increase in the near future to maintain the entire 22 miles of this road to ML 4 standards.[16]

Line 16 - Non-highway legal vehicles permitted? **The "No" checkbox is incorrect.** Non-highway legal vehicle (OHV) travel is a long-standing, accepted practice on 31N17 and all unpaved roads on the Lassen NF. OHV use is permitted by LNF law enforcement officers (barring violations of Division 16.5, California Vehicle Code, and FS regulations). The current Temporary Forest Order No. 06-09-01 (Exhibit 8) prohibits the use of motor vehicle travel off NFS roads, motorized trails, and unauthorized routes as shown in Exhibit A of the Order. The Order does not prohibit non-highway legal vehicle travel on any NFS road. **Therefore, the correct box to check is Yes.** This is consistent with the Modoc NF's interpretation in their engineering analyses (Exhibit 5).

Line 17 - Would motorized mixed use be consistent with State and local laws. **The "No" checkbox is incorrect.** Section 38001(a), California Vehicle Code says:

> "For the purposes of this division, the term 'highway' does not include fire trails, logging roads, service roads regardless of surface composition, or other roughly graded trails and roads upon which vehicular travel by the public is permitted."

The Regional Forester's motorized mixed use policy contradicts the opinion of the California Highway Patrol, the regulatory agency in charge of interpreting and enforcing the California Vehicle Code. CHP says unpaved national forest system roads do not meet the definition of a "highway" per Section 38001(a), California Vehicle Code. In reference to highways, "These have

[16] FEIS, page 79.

generally been paved roads that are part of a local or state designated street and highway system."[17] LNF roads were originally constructed as fire, logging or service roads.

Regional Forester Moore's mixed use policy also directly opposes the Region 6 policy, which concurs with CHP's interpretation for Region 6 national forest lands in California (Rogue River-Siskiyou National Forests). **By the best available authority, OHV travel on unpaved ML 3 and 4 roads is legal under the CVC. Region 5's mixed use policy should reflect this. Forest travel management plans should be consistent with the CVC.**

31N17, Page 4:

Box 1–**Again, the discussion in this box conflicts with CHP's interpretation of Section 38001(a), California Vehicle Code.** The Deputy Commissioner of the California Highway Patrol sent a letter to the R5 Regional Forester on December 19, 2007, which said in part:

> "We are not familiar with all the ML 3 Forest Service roadways, but if they are gravel or other dirt or unpaved roads that have been operating as mixed use roadways for years, it is our belief these roads would fall under the "roughly graded trails and roads upon which vehicular travel by the public is permitted" portion of Section 38001 VC and would, therefore, be eligible for your mixed-use definition." (Underline added for emphasis.)

The Agency has always called routes in the national forest system (NFS) "roads" unless they specifically meet the definition of a "forest highway" in Forest Service Manual 7741.1 (effective 8/24/2000). "Road" is the only term used throughout the FS directives. By its own Manual direction, the Forest Service manages roads, not highways. **Any link to the CVC term "highway" is incorrect.** Only State and local agencies manage highways. The Region is trying to create a new reality by now calling these roads "highways." The Region's mixed use policy has no basis in federal law or regulation, State traffic law or national FS policy that we can find.

The Regional Forester has "now determined"[18] (not CHP) that State traffic law applies to NFS ML 3-5 roads in California's national forests, and they are "highways." **Again, as the designated law enforcement agency regulating and enforcing the CVC on public roads, the Region's mixed use policy must comply with CHP's interpretation.** If not, the Region's policy should not cite the CVC for prohibiting long standing mixed use on unpaved ML 3 and 4 roads.

Box 2–Lines 3 and 4, under Description of road management objectives (RMOs). Only about 1,600 feet of 31N17 is used for access to the Brokeoff Meadows subdivision. Shasta County Road 3P001 provides access to the subdivision from Viola and that is the proper way this should be managed (FSM 7703.3). The principle connector roads between State Route 44, Viola and Mineral are on paved county roads via Paynes Creek, Manton, and Shingletown. **Lines 3 and 4 should be deleted.**

Because of the light amount of traffic that uses the road, we suspect it will be many years before forest highway funding would be available (if ever). The environmental analysis alone will take

---

[17] Letter from CHP Deputy Commissioner J.A. Farrow to Regional Forester Randy Moore, 12/19/07 (Exhibit 6).

[18] CHP letter to Marlene Finley, Regional Director of Recreation, Lands, Wilderness and Heritage Resources, dated February 3, 2009.

years. In the mean time, we recommend the LNF assign an operational maintenance level that is commensurate with the actual travel demand and manage it that way.

Box 2–Lines 11 & 12–At times, there will be vegetation management projects that will create the need for commercial hauling. During actual haul, the LNF can and should issue the appropriate temporary road use order to protect the traveling public (FSH 7709.59, 23). Cancel the order when hauling is complete. **Include this discussion here to correctly state the Forest Supervisor can issue temporary orders for public safety.**

Box 2–Line 13–As noted in ROC's previous comments, **the Regional Forester's interpretation of the CVC is incorrect.** This road is not a "highway" under the CVC.

Box 2–Line 16–The engineering report states: "Most of the year, it is currently managed as open only for highway legal vehicles." **This statement is incorrect.** The LNF has permitted non-highway legal vehicle travel on 31N17 for decades with no safety issues. The current Forest Order (No. 06-09-01) also allows OHV use on all LNF roads. We understand the Forest visitor map has, for years, indicated OHV use only on ML 2 roads that have vertical route markers. However, there has never been a NEPA decision to prohibit OHV travel on ML 3-5 roads. Until the Region's mixed use policy letters were issued, starting in 2006, there was no prior regional policy that said ML 3-5 roads are "highways" and that OHV use on "highways" is in conflict with State traffic law. OHV use on unpaved LNF roads is a well-established and permitted practice.

31N17, Page 5:

Page 5, Box 1–Lines 5, 6, 7 and 8 under General Considerations. The engineering report says: "The LNF currently manages this road as a highway, in accordance with the Highway Safety Act." Please note, roads subject to the Highway Safety Act (HSA) have to meet certain safety standards as defined in FSM 7733 and Forest Service Handbook (FSH) 7709.59, 40. They are not "highways" under the CVC definition and the HSA does not prevent the LNF from designating these roads for mixed use. **The inference that 31N17 is a "highway" per the CVC is incorrect.** Does a judge have to resolve this?

The reference to 36 CFR 212.5 leaves out important information: The Rule states:

> "Traffic on roads is subject to State traffic laws where applicable except when in conflict with designations established under subpart B of this part or with the rules at 36 CFR 261."

This means:

> "On NFS roads, designations for motor vehicle use take precedence over conflicting State traffic laws. The Forest Service may designate some NFS roads under Title 36, Code of Federal Regulations, section 212.51 as open to a vehicle class that would normally be precluded from public roads under State law (for example, NFS roads could be designated for all motor vehicles, where State law allows only highway-legal vehicles)."[19]

[19] Forest Service Manual 7731.2, #1 and #3 (effective 10/07/2008).

Box 2–Lines 8 and 9, under Summary of Findings. The LNF's description that 31N17 is a "forest distinctive route, a category used for significant, highly traveled routes through the Forest" **is not substantiated by any vehicle count data** that ROC is aware of. The average daily traffic or ADT on 31N17 from the summer 2005 Traffic Study was 7.86 vehicles with a high of 14 vehicles counted on July 3 (July 4th weekend). The 2005 Study was based on guidance from the UC Berkeley, Institute of Transportation and Traffic Engineering. Manual counts were made between 7 AM and 7 PM on the first Sunday and third Wednesday in June, July, August, and on Labor Day weekend. Recordings were by four hour blocks of time and distinguished between standard passenger cars, SUVs, pickups, highway legal motorcycles, dirt bikes and quads. The protocol statistically measured 85 percent of total traffic flowing.

LNF staff counted 4 vehicles during one traffic count for 90 minutes on June 25, 2008 – 1 administrative vehicle (presumably FS), 2 fire engines (also presumably FS), and 1 other vehicle. **This, obviously, is not a statistically valid traffic count.** Non-commercial use over the last five years does not support the LNF's statement that this is a "highly traveled" road. The LNF's 2006 Roads Analysis says 31N17 has an ADT of 40 although no statistically valid traffic counts were taken to support this number. **The statement in lines 8-9 should be deleted.**

Box 2–Line 13–The 1.9 mile segment of # 31N17 may have an average travel speed of 35 MPH on the straightaway. However, based upon GPS recordings while driving the entire 22 miles between SR 36 and SR 44, several prudent drivers averaged between 22 to 27 MPH. In the LNF's INFRA roads database (7/9/09), the design speed for this road is 20 mph.[20] The average speed for all other roads in the 2005 Traffic Study compared to the 2009 engineering reports is displayed in Table 3. **Although different road segments were studied, speeds in the 2009 LNF engineering reports are consistently higher than those recorded in 2005. They are overstated for the road conditions (rough surface, dust, occasional road hazards, etc.) that cause prudent drivers to be careful and cautious.**

Box 2–Line 16– The crash potential and crash severity factors listed on page 68 of the Forest's FEIS for Travel Management were not individually ranked against a set of benchmarks in any of the engineering reports as ROC suggested in our comments on the Draft EIS. **As a result, all the reports lack scientific objectivity and are not credible.** How is the public to understand what risk factors were assigned and whether or not the same criteria were used on other roads? These risk factors were individually rated for each road to determine crash probability and crash severity in the 2005 Traffic Study. For 31N17, the Study concluded the probability of an accident was low and crash severity was also low. The previous Forest Supervisor proposed to accept mixed use (in Exhibit 4).

31N17, Page 6:

Page 6, Box 1–Lines 7, 8 and 9 under Operator Considerations. This statement does not add any significance to the "considerations" section except imply a bias against non-highway legal

[20] Forest Service Handbook 7709.56, Chapter 4.25, 1 (effective 5/87). "Design speed is the speed determined for the design and correlation of the physical features of a road or road segment that influence vehicle operation. It is the maximum safe speed that the design vehicle can maintain over a specified segment of road when conditions are so favorable that the design features of the road, rather than operational limitations of the vehicle, govern." The most commonly used design vehicle was an 18 wheel logging truck.

vehicles and children under 18 years of age. Lines 10-14 restate the law per the CVC and are factual and supportable. **Delete lines 7-9.**

Box 1–Lines 15 and 16–The analysis says: "The current use on 31N17 appears to be consistent with State law and Forest Service policy for operational maintenance level 4 roads." **This is incorrect. OHV use is occurring on this road and, according to R5 policy, this is <u>inconsistent</u> with the CVC.**

Given the ADT, vehicle class and mix or composition of traffic on 31N17, we seriously question the Forest's decision to keep this road at an operational ML 4 and prohibit continued OHV travel. During the summer 2005 Traffic Study, 54 vehicles were counted of which only 2 were standard passenger cars (4%). The rest were street legal, high clearance vehicles (81.5%) or non-highway legal vehicles (15%). Consider the factors listed in FSH 7709.59, 62.31 when selecting maintenance levels. It makes little sense to keep roads at a higher maintenance level if standard passenger cars are a minor component of the traffic. ROC believes "prudent drivers in standard passenger cars" with P-rated tires almost always stay on paved roads. The primary vehicle class using the road should drive the assignment of <u>operational</u> road maintenance levels and not vice versa.

Box 2 under Crash History–We also found no record of motorized mixed use accidents on this road. We did note the LNF included two accident references on the other roads evaluated in these reports. **These should be deleted.** Neither one of them was a motorized mixed use accident. A motorized mixed use accident is when a street-legal and a non-street legal vehicle crash together. There have only been 11 of these documented in the entire Region (California) in the past 15 years and four of these were caused by government operators (Exhibit 7).

31N17, Page 7:

Page 7, Box 1 under 3. Observed traffic volume and type. **The form's use of the term "passenger car" is misleading.** Does it mean passenger carrying vehicles? The photographs show a high clearance pickup; we assume that is the one administrative vehicle LNF staff listed. The pickup is a passenger carrying vehicle, but not a standard passenger car. It is a high clearance vehicle. Two fire engineers were observed; these are not standard passenger cars. FSM 7705 definitions under "Road Subject to the Highway Safety Act" refer to standard passenger cars, i.e., Ford Taurus, Chevrolet Malibu, Chrysler 300, Toyota Camry, etc. Pickups and SUVs are high clearance vehicles. Most of the vehicles observed by LNF staff in the engineering reports appeared to be high clearance vehicles, not standard passenger cars. **The LNF's survey form should be amended to record vehicle class similar to the form used in the 2005 Traffic Study.**

The traffic count data LNF staff collected during the preparation of these engineering reports are really meaningless as all were sampled for ½ to three hours only on one random day of the year (except for 32N22). At least 12 of the road reports have no date listed so ROC is unsure if the listed traffic counts were actually taken. No vehicles were recorded at 15 road stations (out of 32 or 47%) during the count day. Vehicles classes were not consistently counted and the descriptions varied widely. Monitoring road traffic should be based on scientific (traffic engineering) procedures.

In 2005, the Lassen National Forest Supervisor asked ROC to perform a summer long traffic study and prepare an Engineering Report for certain roads on the Forest. **LNF staff should have considered this traffic count data for those same roads.**

For # 31N17, LNF staff observed 4 vehicles during 90 minutes (3 of which appear to be administrative vehicles). The 2005 count (ADT of 7.86) was conducted using a statistical random sampling method for the major summer travel season, including two holidays, when vehicle use would be highest. ROC believes that, if anything, traffic is slightly lower due to the economic recession and higher gas prices. Less than 10 vehicles per day, in our opinion, do not justify an operational maintenance level of 4 or a traffic service level of "B."

Box 2 under Speed. The LNF's INFRA roads database (7/9/09) indicates 31N17 is a single lane, gravel road with a design speed of 20 mph. The existing surface condition of the roadway is the controlling factor related to speed. Many sections of 31N17 are roughly graded with exposed rocks, potholes and wash boarding. Operators know this and drive accordingly. Engineering judgment and common sense tells us no person or operator wants to be hurt or to do damage to their motor vehicle. **The LNF's recorded speed of 35 mph is overstated and needs to be corrected.** As indicated above, estimating how fast one can go on a straightaway is not a scientific way to establish travel speed, especially when two vehicles approach each other. When this happens, the human reaction is for operators to reduce their speed or even pull over and stop to allow one vehicle to slowly pass due to dust (and out of courtesy). **Two vehicles do <u>not</u> pass each other at 35 mph.** Note: several Modoc NF engineering reports documented average speeds of 35 mph or less with low crash probability and low crash severity.

Box 3–under Road Surface Type. The 2005 Traffic Study used an average width of 16 feet for the entire road. The LNF engineering report shows 15-20 feet for the 1.9 mile surveyed road segment. Consider the safety situation of two vehicles approaching each other on a 15-20 foot wide road. A pickup, passenger car or FS fire engine are about 7-8 feet wide. A quad is 4 feet wide. Put them side by side and you need 11 or 12 feet. Prudent drivers (synonymous with "cautious driver in the INFRA data dictionary) can safely pass each other on a 15-20 foot wide road. Prudent drivers also slow down and pull over or stop when approaching another vehicle on dusty NFS roads. And they generally drop back if someone is preceding them and creating dust. **Based on the road's reported widths, mixed use can safely continue.**

Box 5–under Other Roadway Factors. What about stopping sight distance due to curve radii, vegetation encroachment and surface conditions? **These are measurable safety factors and should be discussed** (FSH 7709.56, Chapter 4.25). **All the roadway factors listed here indicate mixed use can safely continue.**

31N17, Page 8:

Page 8, Box 1–Second sentence. This road is closed by snow as much as or for an even longer period in a year than is SR 89 through the National Park. The Park plows SR 89 and the FS does not plow # 31N17. **This statement is erroneous and should be deleted.**

Box 3 under 9. Risk without mitigation if designating the roadway "open to all motor vehicles." **The assignment of probability and severity is subjective.** Several factors are listed to assess

MMU risk. In our response to the Draft EIS, ROC asked the LNF to establish benchmarks for each factor (between low and high) so all roads could be judged in a uniform way as shown in the 2005 Traffic Study. We have no way to objectively assess the LNF's assignments. **They differ significantly from the documentation in the 2005 study. We can only assume they are biased. Each factor should be rated against measurable benchmarks.**

31N17, Page 9:

Box 1 under Alternatives and mitigation measures. The engineering report states: "For all situations, the following mitigation measures apply: Coordinate with other agencies to improve enforcement consistency." There was no coordination with County Boards of Supervisors or Public Works Directors to ensure compatible road management direction. The LNF's road engineering reports and mixed use conclusions stand in stark contrast to what is currently authorized on unpaved county road systems that connect to LNF roads (Exhibit 3). This will be an enforcement nightmare. **The LNF should coordinate with county officials to have consistent road management strategies on their connecting road systems.**

Box 1 under Alternative 1: The engineering report says: Continue to manage the road in accordance with maintenance level 4 standards. As of February 14, 2007, 31N17 had an operational maintenance level of 3 (LNF INFRA Roads database). By April 18, 2008, the road's operational maintenance level in INFRA was upgraded to ML 4. Between this timeframe, there must have been considerable road improvements along the road's entire 22 mile length to raise the operational maintenance level from a 3 to a 4. ROC is requesting this information as our observations on the ground do not support the increase in operational maintenance level for the entire road. **There is certainly no travel demand to maintain 31N17 as a ML 4 even during short periods when there is temporary log or chip haul.**

31N17, Page 10:

Page 10 under Alternative 2: The engineering report says: Designate the road segment as "open to all motor vehicles', including highway legal and non-highway legal vehicles. Continue to maintain the road in accordance with maintenance level 4 standards."

Page 10 under Alternative 2, Approximate Implementation Cost, the report then states: "This does not account for the additional increase in long-term annual maintenance costs associated with maintaining these critical safety corridors." **The report does not describe nor validate these increased costs and should be deleted.**

The FEIS says: "Mixed use changes that do not involve a change in maintenance level will not affect resources since the change is purely administrative and does not involve any changes to conditions on the ground."[21]

We understand there will be "one time implementation costs" to sign roads open to mixed use and for database updates.[22] The FEIS referenced public comments that said ". . . some types or

[21] FEIS, page 61.
[22] LNF FEIS, page 92 and Table 20 on page 94.

use result in higher maintenance costs due to resource damage caused by such uses and how certain mixes of use, if allowed in the same areas, would increase the need for maintenance and administration of those areas."[23] But the FEIS does not mention any specific long-term annual maintenance costs associated with "maintaining these critical safety corridors." The Modoc NF FEIS said OHV use on ML 3 roads is not expected to have any additional cost.[24]

Page 10 under Alternative 3. The Engineering Report says: "This would require removing culverts and ditches, reconstructing the template and narrowing the roadway." Please provide us with the specific FSM reference or other written FS direction that requires this. **This statement is erroneous. There is nothing in the FSM that requires this that we are aware of.**

Conclusions

1. Region 5's motorized mixed use policy must comply with CHP's explanation of the California Vehicle Code and Region 6 's acceptance of CHP's letter.

2. The roads or road segments in the LNF engineering reports specifically meet Section 38001(a), CVC, exemption for non-highway legal vehicles in three ways: 1) they began existence as logging, fire or service roads; 2) periodic logging traffic is probable in the future; 3) they are considered roughly graded.

3. All of these roads have had some OHV travel for decades and there is no record of any mixed use crashes. Therefore, the statistical probability of a future crash is low. If mixed use is not a problem now, why make it a problem?

4. If the Regional Forester had accepted CHP's interpretation of the California Vehicle Code and complied with Forest Service national direction discussed in FSH 7709.55, 30.3, item #5 and FS EM-7700-30, 12/05, Documentation of Engineering Judgment (page 2), none of these costly engineering reports would have been necessary.

5. Traffic surveillance has not been done on the LNF following FS Handbook direction since the 1970s and 1980s, thus knowledge of actual travel demand is just a guess. See FSH 7709.59, Chapter 51 (effective 2/5/09). LNF road maintenance levels do not sufficiently reflect travel demands today because no statistically valid traffic surveillance has been done for almost 30 years (except in summer 2005).

6. Funding constraints imply good road management decisions must be based upon the LNF's current capability to maintain the road to its identified road management objectives (RMOs). There is no information in the engineering reports if the roads analyzed currently meet their RMOs. The LNF has $182 million in deferred road maintenance backlog according to their Final Environmental Impact Statement.[25] Annual maintenance needs for the Forest's 3,278 mile road system is $14,844,719 compared to an average annual road maintenance budget of $1,089,000.[26] This extreme shortfall

[23] LNF FEIS, pages xix and xx.
[24] Modoc FEIS, page 45.
[25] FEIS, pages xviii, 7 and 93.
[26] LNF FEIS, pages 79 and 93.

prevents the LNF from fully meeting their road management objectives. We have to wonder why 31N17 (and similar roads) has an assigned operational and objective maintenance level of 4 when the traffic volume is so low and the vehicle class is predominantly high clearance.

7. For the 31N17 road, travel demand only justifies an operational ML 2 with an emphasis on resource protection, i.e. cleaning culverts, some brush removal and spot pulling of ditches. Also see FSH 7709.59.62.32, item 2, for signing to alert drivers to the roadway conditions they can expect.

8. When commercial traffic is using a NFS road, the LNF has the option of temporarily raising the operational maintenance level for haul purposes. The LNF Forest Supervisor can also issue a road use order to temporarily prohibit incompatible public travel. Cancel the order upon completion of hauling and lower the operational maintenance level.

9. ROC recommends the LNF and the Region agree on and establish acceptable definitions for vehicles by class, low and high traffic volume, (ADT) and average travel speed and equate these to the maintenance levels and accident risk assessments.

10. Tables 1 and 2 on the next pages reflect the differences between the Modoc and Lassen National Forest Travel Management Plans.

Forest Travel Management Plan Impacts
(1/27/10 Forest Data)

The table below is a snapshot of the proposed changes from the existing condition on the Lassen National Forest. The reduction of OHV recreation opportunities (especially for non-highway legal vehicles) is significant as described in the Lassen NF Final Environmental Impact Statement. The proposed LNF Travel Management Plan is a "minimalist" alternative when compared to the final Travel Management Plan from the adjacent Modoc National Forest.

Table 1 ***Lassen National Forest***	*DEIS, Alt. 1 – No Action (**or Current Status Quo**)*	*FEIS Modified Alt. 5 – Proposed Travel Plan*	*FEIS Modified Alt 5 - Percent of Forest Total from Alt. 1*
Acres available for cross-country travel	1,072,500	0	0%
Acres of open riding areas available	26	0	0%
Miles of unauthorized roads and trails added to the national forest transportation system	1,089	56	5.1%
Number of dispersed recreation sites with motor vehicle access	504	65	12.9%
Miles of unpaved ML 3-4 roads proposed for mixed use (all vehicles)	Mixed use currently occurs on most 693 miles of unpaved ML 3-4 roads 1/	9.3	1.3%
Miles of unpaved ML 3-4 roads converted to high clearance roads to allow mixed use (all vehicles)	Mixed use currently occurs on most 693 miles of unpaved ML 3-4 roads	79.6 2/	11.5%

1/ Maintenance level (ML) 3, 4, and 5 roads are considered "highways" by the Region 5 Regional Forester. Therefore, he says these roads are subject to the CVC. The CHP and Region 6 Regional Forester do not concur with his interpretation.

2/ According to the Lassen NF FEIS, these converted roads segments would not be available for motorized mixed use or displayed on a map until they weather out. The FEIS indicates this could take 10 years or more before the segments look like high clearance roads. In ROC's opinion, these miles are bogus; they will not show up on any maps as open for use by non-highway legal vehicles and may never exist.

The Modoc National Forest Supervisor issued his decision for the Forest's Travel Management Plan on November 12, 2009.

Table 2 ***Modoc National Forest***	*DEIS, Alt. 1 – No Action (**or Current Status Quo**)*	*FEIS – Adopted Travel Plan Decision*	*FEIS Modified Alt 5 - Percent of Forest Total from Alt. 1*
Acres available for cross-country travel	1,609,466	0	0%
Acres of open riding areas	0	0	0%
Miles of unauthorized roads and trails added to the national forest transportation system	491	336	68.4%
Number of dispersed recreation sites with motor vehicle access	1,168	1,154	98.8%
Miles of unpaved ML 3-4 roads proposed for mixed use (all vehicles)	Mixed use currently occurs on most 573 miles of unpaved ML 3-4 roads 1/	513	89.2%
Miles of unpaved ML 3-4 roads converted to high clearance roads to allow mixed use (all vehicles)	0	0	0%

1/ Maintenance level (ML) 3, 4, and 5 roads are considered "highways" by the Region 5 Regional Forester. Therefore, he says these roads are subject to the CVC. The CHP and Region 6 Regional Forester do not concur with his interpretation.

Lassen NF 2009 Engineering Reports for Motorized Mixed Use

Exhibit 1 - Table 3

Road #	*Obj ML*	*Oper ML*	*2008 Traffic Count for Engineering Reports*	*Count Date and Time*	*Lassen NF 2006 Roads Analysis - Estimated ADT 1/*	*2005 Traffic Count (ADT)*	*2009 Prudent or Cautious Driver Speed (mph)*	*INFRA Roads Design Speed (mph)*	*2005 Traffic Study Speed (mph)*	*ROC Notes*	
28N70	3	3	1 admin. Suburban	6/10/08, 2 hrs			25-30	15		missing text	
29N03	3	3	3 civilian	not listed	40		35	20		no segments on map or photos	
29N18	3	3	2 PUs, 1 SUV	6/28/08, 2 hrs	25		30-40	25		3 segments	
29N48	3	3	2 pass cars, 1 mtn biker	6/10/08, 3 hrs	25		30	20		2 segments	
30N07	3	3	4 civilian	not listed	25		45	25		no segments on map	
30N16	3	3	none	6/25/08, 1hr	25	5	30	20	15		
31N17	3	3	2 pass cars (1 admin), 2 fire engines, 2 mtn bikers	6/25/08, 90 min	40	8	35	20	27	missing text	
32N02	4	4	none	not listed			45	25		missing text	
32N02	3	4	1 PU	7/30/08, 1 hr			40	25		no map	
32N08	3	3	1 pass car, 2 water trucks	6/25/08, 30 min	40		40	15			
32N09	3	3	2 civilian	not listed	25	11	40	20	20	combined in one rpt	no clear map or photos
32N09A	3	3	none	not listed			40	15		combined in one rpt	no clear map or photos

Road #	Obj ML	Oper ML	2008 Traffic Count for Engineering Reports	Count Date and Time	Lassen NF 2006 Roads Analysis - Estimated ADT 1/	2005 Traffic Count (ADT)	2009 Prudent or Cautious Driver Speed (mph)	INFRA Roads Design Speed (mph)	2005 Traffic Study Speed (mph)	ROC Notes	
32N10	4	4	2 pass cars on segment from SR 44 to rest area	6/25/2008, 30 min	25	16	45	20	20	count was observed on the entrance road to a Caltrans rest area and is invalid	mixed use should not be proposed on the rest area entrance road
32N12	3	3	1 Jeep, 1 BLM fire engine	6/25/08, 1hr	40	16	30-35	20	10	2 segments	missing text
32N13	3	3	none	not listed	15	16	15-25 seg 1, 35 seg 2, and 35-40 seg 3	20	20	3 segments	no photos, missing text
32N21	3	3	4 pass cars (3 SUVs)	6/28/2008, 3 hrs	25	17 2/	45	20	20		
32N22	3	3	none	6/25/08, 45 min and 6/29/08 for 40 min	25		40	20		2 segments	missing text
32N60	3	3	none	6/29/08, 105 min	25		40 seg 1 and 35 seg 2	20		2 segments	
32N73	3	3	4 PUs	7/29/2008, 1 hr	7		15	15		no photos	
33N02	3	4	none	7/30/08, 1hr	40		45, not supported by photos	15		2 segments	no segments on map
33N06	3	3	none	7/29/08, 1 hr			30	15		segment not on map	
33N08	3	2	none	7/30/08, 1 hr	15		25	20		segment not on map	poor photos of rd
33N13	3	3	1 FS fire vehicle	7/30/08, 1hr			40	20		segment not on map	no photos

Road #	Obj ML	Oper ML	2008 Traffic Count for Engineering Reports	Count Date and Time	Lassen NF 2006 Roads Analysis - Estimated ADT 1/	2005 Traffic Count (ADT)	2009 Prudent or Cautious Driver Speed (mph)	INFRA Roads Design Speed (mph)	2005 Traffic Study Speed (mph)	ROC Notes	
33N15	3	3	several comercial rd. maintenance vehicles and 1 FS research vehicle	7/30/08, 1 hr	15		40	15-20		segment not on map	no photos
34N13	3	3	1 admin. PU, 1 grazing permittee PU	not listed	15		30-40	20			
34N29	3	3	none	not listed	15		35 seg 1; 30 seg 2	15			
34N34	3	3	none	not listed	15		40	20			
35N04	3	3	none	7/30/08, 1 hr			25	15		segment not on maps	no photos
35N08	3	3	1 agency PU	7/30/08, 1 hr	25		45	10 - 20 mph		segment not on map	no photos
35N10	4	3	none	not listed	25		30-40	20		4 segments	
35N10	4	3	none	not listed	25		30-40	20		missing text	
36N18	4	3	none	not listed	25		35-40	20		missing text	
36N18	3	3	3 FS vehicles, 3 log trucks	7/30/08, 1 hr	25		45	20		no photos	
TOTAL Vehicles Counted			**46**								
Total Gov't or Commercial Vehicles			**18**								
Percent Gov't or Commercial Vehicles			**39%**								

1/ This is estimated ADT, no statistically valid traffic counts were taken.

2/ ADT is based on 2000-2005 National Park Service traffic count data on the Butte Lake Road.

Engineering Report:

Lassen National Forest

Almanor Ranger District

Analysis of

National Forest System Road (NFSR)

31N17

for Motorized Mixed Use Designation

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

Road Number: **31N17** Road Name: **Mineral - Viola Highway**

Introduction: This report documents the engineering analysis for a 1.9 mile segment of NFSR 31N17. The "Mineral Viola Highway" is located on the west slope of the Lassen National Forest (LNF) and connects California State Highway Route 44 with California State Highway Route 36. The road, in its entirety, is also a forest distinctive route (DR 17) and is a designated Forest Highway, aka "Through Route" (FH 170). Shasta and Tehama counties consider this route an important inter-county connection. This arterial route is one of two routes that connect the eastern portions of these counties. In addition, this route is part of the Lassen Backcountry Byway. The entire road is currently managed by LNF as open only to highway-legal vehicles.

The study segment was 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, that are not licensed or certified for general operation on public roads within the State) from the beginning termini to the end termini.

The LNF Travel Analysis identified this road section as a potential connection for recreational off-highway vehicle (OHV) loop opportunities on the adjacent road

network, which is currently managed as open to non-highway-legal vehicle use. In the vicinity, a segment of the "Plantation Gulch" road (NFSR 30N16) was also recommended for an engineering analysis of motorized mixed use. The results can be found in a separate engineering report.

Study Segment road data from the forest transportation atlas:

Beginning Mile Post: **15.4** Ending Mile Post: **17.3**

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:

The road is typically used by Lassen Volcanic National Park personnel as a bypass to SR-89, especially during the off-season when access through the park is blocked by snow.

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

Box 1

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.

Box 2

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

The road currently serves as an arterial road and provides the primary access to NFS lands between SR-36 and SR-44 and west of Lassen Volcanic National Park (LVNP). The road serves as the principal connection between the towns of Viola and Mineral, and as a lower-elevation alternate to SR-89. NFSR 31N17 provides access to a subdivision near Brokeoff Meadows. The road is a designated Forest Highway and is also included in California DOT strategic planning.

It has traditionally served administration of the LNF, including fuels and vegetation management, commodity extraction, fire suppression, and recreation. It also accommodates administrative traffic from LVNP.

The road provides the primary access to the upcoming Gray's Peak project area, which will involve vegetation treatments requiring haul vehicle traffic.

The road is considered a highway by the forest service and is managed in accordance with the Highway Safety Act. The road is managed for passenger car vehicles and is appropriately posted with horizontal route identification markers. Most of the year it is currently managed as open only to highway-legal vehicles; however, when snow-covered the road serves as an ungroomed trail for both skiers and snowmobiles.

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.

Box 1

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

Box 2

Summary of Findings:

Implementing the universal mitigation measures, especially improving sight distance by removing brush, maintaining proper signing, and providing better communication, will reduce crash probability.

Road hazard 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.

The road is managed and identified as a forest distinctive route, a category used for significant, highly traveled routes through the Forest. Distinctive routes are passable by passenger cars during the normal season of use, and the appropriate travel management strategy is to encourage passenger car travel.

The road is maintained to a standard allowing efficient passenger car through traffic at speeds up to 35 mph for reasonable and prudent drivers on straightaways.

Designating the road segment for motorized mixed use, with mitigation, results in a risk assessment of moderate crash probability and high crash severity.

Factors Considered:

1. Operator considerations:

Box 1

- Based on engineering judgment and experience/observation on other national forest management units, the LNF has an above average standard of road. Culverts are common drainage features on maintenance level 2 roads and standard on maintenance level 3 roads. Often roads on this national forest could be classified one maintenance level higher.
- Allowing non-highway-legal vehicles to use the road segments 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 current use on NFSR 31N17 appears to be consistent with State law and Forest Service policy for operational maintenance level 4 roads.
- Non-motorized traffic was observed on the road (mountain bikes).
- The roadbed is raised and appears to provide for sufficient drainage and user comfort.

2. Crash history:

Box 2

At the time of this analysis, there is no record of a crash on this road.

3. Observed 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)

Box 1

Vehicle distribution from an observation, 6/25/08 1130 – 1300.

Passenger cars: 2 (1 administrative)

Fire Engines: 2

Mountain Bikers: 2

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

Box 2

The road segments were driven at various speeds to simulate conditions encountered by a reasonable and prudent driver in a passenger car.

35 mph based on observation and engineering judgment.

5. Road surface type:

Box 3

crushed rock aggregate

traveled way width varies from 15' to 20'

6. Intersections with other roads and trails:

Box 4

The study segment connects a variety of NFS roads to state highways. The sight distances at these intersections are rated fair. NFSR 31N45 is also signed with private timber company identification("F line")

7. Other roadway factors:

Box 5

- Roadway alignment was adequate for the assigned maintenance level. In general, the road was maintained with a traveled way width of 15' – 20'.
- Drainage features include an inside ditch with frequent cross-drains. Rolling dips were gradual and required only minor speed reductions.
- The embankments were gradual, with short sections of 2:1 slopes on the

Box 1

- Summer and fall seasons will experience peak use, winter and spring can bring snowy and icy conditions along with snowmobile traffic. The road has been used in the winter to bypass SR-89 and LVNP.

8. Roadside conditions:

Box 2

- Route identification markers, regulatory signs, and warning signs generally meet the standards in MUTCD.
- An inside ditch was constructed throughout most of the study segment. This was built with a depth up to 2 feet.
- Minor logs and debris encroachment was encountered along the traveled way and shoulders.
- Brush (alder) greatly limited visibility in one curve location (see photo).
- Trees < 40" lined the shoulders in sections.
- A dispersed campsite is located along the study segment near Dry Lake.

9. Risk without mitigation if designating the roadway "open to all motor vehicles":

Segment 1:

Crash probability: ☐ High ☒ Med ☐ Low

Crash severity: ☒ High ☐ Med ☐ Low

Box 3

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.

Box 1

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.
- Re-establish, define, and maintain a consistent traveled way width, utilize existing wider portions as turnouts.
- Clear brush, especially along curves, to improve sight distance. On certain curves, the cut slope can also be excavated and laid back.

  warning: improved sight distance may result in higher speeds
- Remove of roadside hazards such as boulders, trees, and debris.
- 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". Continue to manage the road in accordance with maintenance level 4 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. Continue to maintain the road in accordance with maintenance level 4 standards.

- 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 (i.e., "Share the Road") 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: $ 4000

  This does not account for the additional increase in long-term annual maintenance costs associated with maintaining these critical safety corridors.
- Expected risk:

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 segments in accordance with maintenance level 2 standards. This would require removing culverts and ditches, reconstructing the template and narrowing the roadway.

- Based on the quality of the road, the amount of thru traffic, the Forest Highway status, and the change from the rest of the arterial route, this change would not be consistent with the road management objectives.
- Approximate Implementation Cost: $ 89,000 (~$45k per mile)
- Expected risk

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

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

Alternative 4: Construct trail segments to allow non-highway-legal vehicles to bypass the road and access adjacent maintenance level 2 roads.

- The terrain in this area would provide for a feasible parallel trail system. The west side of the road would be the best location to avoid wet areas associated with the Dry Lake area.
- Approximate implementation cost: $11,000 (~ $5500 per mile)

  This does not include the planning, agreements with private landowners, and long term maintenance costs associated with a new NFS trail.

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

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

Final Comments:

Signing on national forest system roads will 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:

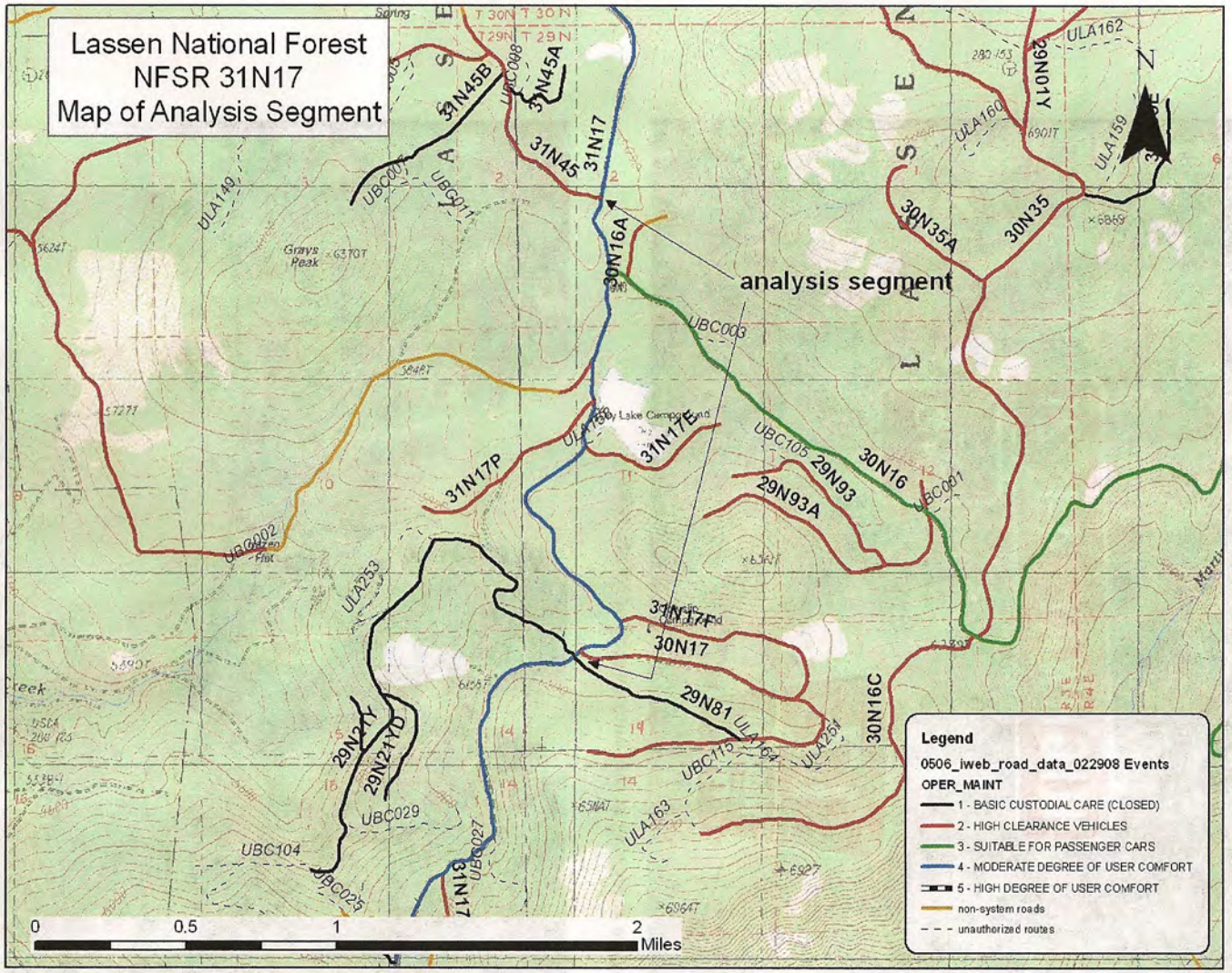


Figure 1: Map of road segments analyzed.

Figure 2: Signing at the south termini of NFSR 31N17.

Figure 3: Looking north at NFSR 31N17, with the intersection of 29N21Y on the left--marking the beginning of the analysis segment.

Figure 4: Curve in the analysis segment, NFSR 31N17.

Figure 5: Curve with low visibility, NFSR 31N17.

Figure 6: End of straightaway, NFSR 31N17.

Figure 7: S-curve and intersection with unauthorized route that accesses dispersed campsite on Dry Lake.

Figure 8: Destination signing, showing connectivity with State highways.

Figure 9: Typical section, NFSR 31N17.

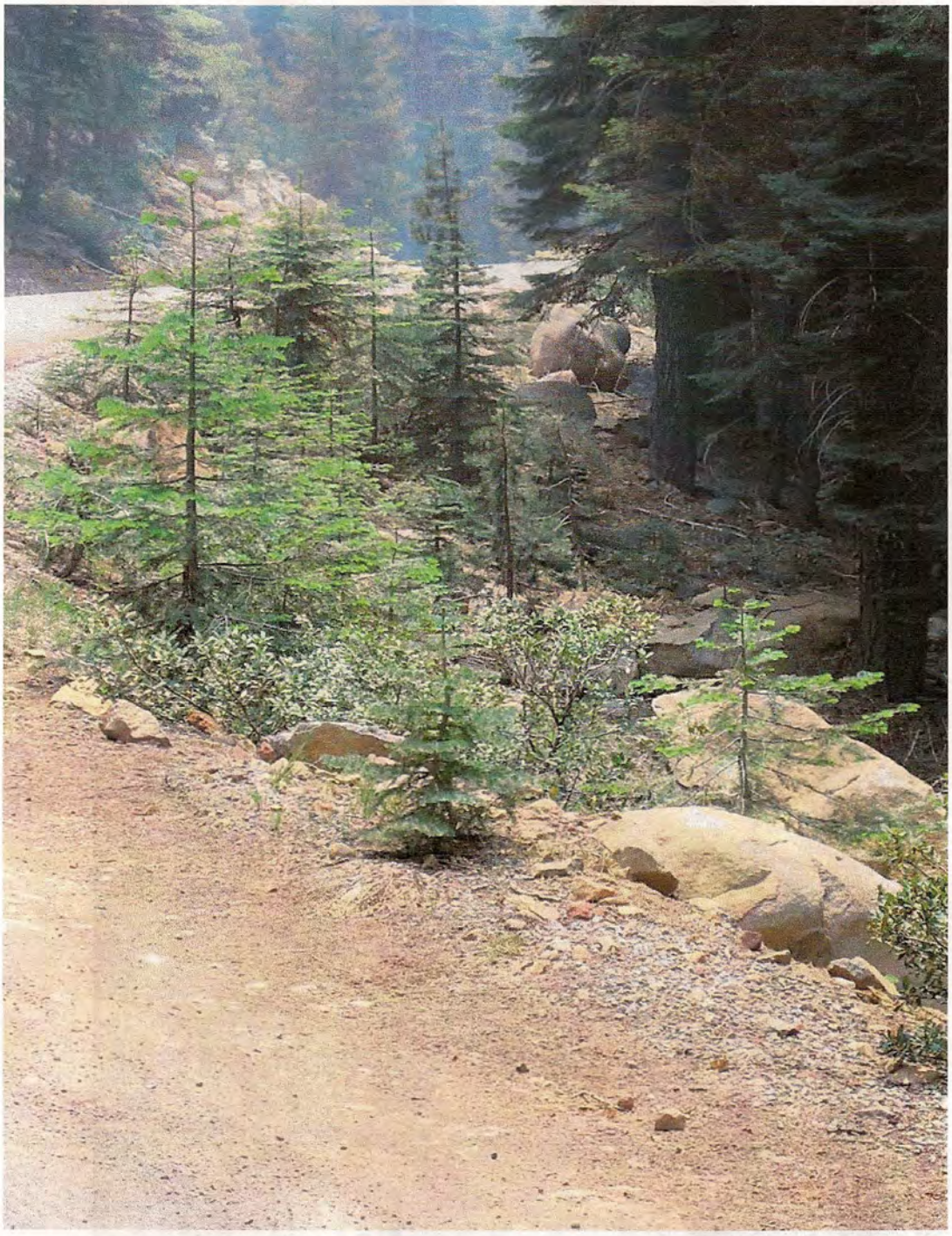


Figure 10: Inside curve showing fill slope and boulders.

Figure 11: Looking back at the analysis segment from the north end, with NFSR 31N45 on the right.

Chris Bielecki

Prepared by:
Chris Bielecki, Supervisory Civil Engineer

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.

Table 3 in Exhibit 1 is based on a more complete version of the reports. There are still many boxes throughout the reports where the text is incomplete. The Lassen NF said this was due to the box format, but did not send us the missing text.

Elizabeth Norton

From: Sylvia Milligan [smilligan4732@sbcglobal.net]
Sent: Saturday, January 09, 2010 4:16 PM
To: Elizabeth Norton
Subject: Re: Map Request and Engineering Analysis questions

Did you get all of this? I will call you on Sunday to talk about where to go on this.

----- Original Message -----
From: Elizabeth Norton
To: 'Chris J Obrien' ; 'David Pilz'
Cc: 'Sylvia Milligan'
Sent: Wednesday, January 06, 2010 1:58 PM
Subject: Map Request and Engineering Analysis questions

Hi Chris and Dave, could I please get a copy of the Alt. 5 map (showing all new routes, mixed use, ML 2 changes, and a 2nd Alt. 5 map showing these routes with the proposed seasonal restrictions?

Also, I'd like the Alt. 1 map showing all unauthorized routes. If possible, could I pick these 3 maps up tomorrow when I'm in Chester?

The Engineering Analyses have several text boxes with incomplete sentences as if a page is missing. Could you pls. send me the missing page for the following roads?

28N70, see page 7 bottom for missing text
31N17, page 7 bottom
32N02, page 8 bottom
32N12, page 10 bottom
32N13, page 10 bottom
32N22, pages 8 and 9 bottom
35N10, page 9 bottom
35N10 (Negro Camp Spring), page 8 bottom
36N18 (Six Mile Hill), page 8 bottom
36N18, DR 18 Road has no photos with the report. Pls. send.

For several roads such as 35N04, 35N08 and 36N18, the study segments are not displayed on the road map so I'm not clear which segment(s) was analyzed. The map scale is very small to read the intersecting road #s. Other road maps are very clear. Is there a reason why some maps have arrows displaying the study segments and many others don't?

Thank you for your assistance. Sylvia said she also requested a complete copy of the engineering analyses, so she's appreciate the missing pages as well. Liz

Go

Name	Size	Type	Date
MMU Maps by District & Alt		File Folder	9/28
MMU Analysis ALRD 30N07.pdf	718 KB	Adobe Acrobat Document	9/28
MMU Analysis ELRD 29N03.pdf	676 KB	Adobe Acrobat Document	9/28
MMU Analysis ELRD 32N02.pdf	3,36...	Adobe Acrobat Document	9/28
MMU Analysis ELRD 32N08.pdf	581 KB	Adobe Acrobat Document	9/28
MMU Analysis ELRD 32N09-A.pdf	610 KB	Adobe Acrobat Document	9/28
MMU Analysis ELRD 32N10.pdf	870 KB	Adobe Acrobat Document	9/28
MMU Analysis ELRD 32N21.pdf	579 KB	Adobe Acrobat Document	9/28
MMU Analysis ELRD 32N22.pdf	579 KB	Adobe Acrobat Document	9/28
MMU Analysis ELRD 32N60.pdf	634 KB	Adobe Acrobat Document	9/28
MMU Analysis ELRD 32N73.pdf	832 KB	Adobe Acrobat Document	9/28
MMU Analysis ELRD 33N02.pdf	1,80...	Adobe Acrobat Document	9/28
MMU Analysis ELRD 33N06.pdf	1,89...	Adobe Acrobat Document	9/28
MMU Analysis ELRD 33N08.pdf	1,37...	Adobe Acrobat Document	9/28
MMU Analysis ELRD 33N15.pdf	780 KB	Adobe Acrobat Document	9/28
MMU Analysis ELRD 33N31.pdf	2,30...	Adobe Acrobat Document	9/28
MMU Analysis ELRD 33N93.pdf	2,30...	Adobe Acrobat Document	9/28
MMU Analysis ELRD 34N34.pdf	1,31...	Adobe Acrobat Document	9/28
MMU Analysis ELRD 35N04.pdf	1,04...	Adobe Acrobat Document	9/28
MMU Analysis ELRD 35N08.pdf	840 KB	Adobe Acrobat Document	9/28
MMU Analysis ELRD 36N18.pdf	1,65...	Adobe Acrobat Document	9/28
MMU Analysis HCRD 32N12.pdf	603 KB	Adobe Acrobat Document	9/28
MMU Analysis HCRD 32N13.pdf	551 KB	Adobe Acrobat Document	9/28
MMU Analysis HCRD 32N21.pdf	561 KB	Adobe Acrobat Document	9/28
MMU Analysis HCRD 33N13.pdf	729 KB	Adobe Acrobat Document	9/28
MMU Analysis HCRD 34N13.pdf	562 KB	Adobe Acrobat Document	9/28
MMU Analysis HCRD 35N10.pdf	876 KB	Adobe Acrobat Document	9/28
MMU Analysis HCRD 36N18.pdf	604 KB	Adobe Acrobat Document	9/28

The analyses are not in numerical sequence.
They were sorted by District first
This is the sequence in the Binder

Dave

approx 4-5 are missing
See CD

Engineering Report:

Lassen National Forest

Almanor Ranger District

Analysis of

National Forest System Road (NFSR)

30N07

for Motorized Mixed Use Designation

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

Road Number: **30N07** Road Name: **Clover – Swain Mtn Road**

Introduction: The 30N07 Road segment studied is located on the west side of Lassen National Forest (LNF) in the Swain Mountain quadrangle.

NFSR 30N07 ML3 begins at the intersection with State Highway 44 in Section 13 of the Pegleg Mountain quadrangle, trends west and south through the Westwood Junction and an intersection with 30N10, traverses the northwest flank of Pegleg Mountain and an intersection with 30N23 at Lasco, then trends west and enters the Swain Mountain quadrangle where it insects with 30N49 at the Swain Snowmobile Park where the road enters the Swain Mountain experimental Forest. 30N07 then traverses the experimental forest where it exits and intersects at it's terminus with 32N10. The road length is approximately 17 miles in length.

The segment studied starts at approximate road mile 10.50 in Section 22 of Swain Mountain quadrangle at the intersection with 30N49 and intersects with 30N33 / 30N26A in the Swain Mountain Experimental Forest for a distance of approximately 1.00 miles to approximate road mile 11.50.

This 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 30N07 / 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: **10.50** Ending Mile Post: **11.50**

30N49 to 30N33 / 30N26A

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 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 possession of a valid driver's license.

Based on the Forest Service Directives and Travel Management purpose and need, to allow all motor vehicles on this segment with a designation of motorized mixed use for a segment or segments with a cumulative distance of 3 miles or less could be consistent with state and federal laws and directives with appropriate mitigation for safety concerns.

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

Road 30N07 / ML3 currently encourages use as an objective ML3 and operational ML3 collector road and functions as a forest highway connecting the State Highway 44 to the Almanor Ranger District, defensible fuel profile zones, experimental forest and recreation destinations.

This forest highway connects to all weather asphalt surfaced State highway and provides ingress and egress to a myriad of defensible fuel profile zones – DFPZ's, forest plan units for timber harvesting, and wildlife management areas.

30N07 is utilized by forest personnel for ingress and egress to Defensible Fuel Profile Zones – DFPZ's and their associated vegetation management and fire suppression functions, for wildlife management, and for recreation access to several forest destinations.

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 accordance with the Highway Safety Act.

The proposed use for this segment of 30N07 / 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 mitigation measures, especially improved road / safety signing and comprehensive public education / outreach, will reduce crash probability although road alignment and associated higher closing speeds will continue to affect crash severity.

Road mitigation should include implementing a comprehensive communication, management, and enforcement plan. Associated implementation costs will depend on the designated allowed use for the road.

NFSR road 30N07 is an observed 1+ lane operational maintenance level 3 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. Crash severity is determined by the dynamics of a vehicles speed or combined speeds, mass, and configurations.

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.
- 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 30N07 appears to be consistent with state law and forest policy for operational maintenance level 3 roads.

2. Crash history:

There is one reported motor vehicle crash on this road. The crash occurred on January 7, 2006 on a Saturday at 1240 hours. The vehicle was a snowmobile traveling at 45 mph which lost control and impacted a tree. The snowmobile then caught fire and burned entirely. The driver was transported to Banner Lassen Hospital and suffered a fractured left shoulder and bruises to hip and calf. The California Highway Patrol investigated this crash and determined that excess speed caused the motor vehicle to lose control and leave the roadway where it impacted a tree and burned-up.

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)

4 civilian motor vehicles were observed along the 30N07 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: 45 mph.

5. Road surface type:

The road has a combination of native crushed rock aggregate and volcanic cinder surfacing. The majority of the traveled way is constructed upon a raised roadbed and the road has drainage ditches, singular culverts, and ditch-relief culverts. The road is approximately 16'-20' wide. The road traveled way is very dry and contains many fine aggregate components and produces prodigious quantities of dust when driven over. Road shoulders are soft and unconsolidated.

6. Intersections with other roads and trails:

Road segment 1 intersects with the following forest roads.

- 30N49
- 30N07D
- 30N31
- 30N77
- 30N26A
- 30N33

The maintenance level 2 roads have historically provided forest management access, fire suppression access, commodity haul, forest grazing access, and hunting and firewood gathering access. The proposed MMU intersections of 30N07 /ML3 may result in higher traffic merging speeds.

7. Other roadway factors:

- Roadway alignment was adequate for the assigned maintenance level. Alignment provides for vehicle closing speeds of approximately 90 mph.
- The road was maintained with a traveled way width of 16'-20".
- Raised roadbed creates soft unconsolidated shoulders. Emergency vehicle run-out among numerous lava rocks, Juniper trees, Pine trees, and brush may lead to loss of control for vehicle operators and/or collisions with immobile objects.
- The road provides administrative access for commodity haul, fire prevention patrol access, fire suppression access, wildlife management. Summer and fall seasons will experience peak use, winter and spring can bring snowy and icy conditions.

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 0-2%.
- Grade is 0-2%.
- 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.).
- Improved route identification and safety 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 road-parallel 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", 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 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 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.

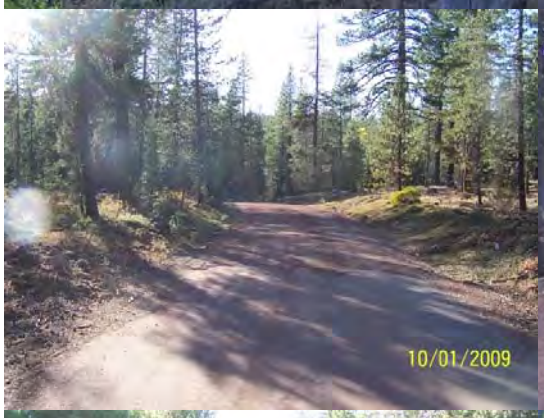
Upon designation and prior to allowing any mixed use, the Forest

Supervisor is responsible for appropriately signing and mapping the route such that the dual traffic use is clear to all users.

Maps & Photos:


SWAIN MTN. ROAD
BOND VALLEY 5
CARIBOU WILDERNESS 10
30N07
10/01/2009


Swain Mountain
SNOWMOBILE PARK
LASSEN
National Forest
10/01/2009


10/01/2009


10/01/2009


10/01/2009


10/01/2009


ENTERING
SWAIN MOUNTAIN
EXPERIMENTAL FOREST
FOREST SERVICE
U.S. DEPARTMENT OF AGRICULTURE
PACIFIC SOUTHWEST FOREST AND RANGE
EXPERIMENT STATION
LASSEN NATIONAL FOREST
10/01/2009


PLEASE
KEEP VEHICLES ON ROADS
DO NOT DISTURB:
TREES PLANTS STAKES
FENCES INSTRUMENTS.
THANK YOU
LASSEN NATIONAL FOREST
10/01/2009

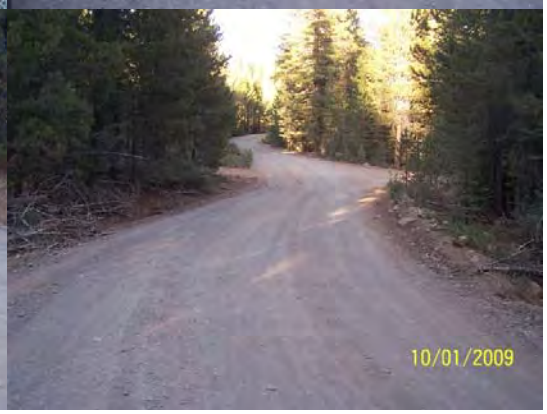

10/01/2009


SWAIN MTN. 4
COUNTY RD. A-21 1
JENNIE SPRING 3
10/01/2009


SWAIN MTN. 4
COUNTY RD. A-21 1
30N07
10/01/2009

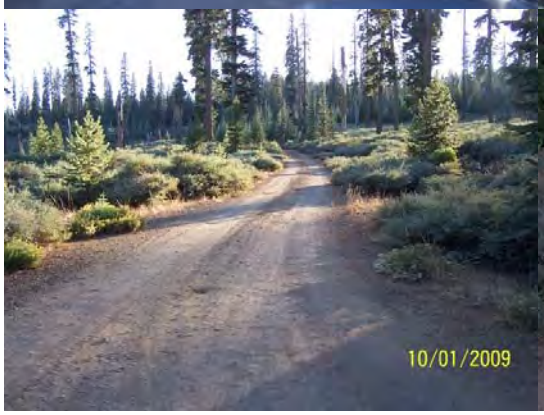

10/01/2009


10/01/2009


10/01/2009


10/01/2009


SHAW MOUNTAIN 3
CARIBOU WILDERNESS 7
COUNTY RD. 2
10/01/2009


10/01/2009


10/01/2009

REPORT OF INCIDENT TO OTHER THAN EMPLOYEES

1. Unit	2. Sub-Unit	3. District, JCC Other,	4. Case Number
Region 5	Lassen 06	Eagle Lake 58	7938239

5. Classification of Injured or Property Owner (Check One)
☒ Visitor ☐ Permittee/Personnel ☐ Contractor/Personnel

TIME & PLACE OF INCIDENT

6. Date (mm/dd/yyyy) 01/07/2006

7. Time 1240

8. Day of Week (Day & Code) 7 Saturday

9. Exact location where incident occurred (example: campground intersection route or trail) Approx. 2.88 East of County Road A21 on FS Road 30N07

PERSONAL INJURY DATA

Fill out data for each person injured. (Omit if no Injury involved)

10. Name of Injured (Last, First, MI DeLos Santos, Lydea E

11. Sex (Check one) ☐ Male ☒ Female

12. Age (to nearest birthday) 19

13. Permanent Address 7665 Kilarney Ln. #109 Citrus Heights, CA 95610

14. Extent of Injuries (check one)
☒ Not requiring Hospitalization ☐ Death
☐ Severe (formal admission to hospital)

15. Hospital (name & location) Banner Lassen Medical Center Susanville, CA

16. Description of Injury (describe exact nature of injury - compound fracture of upper left arm)
Fractured Left Shoulder and bruises to her left hip and left calf.

PROPERTY DAMAGE DATA

$350 (or more)

17. **Owner** (name and address) Claude Sherman. 8873 Water Song Roseville, CA 95747

18. **Person Causing Damage** (name and address) Lydea E. DeLosSantos(Injured)

19. Property Description and Extent of Damages 2004 Polaris Snowmobile

20. **Estimated Damages** (to nearest $100) @$ 6,000.00 (total loss)

DESCRIPTION OF INCIDENT

21. Describe Fully (use reverse or additional sheet if necessary. Investigation report may be attached) **See Attached CHP Report**

WITNESS

22. IMPORTANT: Secure the names and addresses of all witnesses, bystanders or persons in the immediate area who may have seen the incident or heard any statement made by the injured.

Name	Relationship	Address

INCIDENT CAUSE AND CONDITIONS

(Click appropriate block block for each element)

23. Type of Incident

A. Accident	☒
B. Assault	☐
C. Homicide	☐
D. Malicious Act	☐
E. Natural Catastrophe	☐
F. Exposure	☐
G. Other (Specify)	☐

24. Location

A. Developed Site	☐
B. Undeveloped Site	☐
C. Administrative Site	☐
D. Special Use Area	☐
E. Contractor's Area	☐
F. FS Road System	☒
G. FS Trail System	☐

25. Agency of Acciden

A. Wild Animal/Reptile	☐
B. Domesticated Animal	☐
C. Power Hand Tool	☐
D. Manual Hand Tool	☐
E. Bicycle	☐
F. Falling Tree/Limb	☐
G. Fire Arms	☐
H. Heavy Equipment	☐
I. Motor Vehicle, wheeled	☐
J. Snowmobile	☒
K. Watercraft	☐
L. Ski Lift	☐
M. Water	☐
N. Rock	☐
O. Snow	☐
P. Work-Play Surface	☐
Q. Lightening	☐
R. Other (Specify)	☐

26. Activity time of incident

A. Camping	☐
B. Picnicking	☐
C. Hiking	☐
D. Mountain Climbing	☐
E. Other Forest Work	☐
F. Travelling thru NF	☐
G. Sight-seeing in NF	☐
H. Hunting, Fishing	☐
I. Boating, Canoeing Floating	☐
J. Swimming	☐
K. Other water Sport	☐
L. Snow Skiing	☐
M. Snow Mobiling	☒
N. Other Winter Sport	☐
O. Cycling	☐
P. Logging	☐
Q. Operating	☐
R. Horseback Riding	☐
S. Other (specify)	☐

27. Prepared By (print or type): M. Welsh

28. Signature _____

29. Title LEO

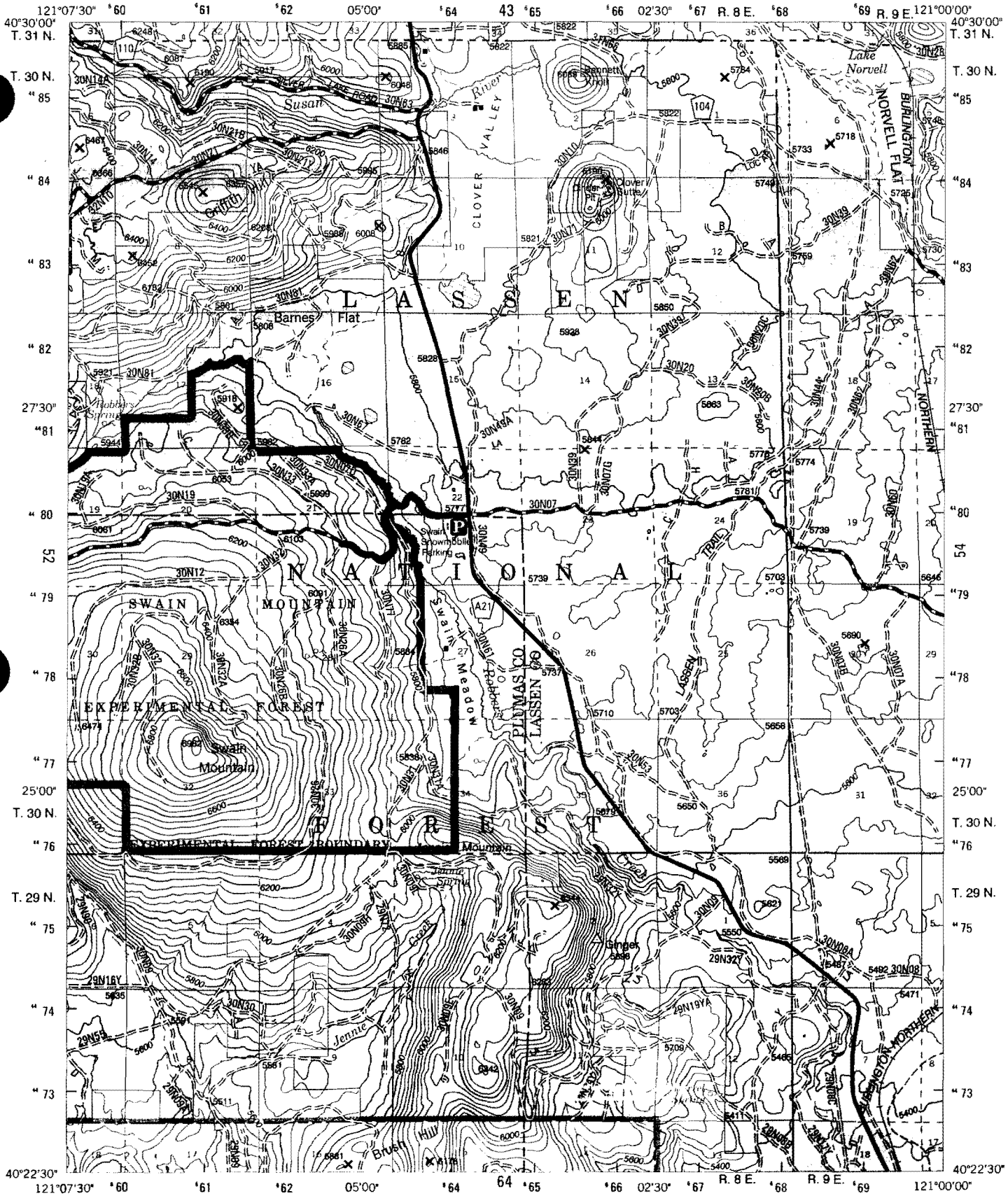
30. Date 01/19/2006

Microsoft Word 2000

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

UNITED STATES
DEPARTMENT OF AGRICULTURE
FOREST SERVICE

SWAIN MOUNTAIN, CA
54 40121-D1 1999



Produced by the U.S. Geological Survey
Revised by the U.S. Forest Service
Areas outside the National Forest System lands may not have been revised.
Control by USGS and NOS/NOAA
Compiled from aerial photographs taken 1973. Revised from aerial photographs taken 1991 and 1993. Partial field check by U.S. Forest Service 1995.
North American Datum of 1927 (NAD 27). Projection: California coordinate system, zone 1 (Lambert Conformal Conic).
National Forest System lands. Revised 1997.
This map is not a legal land line or ownership document. Public lands are subject to change and leasing, and may have access restrictions; check with local offices. Obtain permission before entering private lands.

Scale 1 : 63,360 (1 inch to the mile)
1 .5 0 1 Miles
1000 0 5000 10 000 Feet
Contour Interval 40 Feet

MN GN 1°15' 22 MILS 16° 289 MILS
UTM GRID AND 1997 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

1 Bogard Buttes
2 Pine Creek Valley
3 Antelope Mountain
4 Red Cinder
5 Pegleg Mountain
6 Chester
7 Westwood West
8 Westwood East
ADJOINING 7.5' QUADRANGLES

HIGHWAYS AND ROADS
395 U.S.
139 State
11 County
30 National Forest
Gate
Primary Highway
Secondary Highway
Improved Road, Paved
Improved Road, Gravel
Improved Road, Dirt
Composition Unspecified
Unimproved Road
OHV 4 Wheel Drive Road
National Recreation Trail
Trail

Tim Dedrick Sept. 11, 2009

Prepared by Tim Dedrick
Lassen NF Civil Engineer

Date

George Kulick
Region 5 Qualified Engineer

Date

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 mile 2.25.

This 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 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

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 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 possession of a valid driver's license.

Based on the Forest Service Directives and Travel Management purpose and need, to allow all motor vehicles on this segment with a designation of motorized mixed use for a segment or segments with a cumulative distance of 3 miles or less could be consistent with state and federal laws and directives with appropriate mitigation for safety concerns.

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

Road 29N03 / ML3 currently encourages use as an objective ML3 and operational ML3 collector road and functions as a forest highway connecting the State Highway 36 to the Eagle Lake Ranger District, defensible fuel profile zones, and recreation destinations.

This forest highway connects to all weather asphalt surfaced State highway and provides ingress and egress to a myriad of defensible fuel profile zones – DFPZ's, forest plan units for timber harvesting, and wildlife management areas.

29N03 is utilized by forest personnel for ingress and egress to Defensible Fuel Profile Zones – DFPZ's and their associated vegetation management and fire suppression functions, for wildlife management, and for recreation access to several forest destinations.

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 accordance with the Highway Safety Act.

The proposed use for this segment of 29N03 / 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 mitigation measures, especially improved road / safety signing and comprehensive public education / outreach, will reduce crash probability although road alignment and associated higher closing speeds will continue to affect crash severity.

Road mitigation should include implementing a comprehensive communication, management, and enforcement plan. Associated implementation costs will depend on the designated allowed use for the road.

NFSR road 29N03 is an observed 1+ lane operational maintenance level 3 standard throughout its extent.

The road is maintained to a standard allowing efficient passenger car through traffic at speeds up to 40 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. Crash severity is determined by the dynamics of a vehicles speed or combined speeds, mass, and configurations.

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.
- 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 29N03 appears to be consistent with state law and forest policy for operational maintenance level 3 roads.

2. Crash history:

There are no reported motor 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)

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 cinder surfacing. The majority of the traveled way is constructed upon a raised roadbed and the road has drainage ditches, singular culverts, and ditch-relief culverts. The road is approximately 16'-20' wide. The road traveled way is very dry and contains many fine aggregate components and produces prodigious quantities of dust when driven over. Road shoulders are soft and unconsolidated.

6. Intersections with other roads and trails:

Road segment 1 intersects with the following forest road.

- 29N20Y
- 29N03C
- 29N13
- 29N03B

The maintenance level 2 roads have historically provided forest management access, fire suppression access, commodity haul, forest grazing access, and hunting and firewood gathering access. The proposed MMU intersections of 29N03 /ML3 may result in higher traffic merging speeds.

7. Other roadway factors:

- Roadway alignment was adequate for the assigned maintenance level. Alignment provides for vehicle closing speeds of approximately 90 mph.
- The road was maintained with a traveled way width of 16'-20".
- Raised roadbed creates soft unconsolidated shoulders. Emergency vehicle run-out among numerous lava rocks, Juniper trees, Pine trees, and brush may lead to loss of control for vehicle operators and/or collisions with immobile objects.
- The road provides administrative access for commodity haul, fire prevention patrol access, fire suppression access, wildlife management. Summer and fall seasons will experience peak use, winter and spring can bring snowy and icy conditions.

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.).
- Improved route identification and safety 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 road-parallel 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", 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 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 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):

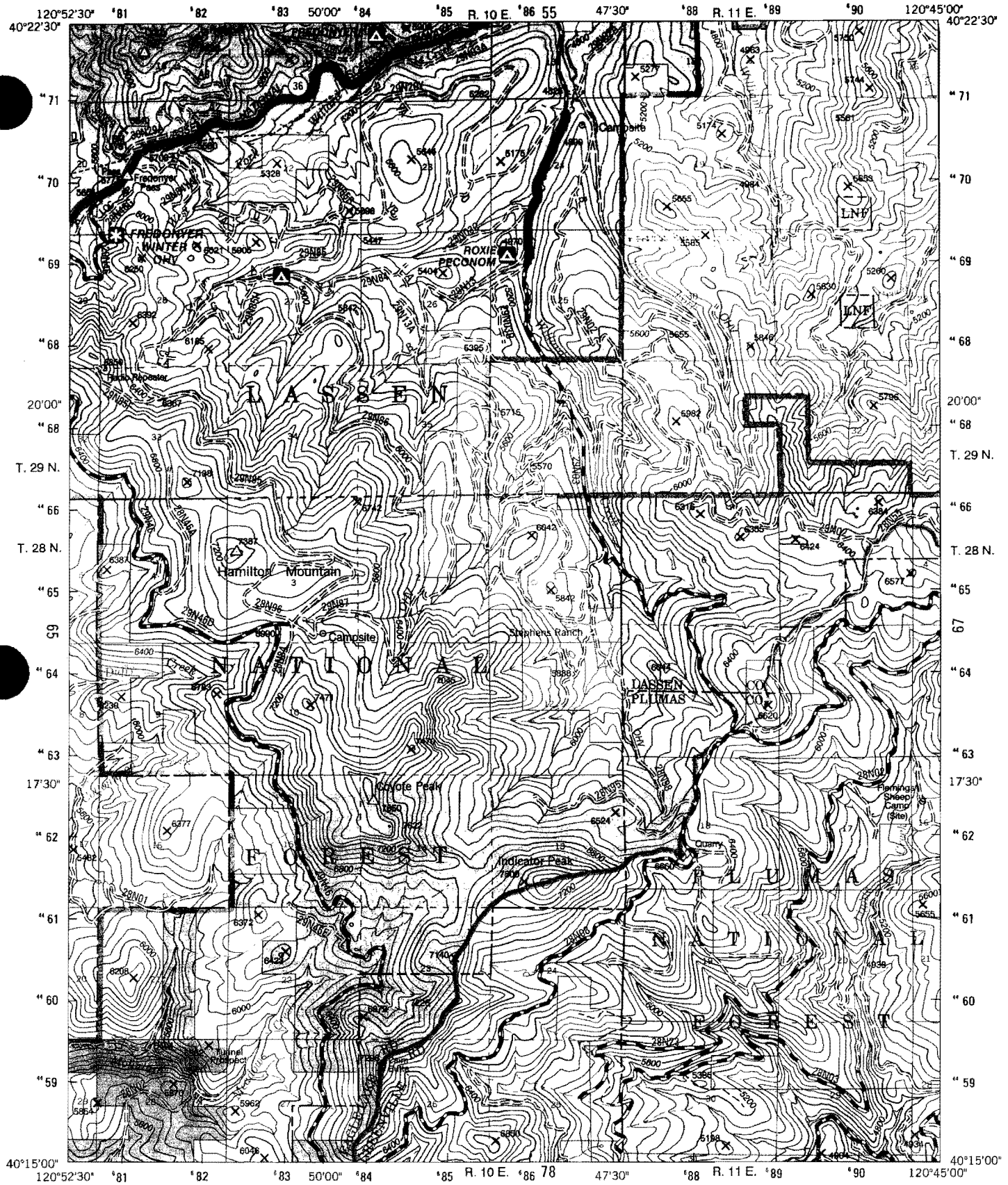
> The following priorities are to be used to minimize the potential conflicts of mixed use:
>
> - Provide separate facilities.
> - Separate use periods. Roads may be designated for separate use periods such as season, weekday/weekend, or day/night. Notify the public of the locations, effective dates, 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:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

UNITED STATES
DEPARTMENT OF AGRICULTURE
FOREST SERVICE

FREDONYER PASS, CA
60 40120-C7 1999



Produced by the U.S. Geological Survey
Revised by the U.S. Forest Service
Areas outside the National Forest System lands may not have been revised.
Control by USGS and NOS/NOAA
Compiled from aerial photographs taken 1973. Revised from aerial photographs taken 1993. Partial field check by U.S. Forest Service 1995.
North American Datum of 1927 (NAD 27). Projection: California coordinate system, zone 1 (Lambert Conformal Conic).
National Forest System lands. Revised 1997.
This map is not a legal land line or ownership document. Public lands are subject to change and leasing, and may have access restrictions; check with local offices. Obtain permission before entering private lands.

Scale 1 : 63,360 (1 inch to the mile)
1 .5 0 1 Miles
1000 0 5000 10 000 Feet
Contour Interval 80 Feet

MN GN
1°23' 25 MILS
16° 284 MILS
UTM GRID AND 1997 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

1 Pegleg Mountain
2 Roop Mountain
3 Susanville
4 Westwood East
5 Diamond Mountain
6 Greenville
7 Moonlight Peak
8 Kettle Rock
ADJOINING 7.5' QUADRANGLES

HIGHWAYS AND ROADS
395 U.S.
139 State
11 County
30 National Forest
Gate
Primary Highway
Secondary Highway
Improved Road, Paved
Improved Road, Gravel
Improved Road, Dirt
Composition Unspecified
Unimproved Road
OHV 4 Wheel Drive Road
National Recreation Trail
Trail

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

Eagle Lake Ranger District

Analysis of

National Forest System Road (NFSR)

 # 32N02

for Motorized Mixed Use Designation

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

Road Number: **32N02** Road Name: **Summit Camp**

Introduction: This report documents the engineering analysis for a segment of 32N02 (Distinctive Route 21) – Summit Camp, totaling 0.22 miles in length. This total route, which also serves as Distinctive Route 21, is an arterial road connecting California State Highway 44 on the west to Lassen County Road A1(Eagle Lake Road) on the east. The route is currently on the PFSR priority list for upgrade. There is substantial traffic using the route; it is commonly used as an alternative route to Eagle Lake by traffic originating from points northwest of Lassen National Forest traveling south on highway 44. Lassen National Forest (LNF) currently manages this road as open only to highway-legal vehicles.

The study segment was 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, that are not licensed or certified for general operation on public roads within the State) from the beginning termini to the end termini.

The LNF Travel Analysis identified this road section as a potential connection for recreational off-highway vehicle (OHV) loop opportunities on the adjacent road network, which is currently managed as open to non-highway-legal vehicle use.

Study Segment road data from the forest transportation atlas:

Segment : Beginning Mile Post: 4.7 Ending Mile Post: 4.9

NFSR 32N05 to NFSR 32N73

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:

The study segment is on private land. The Forest Service has a full public easement with jurisdiction.

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

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 total route currently serves as an arterial road, Forest distinctive route, and provides through access from California State Highway Route 44 to Lassen County Road A1. The road is a very wide single-lane (bordering on double lane in portions on the west) road with turnouts.

NFSR 32N02 has traditionally served administration of the LNF, including fuels and vegetation management, range management, commodity extraction, fire suppression, and recreation. It also provides access to private land inholdings. The road is considered a highway by the Forest Service and is managed in accordance with the Highway Safety Act. The road is managed for passenger car vehicles and is appropriately posted with horizontal route identification markers. Most of the year it is currently managed as open only to highway-legal vehicles. During the winter the route is groomed for OSV and skier use; ATV and 4WD are not allowed.

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 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 improving sight distance by removing brush, maintaining proper signing, and providing better communication, will reduce crash probability.

Road hazard 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.

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.

Designating the road segment for motorized mixed use, with mitigation, results in a risk assessment of moderate crash probability and high crash severity.

Factors Considered:

1. Operator considerations:

- The current use on NFSR 32N02 appears to be consistent with State law and Forest Service policy for operational maintenance level 4 roads.
- The roadbed is raised and appears to provide for sufficient drainage and passenger car travel.
- Commercial, recreational, private, and administrative traffic is expected along this segment.

2. Crash history:

No record of accidents

3. Observed 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)

None was observed during field investigation to the site.

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

The road segment was driven at various speeds to simulate conditions encountered by a reasonable and prudent driver in a passenger car.

45 mph based on observation and engineering judgment.

5. Road surface type: coordinate

Segment has aggregate surfacing and single lane traveled ways with turnouts. Segment is approximately 22 feet wide.

6. Intersections with other roads and trails:

The sight distances at the managed intersections are rated good.

7. Other roadway factors:

- **None**

8. Roadside conditions:

- **On segment one the design prism is typical of side hill construction with inboard ditch plus x-drain relief.**

9. Risk without mitigation if designating the roadway “open to all motor vehicles”:

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 and trees, especially along curves and at intersections, to improve sight distance.**
  warning: improved sight distance may result in higher speeds
- **Removal of roadside hazards such as boulders, trees, and debris.**
- **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". Continue to manage the road in accordance with maintenance level 3 standards.**

- **Maintain all roadway signing to MUTCD standards.**
- **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. Continue to maintain the road in accordance with maintenance level 3 standards.**

- **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**

- **Coordinate with the State and revise existing agreements with Caltrans as applicable.**
- **Notify the Commissioner of the California Highway Patrol and review their opinion.**
- **Approximate Implementation Cost: $ 3500**
  This does not account for the additional long-term annual maintenance cost increase associated with maintaining these critical safety corridors.
- **Expected risk:**

  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 segments in accordance with maintenance level 2 standards. This would require removing culverts and ditches, reconstructing the template and narrowing the roadway.**

- Based on the quality of the road, the amount of thru traffic, the distinctive route status, and the change from the rest of the arterial route, this change would not be consistent with the road management objectives.
- **Approximate Implementation Cost: $10,000**
- **Expected risk:**

  Crash probability: ☐ High ☒ Med ☐ Low

  Crash severity: ☐ High ☒ Med ☐ Low

Alternative 4**: Construct trail segments to allow non-highway-legal vehicles to bypass the road and access adjacent maintenance level 2 roads.**
Segment one

- **The terrain in this area is on gentle to moderate slopes and would provide for a parallel trail system.**
- **The segment is partially on private land and would need an easement**
- **Approximate implementation cost: $7500**
  This does not include the planning, agreements, and long term maintenance costs associated with a new NFS trail.
- **Expected risk:**

Crash probability: ☐ High ☐ Med ☒ Low

Crash severity: ☐ High ☐ Med ☒ Low

Final Comments:

Signing on national forest system roads will 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:

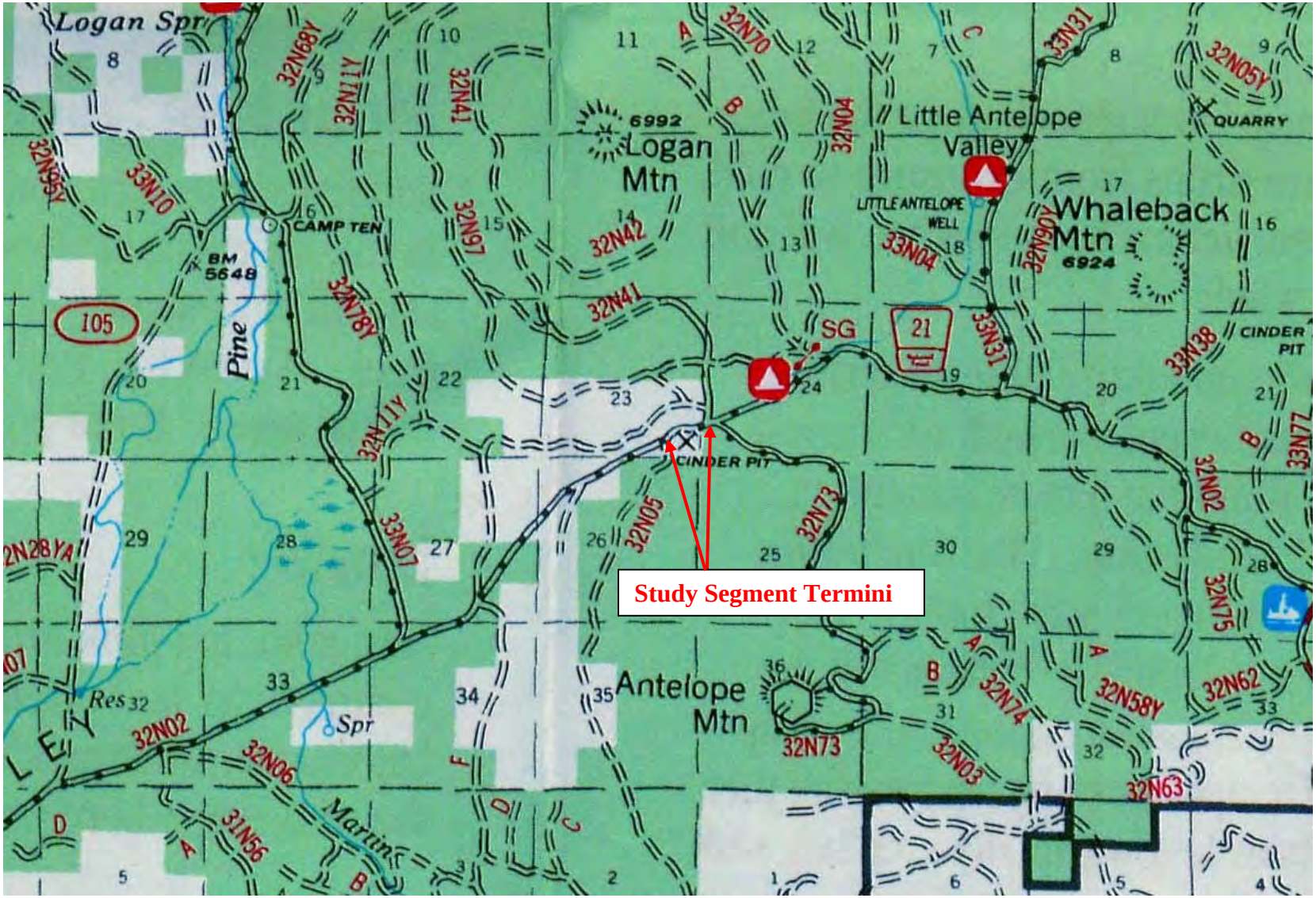


Figure 1: Map of road segments analyzed.

Figure 2: Intersection with NFSR 32N05 (right) and the study segment.

Figure 3: Curve within the study segment.

Figure 4: Straightaway within the study segment.

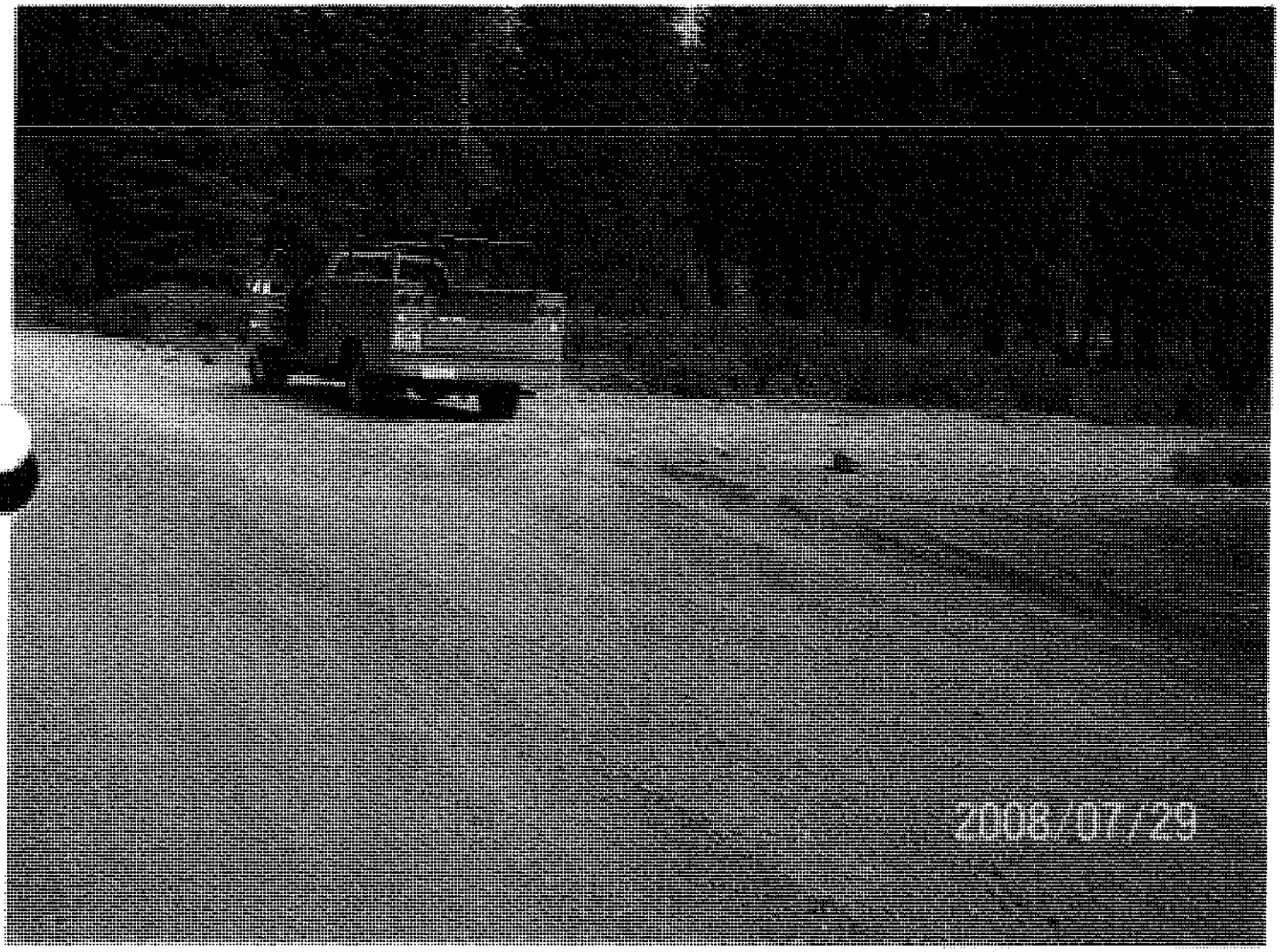
Figure 5: Passenger car vehicle sticker.

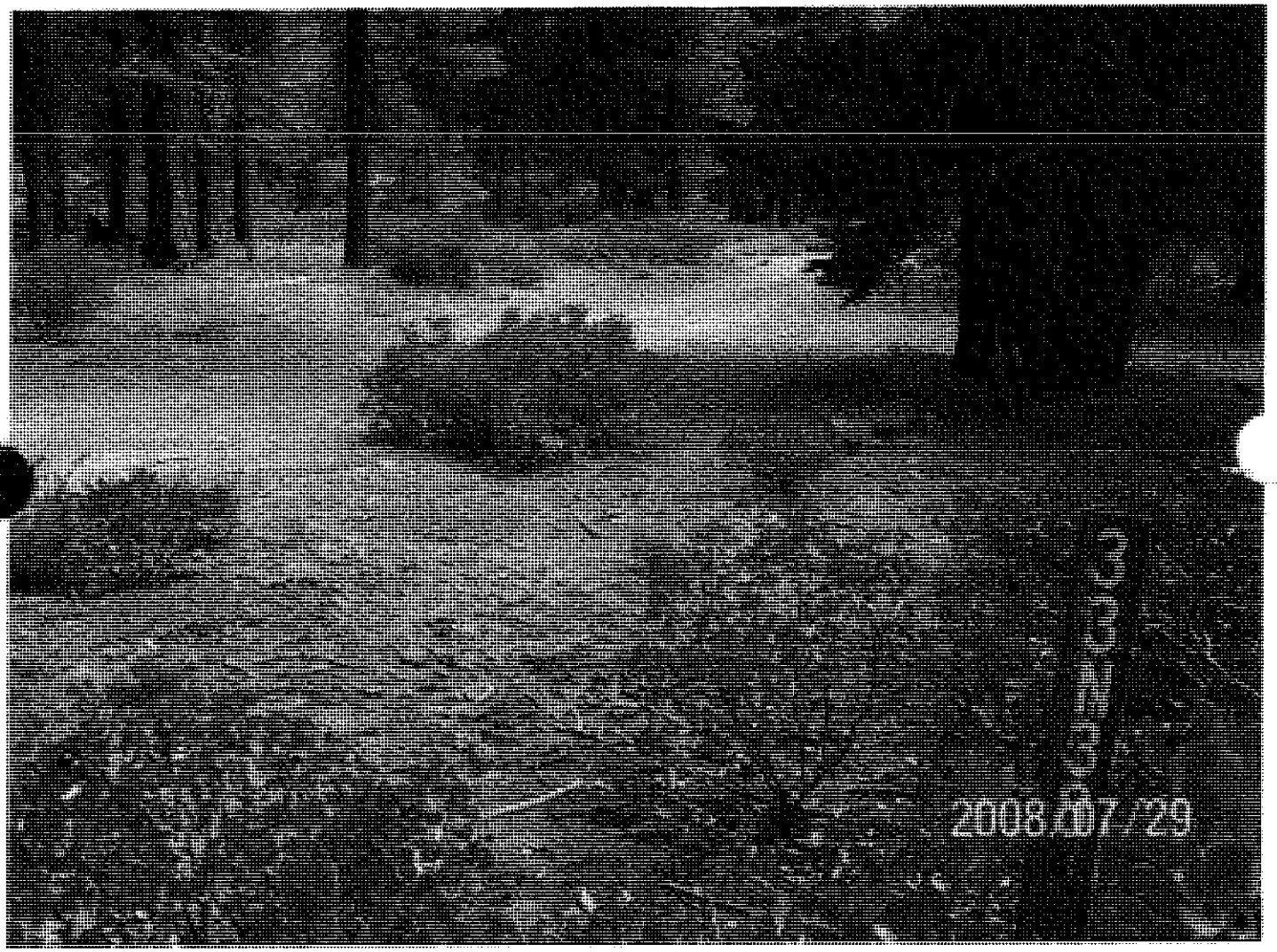
Figure 6: Intersection with NFSR 32N73 (left) and the study segment (ahead).

Prepared by:
Chris Bielecki, Supervisory Civil Engineer

Maps & Photos:

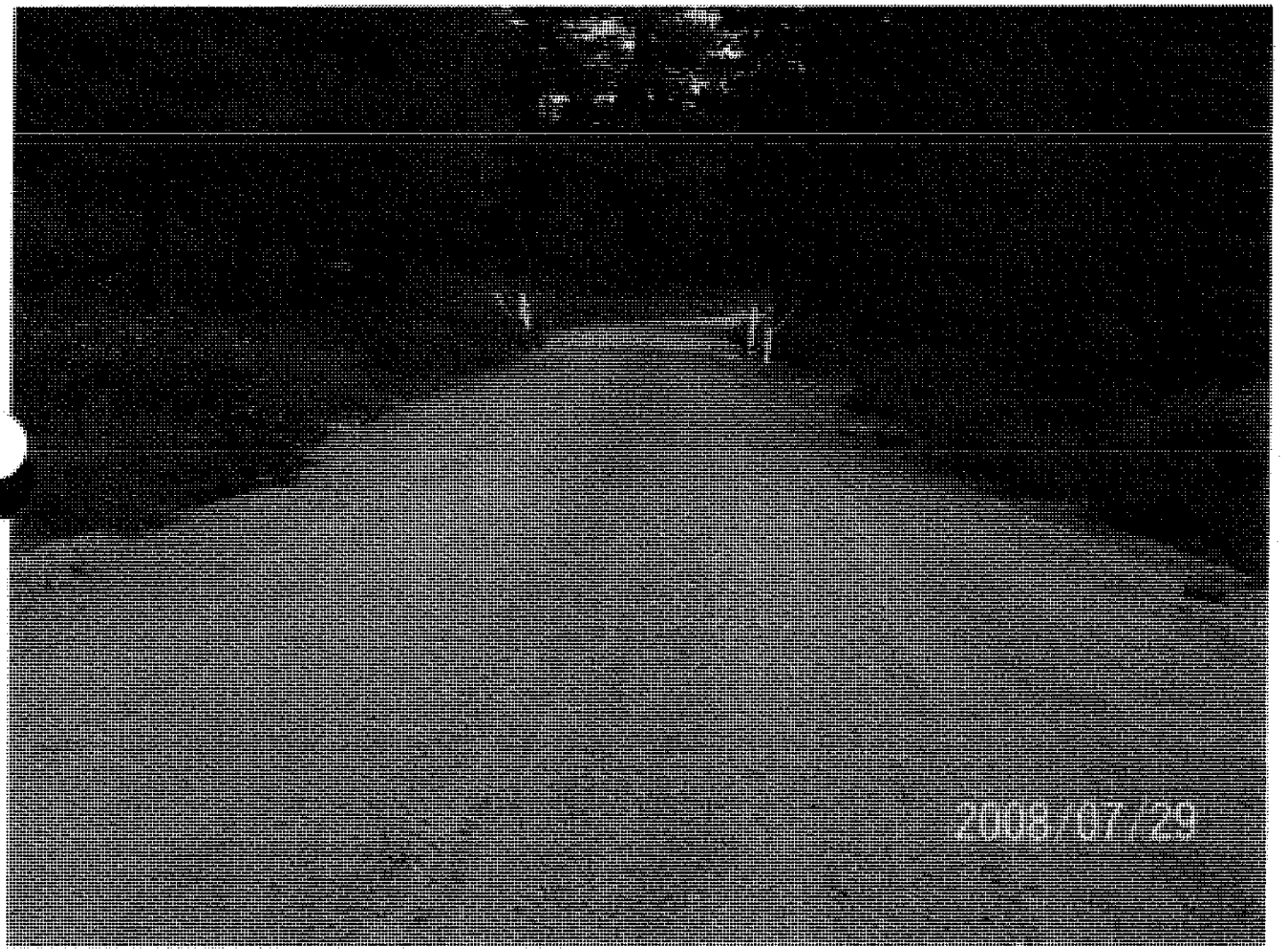

21
National
Forest
2008/07/29


2008/07/29

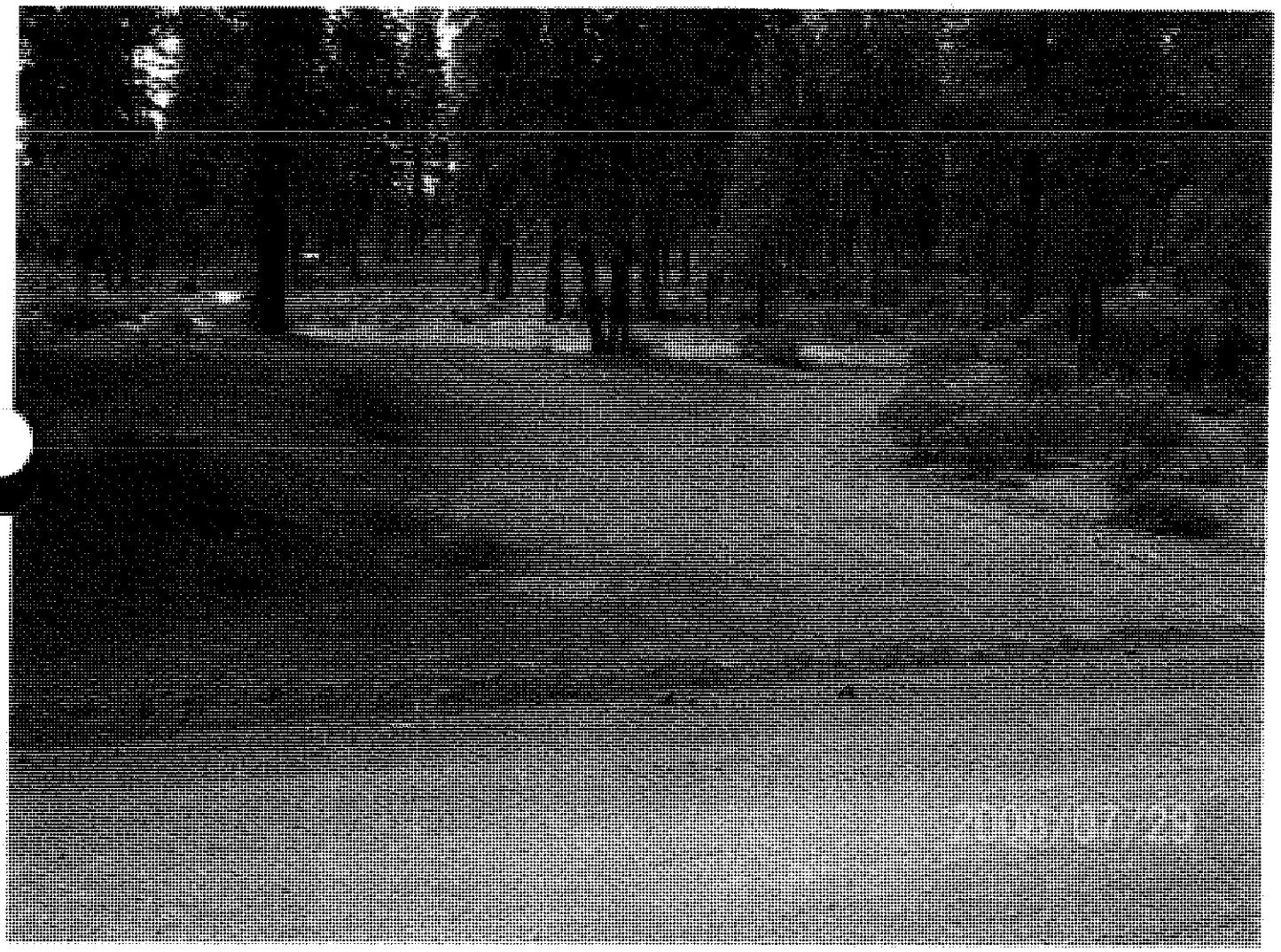

2008/07/29


2008/07/29

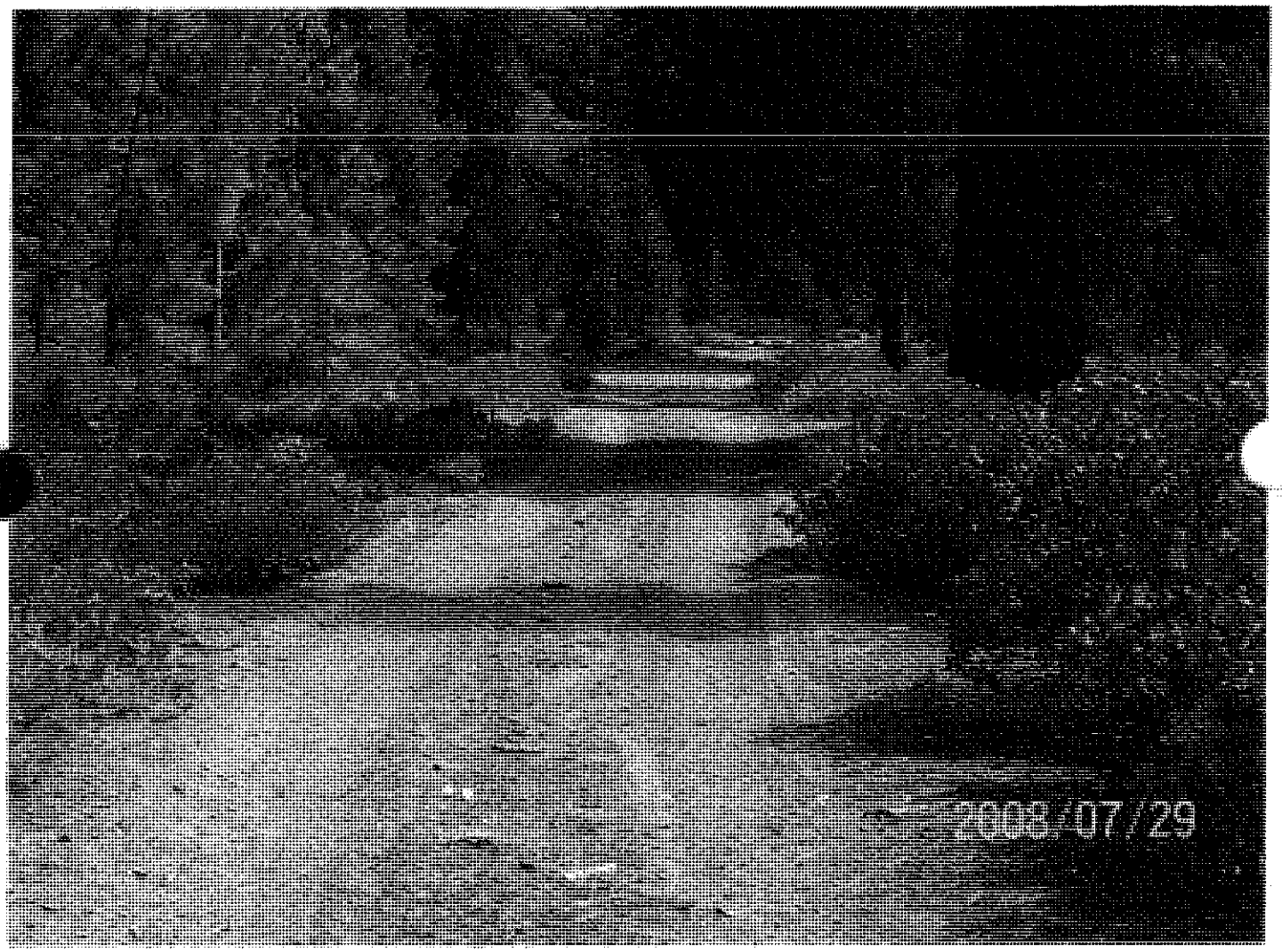

21
National
Forest
2008/07/29

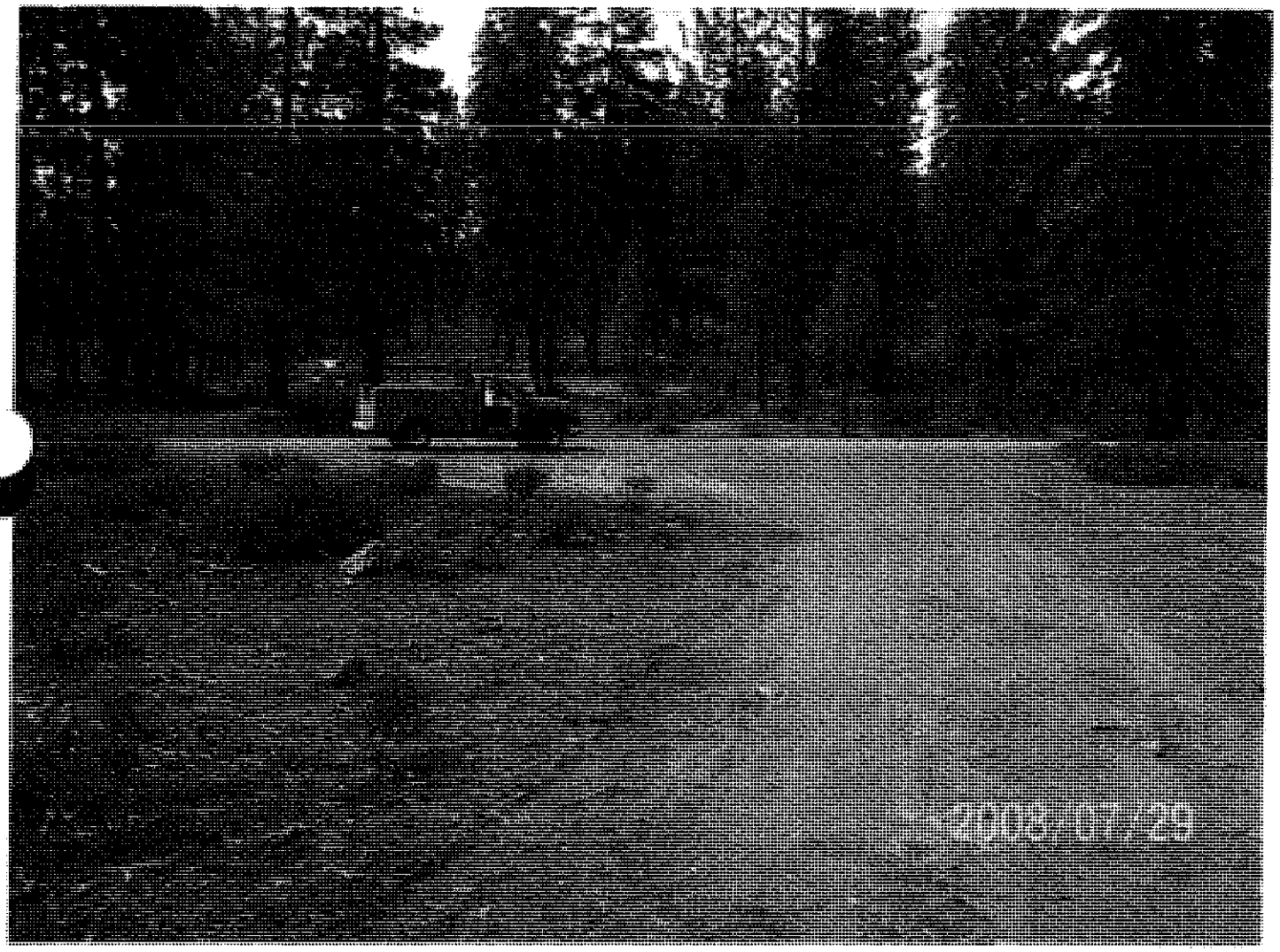

2008/07/29


2008/07/29



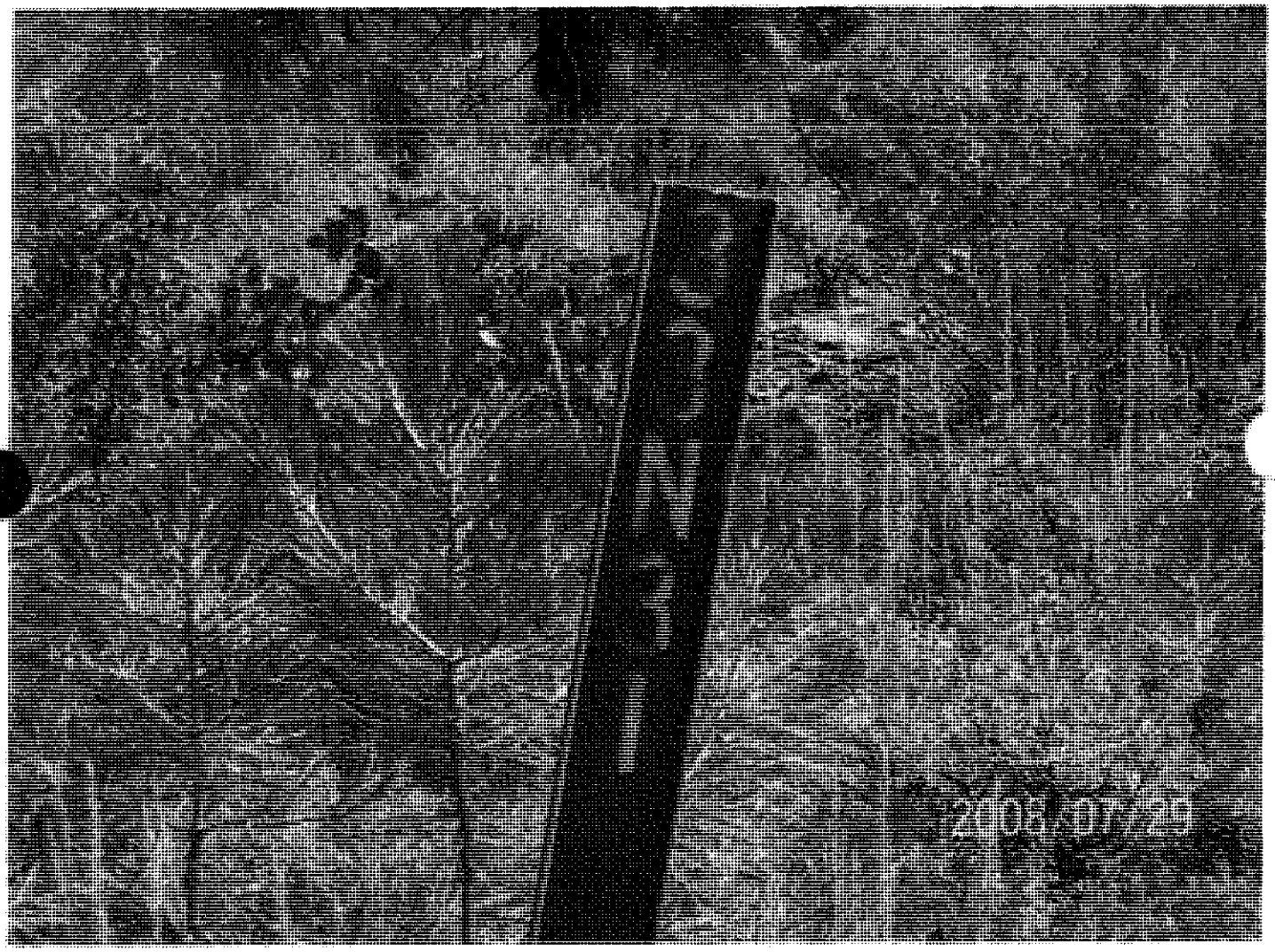
N
O
Y
2008/07/29

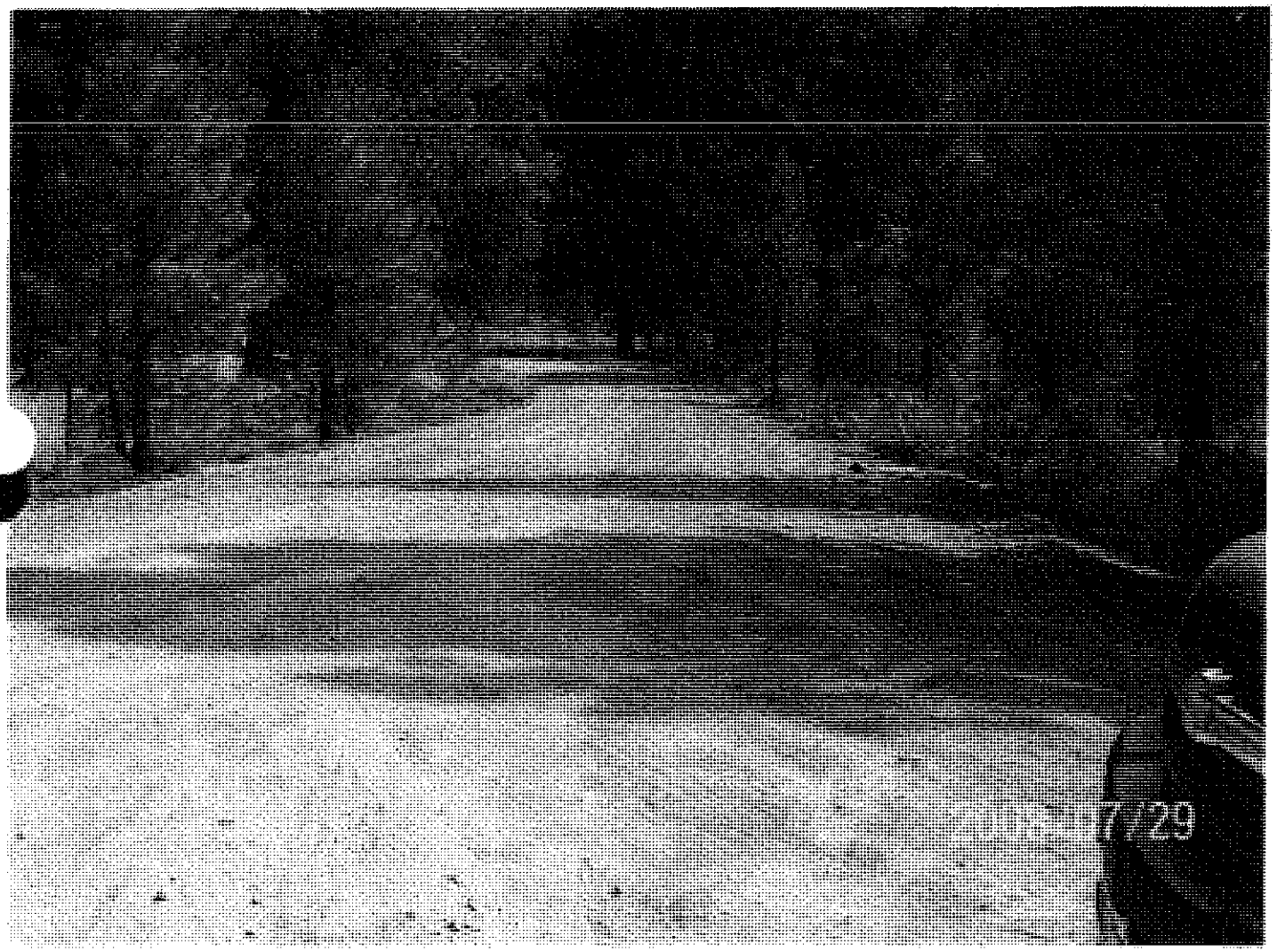

2008/07/29


2006/07/28


21
National
Forest
2008/07/29


ANTELOPE LOOKOUT
HIGHWAY 14
LITTLE ANTELOPE NEAR
PRISON SPRINGS
2008/07/29


2008/07/29


7/29

Prepared by
Tim Dedrick

Forest Transportation Planner/Civil Engineer
Lassen National Forest

Date 9/29/05

Reviewed by
George Kulick

Date

Region 5 Qualified Engineer
Region 5 Office of Engineering

Engineering Report:

Lassen National Forest

Eagle Lake Ranger District

Analysis of

National Forest System Road (NFSR)

32N08

for Motorized Mixed Use Designation

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

Road Number: **32N08** Road Name: **Crater Lake C G Access**

Introduction: The 32N08 Road segment studied is located on the west side of Lassen National Forest (LNF) in the Pine Creek Valley quadrangle.

NFSR 32N08 ML3 begins at the intersection with State Highway 44 in Section 33 of said quadrangle and trends north and east up the flanks of Crater Mountain to the Crater Mtn. Campground. The portion of road length studied is approximately 0.5 miles.

The segment starts at approximate road mile 0.00 at the intersection with State Highway 44 and intersects with 32N23 for a distance of approximately 0.50 miles to road mile post 1.00.

This 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 32N08 / 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: **0.00** Ending Mile Post: **0.50**

State Hwy 44 to 32N23

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 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 possession of a valid driver's license.

Based on the Forest Service Directives and Travel Management purpose and need, to allow all motor vehicles on this segment with a designation of motorized mixed use for a segment or segments with a cumulative distance of 3 miles or less could be consistent with state and federal laws and directives with appropriate mitigation for safety concerns.

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

Road 32N08 / ML3 currently encourages use as an objective ML3 and operational ML3 collector road and functions as a forest highway connecting the State Highway 44 to the Hat Creek Ranger District, tree seed plantations, and defensible fuel profile zones.

This forest highway connects to all weather asphalt surfaced State highway and provides ingress and egress to a myriad of defensible fuel profile zones – DFPZ's, forest plan units for timber harvesting, and wildlife management areas.

32N08 is utilized by forest personnel for ingress and egress to Defensible Fuel Profile Zones – DFPZ's and their associated vegetation management and fire suppression functions, for wildlife management, and for recreation access to a forest destination.

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 accordance with the Highway Safety Act.

The proposed use for these two segments of 32N08 / 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 mitigation measures, especially improved road / safety signing and comprehensive public education / outreach, will reduce crash probability.

Road mitigation should include implementing a comprehensive communication, management, and enforcement plan. Associated implementation costs will depend on the designated allowed use for the road.

NFSR road 32N08 is an observed 1+ lane operational maintenance level 3 standard throughout its extent.

The road is maintained to a standard allowing efficient passenger car through traffic at speeds up to 40 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. Crash severity is determined by the dynamics of a vehicles speed or combined speeds, mass, and configurations.

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.
- 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 32N08 appears to be consistent with state law and forest policy for operational maintenance level 3 roads.

2. Crash history:

There are no reported motor 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)

3 civilian motor vehicles were observed along the 32N08 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: 40 mph.

5. Road surface type:

The road has a combination of native crushed rock aggregate and red volcanic cinder surfacing. The majority of the traveled way is constructed upon a raised roadbed and the road has drainage ditches, singular culverts, and ditch-relief culverts. The road is approximately 16'-20' wide. The road traveled way is very dry and contains many fine aggregate components and produces prodigious quantities of dust when driven over. Road shoulders are soft and unconsolidated.

6. Intersections with other roads and trails:

Road segment 1 intersects with the following forest road.

- 32N23

The maintenance level 2 roads have historically provided forest management access, fire suppression access, commodity haul, forest grazing access, and hunting and firewood gathering access. The proposed MMU intersections of 32N08 /ML3 may result in higher traffic merging speeds.

7. Other roadway factors:

- Roadway alignment was adequate for the assigned maintenance level. Alignment provides for vehicle closing speeds of approximately 80 mph.
- The road was maintained with a traveled way width of 16'-20".
- Raised roadbed creates soft unconsolidated shoulders. Emergency vehicle run-out among numerous lava rocks, Juniper trees, Pine trees, and brush may lead to loss of control for vehicle operators and/or collisions with immobile objects.
- The road provides administrative access for commodity haul, fire prevention patrol access, fire suppression access, wildlife management. Summer and fall seasons will experience peak use, winter and spring can bring snowy and icy conditions.

8. Roadside conditions:

- The segment runs through high elevation, 5,000 ft., open Pine forest, open Juniper, brush, native grass and lava rock forest land.
- Cross slope is 0-2%.
- Grade is 0-2%.
- Pine and Juniper trees are $\leq$18" and numerous lava ejecta rocks.
- 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.).
- Improved route identification and safety 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 road-parallel 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", 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:

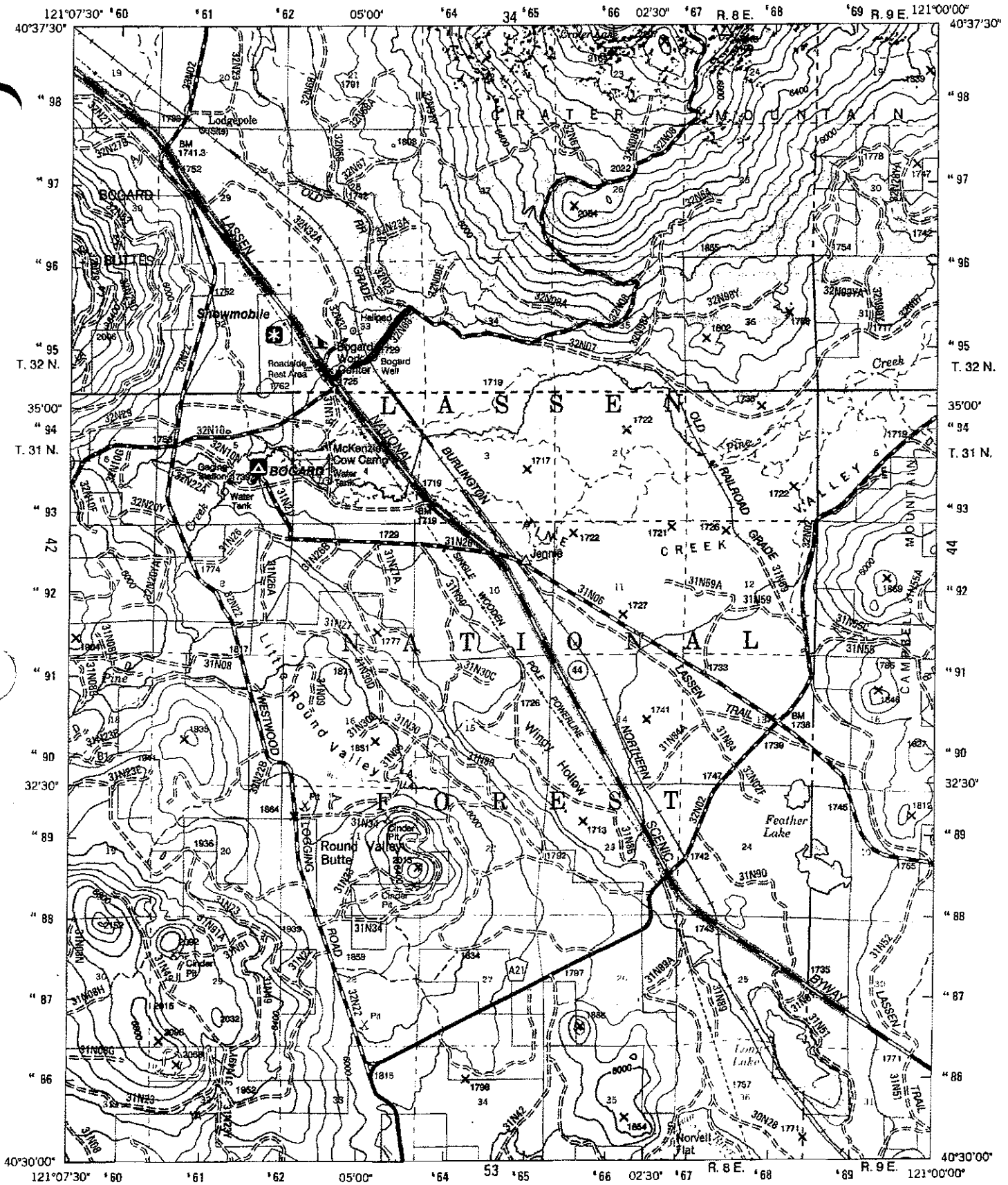
Tim Dedrick August 26, 2009

Prepared by Tim Dedrick
Lassen NF Civil Engineer

Date

George Kulick
Region 5 Qualified Engineer

Date



Produced by the U.S. Geological Survey
Revised by the U.S. Forest Service
Areas outside the National Forest System lands may not have been revised.
Control by USGS and NOS/NOAA
Compiled from aerial photographs taken 1980. Revised from aerial photographs taken 1991 and 1993. Partial field check by U.S. Forest Service 1995.
North American Datum of 1927 (NAD 27). Projection: California coordinate system, zone 1 (Lambert Conformal Conic).
National Forest System lands. Revised 1997.

This map is not a legal land line or ownership document. Public lands are subject to change and leasing, and may have access restrictions; check with local offices. Obtain permission before entering private lands.

Engineering Report:

Lassen National Forest

Eagle Lake Ranger District

Analysis of

National Forest System Road (NFSR)

32N09

#32N09A

for Motorized Mixed Use Designation

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

Road Number: **32N09/A** Road Name: **Bogard Buttes/Cone Lake**

Introduction: The 32N09/A Road segments studied are located on the west side of Lassen National Forest (LNF) in the Bogard Buttes quadrangle.

NFSR 32N09 ML3 begins at the intersection with 32N10 in Section 14 of said quadrangle and trends west by north along the northern flanks of the four Bogard Buttes, meanders past Lost Spring and Pole Springs in the Prospect Peak quadrangle and within ¼ mile of the northern boundary of the Lassen Volcanic National Park, then intersects with a terminus at 32N21, the Butte Lake Campground Road. The approximate road length is approximately 6.0 miles.

Segment 1 (32N09) starts at approximate road mile 1.00 at the intersection with 32N10 and intersects with 32N09A and 32N09A1 for a distance of approximately 1.00 miles.

Segment 2 (32N09A) starts at the intersection with 32N09 and intersects with 32N09A1 for a distance of approximately 0.25 miles.

These roads are 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 32N09 / 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: **1.00** Ending Mile Post: **2.00**

32N10 to 32N09A

Traffic Service Level: ☐ A ☐ B ☒ C ☐ D

Objective Maintenance Level: ☐ 1 ☐ 2 ☒ 3 ☐ 4 ☐ 5

Operational Maintenance Level: ☐ 1 ☐ 2 ☒ 3 ☐ 4 ☐ 5

Segment 2: Beginning Mile Post: **0.00** Ending Mile Post: **0.25**

32N09 to 32N09A1

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 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 possession of a valid driver's license.

Based on the Forest Service Directives and Travel Management purpose and need, to allow all motor vehicles on this segment with a designation of motorized mixed use for a segment or segments with a cumulative distance of 3 miles or less could be consistent with state and federal laws and directives with appropriate mitigation for safety concerns.

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

Road 32N09/A / ML3 currently encourages use as an objective ML3 and operational ML3 collector road and functions as a forest highway connecting the 32N10 road to the Hat Creek Ranger District, tree seed plantations, and defensible fuel profile zones.

These forest highways connects to all weather asphalt surfaced State Highway 44 via 32N21 the Butte Lake Campground road and provides ingress and egress to a myriad of defensible fuel profile zones – DFPZ's, forest plan units for timber harvesting, and wildlife management areas.

32N09 is utilized by forest personnel for ingress and egress to Defensible Fuel Profile Zones – DFPZ's and their associated vegetation management and fire suppression functions, for wildlife management, and for recreation access to a forest destination, Butte Lake Campground.

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

accordance with the Highway Safety Act.

The proposed use for this segment of 32N09/A / 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 mitigation measures, especially improved road / safety signing and comprehensive public education / outreach, will reduce crash probability.

Road mitigation should include implementing a comprehensive communication, management, and enforcement plan. Associated implementation costs will depend on the designated allowed use for the road.

NFSR road 32N09/A are an observed 1+ lane operational maintenance level 3 standard throughout its extent.

The road is maintained to a standard allowing efficient passenger car through traffic at speeds up to 40 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. Crash severity is determined by the dynamics of a vehicles speed or combined speeds, mass, and configurations.

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. These roads are 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.
- 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 a licensed 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 32N09/A appears to be consistent with state law and forest policy for operational maintenance level 3 roads.

2. Crash history:

There are no reported motor vehicle crashes on these roads.

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)

2 civilian motor vehicles were observed along the 32N09 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: 40 mph.

5. Road surface type:

The road has a combination of native crushed rock aggregate and volcanic cinder surfacing. The majority of the traveled way is constructed upon a raised roadbed and the road has drainage ditches, singular culverts, and ditch-relief culverts. The road is approximately 16'-20' wide. The road traveled way is very dry and contains many fine aggregate components and produces prodigious quantities of dust when driven over. Road shoulders are soft and unconsolidated.

6. Intersections with other roads and trails:

Road segment 1 intersects with the following forest roads.

- 31N83
- 32N60
- 32N09L
- 32N09A
- 32N09A1

Road segment 2 intersects with the following forest roads.

- 32N09
- 32N09A1

The maintenance level 2 roads have historically provided forest management access, fire suppression access, commodity haul, forest grazing access, and hunting and firewood gathering access. The proposed MMU intersections of 32N09 /ML3 may result in higher traffic merging speeds.

7. Other roadway factors:

- Roadway alignment was adequate for the assigned maintenance level. Alignment provides for vehicle closing speeds of approximately 80 mph.
- The road was maintained with a traveled way width of 16'-20".
- Raised roadbed creates soft unconsolidated shoulders. Emergency vehicle run-out among numerous lava rocks, Juniper trees, mixed conifer trees, and brush may lead to loss of control for vehicle operators and/or collisions with immobile objects.
- The road provides administrative access for commodity haul, fire prevention patrol access, fire suppression access, wildlife management,

and recreation. Summer and fall seasons will experience peak use, winter and spring can bring snowy and icy conditions.

8. Roadside conditions:

- The segments run through high elevation, 5,000 ft., open conifer forest, open Juniper, brush, native grass and lava rock forest land.
- Cross slope is 0-2%.
- Grade is 0-2%.
- Pine and Juniper trees are ≤18" and numerous lava ejecta rocks.
- 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.).
- Improved route identification and safety 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 road-parallel 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", 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:

Tim Dedrick July 29, 2009

Prepared by Tim Dedrick
Lassen NF Civil Engineer

Date

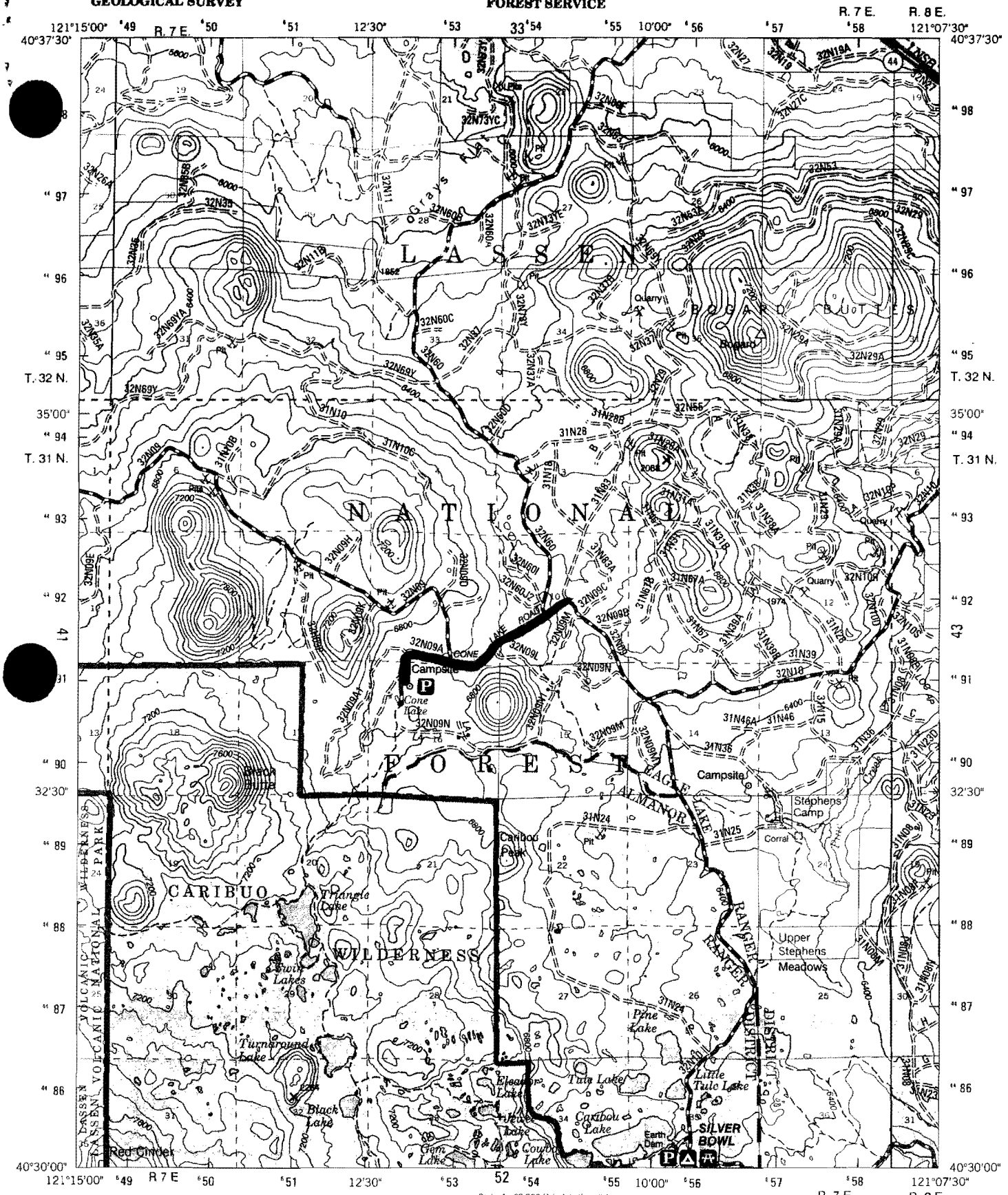
George Kulick
Region 5 Qualified Engineer

Date

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

UNITED STATES
DEPARTMENT OF AGRICULTURE
FOREST SERVICE

BOGARD BUTTES, CA
43 40121-E2 1999



Produced by the U.S. Geological Survey
Revised by the U.S. Forest Service
Areas outside the National Forest System lands may not have been revised.
Control by USGS and NOS/NOAA
Compiled from aerial photographs taken 1980. Revised from aerial photographs taken 1991 and 1993. Partial field check by U.S. Forest Service 1995.
North American Datum of 1927 (NAD 27). Projection: California coordinate system, zone 1 (Lambert Conformal Conic)

National Forest System lands. Revised 1997.

This map is not a legal land line or ownership document. Public lands are subject to change and leasing, and may have access restrictions; check with local offices. Obtain permission before entering private lands.

Engineering Report:

Lassen National Forest

Eagle Lake Ranger District

Analysis of

National Forest System Road (NFSR)

32N10

for Motorized Mixed Use Designation

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

Road Number: **32N10** Road Name: **Robbers Spring DR 10**

Introduction: The 32N10 Road segment studied is located on the west side of Lassen National Forest (LNF) in the Pine Creek Valley quadrangle.

NFSR 32N10 DR10 ML4 begins at the intersection with State Highway 44 in Section 33 of said quadrangle and trends south and west to the beginning of the Bogard Buttes, then turns due south to Silver Lake in the Bogard Buttes quadrangle, thence into the Red Cinder quadrangle and runs by Betty Lake and Shotoverin Lake before running south again and by Echo Lake and along Bailey Creek and into the Chester quadrangle where the road continues south along the east flank of Manzanita Mountain, thence to an intersection at its terminus with County Road A13. The road length is approximately 30 miles.

The segment studied starts at road mile 0.00 in Section 33 of Pine Creek Valley quadrangle at the intersection with State Highway 44 and intersects with an unauthorized route for a distance of approximately 0.50 miles to road mile post 0.50.

This 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 32N10 / ML4. 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: **0.50**

State Hwy 44 to unauthorized route

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 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 possession of a valid driver's license.

Based on the Forest Service Directives and Travel Management purpose and need, to allow all motor vehicles on this segment with a designation of motorized mixed use for a segment or segments with a cumulative distance of 3 miles or less could be consistent with state and federal laws and directives with appropriate mitigation for safety concerns.

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

Road 32N10 / ML4 currently encourages use as an objective ML4 and operational ML4 collector road and functions as a forest highway connecting the State Highway 44 to the Hat Creek Ranger District, tree seed plantations, defensible fuel profile zones, and multiple recreation destinations.

This forest highway connects to all weather asphalt surfaced State highway and provides ingress and egress to a myriad of defensible fuel profile zones – DFPZ's, forest plan units for timber harvesting, and wildlife management areas.

32N10 is utilized by forest personnel for ingress and egress to Defensible Fuel Profile Zones – DFPZ's and their associated vegetation management and fire suppression functions, for wildlife management, and for recreation access to several forest destinations.

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 accordance with the Highway Safety Act.

The proposed use for these two segments of 32N10 / ML4 identified in this analysis is to authorize motorized mixed vehicle class use. The proposal is to utilize the ML4 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 mitigation measures, especially improved road / safety signing and comprehensive public education / outreach, will reduce crash probability although road alignment and associated higher closing speeds will continue to affect crash severity.

Road mitigation should include implementing a comprehensive communication, management, and enforcement plan. Associated implementation costs will depend on the designated allowed use for the road.

NFSR road 32N10 is an observed 1+ lane operational maintenance level 4 standard throughout its extent.

The road is maintained to a standard allowing efficient passenger car through traffic at speeds up to 40 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. Crash severity is determined by the dynamics of a vehicles speed or combined speeds, mass, and configurations.

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 ML4 and an operational ML4. 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 4, and the operational level is a ML4. 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.
- 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 32N10 appears to be consistent with state law and forest policy for operational maintenance level 3 roads.

2. Crash history:

There are two reported motor vehicle crashes on this road as of July 16, 2003.

Accident No. 1 - Two vehicles trailing eachother, one backtracked and they ran into eachother head-on.

Accident No. 2 – an ATV left the roadway.

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)

5 civilian motor vehicles were observed along the 32N10 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: 45 mph.

5. Road surface type:

The road has a combination of native crushed rock aggregate and red volcanic cinder surfacing. The majority of the traveled way is constructed upon a raised roadbed and the road has drainage ditches, singular culverts, and ditch-relief culverts. The road is approximately 16'-20' wide. The road traveled way is very dry and contains many fine aggregate components and produces prodigious quantities of dust when driven over. Road shoulders are soft and unconsolidated.

6. Intersections with other roads and trails:

Road segment 1 intersects with the following forest road.

- 31N19
- Unauthorized Route

The maintenance level 2 roads have historically provided forest management access, fire suppression access, commodity haul, forest grazing access, and hunting and firewood gathering access. The proposed MMU intersections of 32N10 /ML4 may result in higher traffic merging speeds.

7. Other roadway factors:

- Roadway alignment was adequate for the assigned maintenance level. Alignment provides for vehicle closing speeds of approximately 90 mph.
- The road was maintained with a traveled way width of 16'-20".
- Raised roadbed creates soft unconsolidated shoulders. Emergency vehicle run-out among numerous lava rocks, Juniper trees, Pine trees, and brush may lead to loss of control for vehicle operators and/or collisions with immobile objects.
- The road provides administrative access for commodity haul, fire prevention patrol access, fire suppression access, wildlife management. Summer and fall seasons will experience peak use, winter and spring can bring snowy and icy conditions.

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 0-1%.
- Grade is 0-1%.
- Pine and Juniper trees are ≤18" and numerous lava ejecta rocks.
- 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.).
- Improved route identification and safety 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 road-parallel 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", 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:

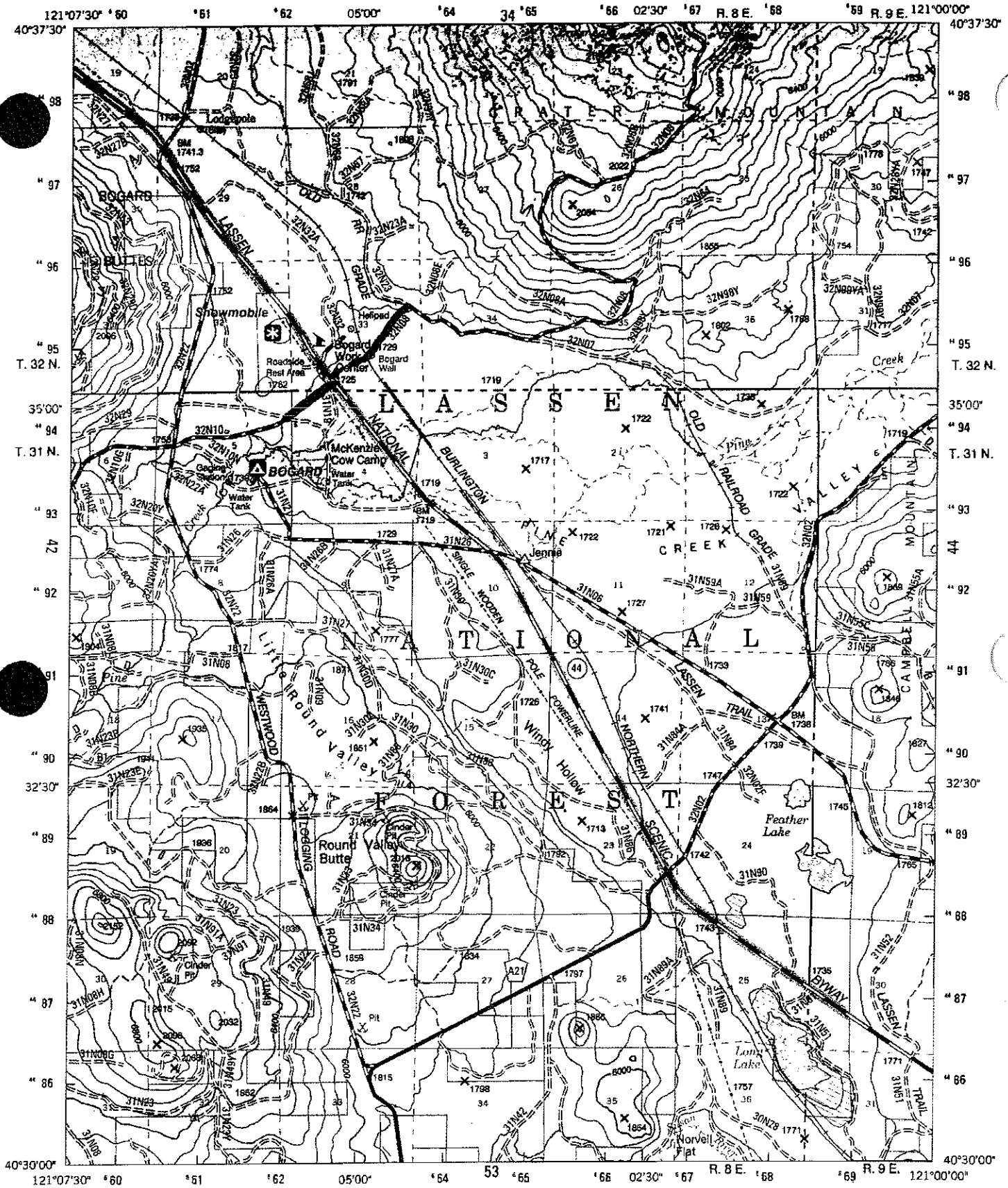
Tim Dedrick July 29, 2009

Prepared by Tim Dedrick
Lassen NF Civil Engineer

Date

George Kulick
Region 5 Qualified Engineer

Date



Produced by the U.S. Geological Survey
Revised by the U.S. Forest Service
[illegible]s outside the National Forest System lands may not have been revised.
[illegible]ol by USGS and NOS/NOAA
[illegible]ted from aerial photographs taken 1980. Revised from aerial [illegible]tographs taken 1991 and 1993. Partial field check by U.S. Forest Service 1995.
North American Datum of 1927 (NAD 27). Projection: California coordinate system, zone 1 (Lambert Conformal Conic).

National Forest System lands. Revised 1997.

This map is not a legal land line or ownership document. Public lands are subject to change and leasing, and may have access restrictions; check with local offices. Obtain permission before entering private lands.

Santana - ATV Accident - 10 Road June 30, 2003

Engineering Report:

Lassen National Forest

Eagle Lake Ranger District

Analysis of

National Forest System Road (NFSR)

32N21

for Motorized Mixed Use Designation

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

Road Number: **32N21** Road Name: **Butte Lake Road**

Introduction: The 32N21 Road segment studied is located on the west side of Lassen National Forest (LNF) in the Pine Creek Valley quadrangle.

NFSR 32N21 ML3 begins at the intersection with State Highway 44 in Section 11 of the Swains Hole quadrangle and trends south to and through the boundary of the Lassen Volcanic National Park and to the Buttle Lake Campground. The road length is approximately 5 miles.

The segment studied starts at approximate road mile 3.00 in Section 27 of Prospect Peak quadrangle at the intersection with 32N92Y and intersects with 32N61 for a distance of approximately 0.50 miles to road mile post 3.50.

This 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 32N21 / 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: **3.00** Ending Mile Post: **3.50**

32N92Y to 32N61

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 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 possession of a valid driver's license.

Based on the Forest Service Directives and Travel Management purpose and need, to allow all motor vehicles on this segment with a designation of motorized mixed use for a segment or segments with a cumulative distance of 3 miles or less could be consistent with state and federal laws and directives with appropriate mitigation for safety concerns.

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

Road 32N21 / ML3 currently encourages use as an objective ML3 and operational ML3 collector road and functions as a forest highway connecting the State Highway 44 to the Hat Creek Ranger District, tree seed plantations, defensible fuel profile zones, and multiple recreation destinations.

This forest highway connects to all weather asphalt surfaced State highway and provides ingress and egress to a myriad of defensible fuel profile zones – DFPZ's, forest plan units for timber harvesting, and wildlife management areas.

32N21 is utilized by forest personnel for ingress and egress to Defensible Fuel Profile Zones – DFPZ's and their associated vegetation management and fire suppression functions, for wildlife management, and for recreation access to several forest destinations.

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 accordance with the Highway Safety Act.

The proposed use for these two segments of 32N21 / 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 mitigation measures, especially improved road / safety signing and comprehensive public education / outreach, will reduce crash probability although road alignment and associated higher closing speeds will continue to affect crash severity.

Road mitigation should include implementing a comprehensive communication, management, and enforcement plan. Associated implementation costs will depend on the designated allowed use for the road.

NFSR road 32N21 is an observed 1+ lane operational maintenance level 3 standard throughout its extent.

The road is maintained to a standard allowing efficient passenger car through traffic at speeds up to 40 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. Crash severity is determined by the dynamics of a vehicles speed or combined speeds, mass, and configurations.

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.
- 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 32N21 appears to be consistent with state law and forest policy for operational maintenance level 3 roads.

2. Crash history:

There are no reported motor 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)

7 civilian motor vehicles were observed along the 32N21 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: 40 mph.

5. Road surface type:

The road has a combination of native crushed rock aggregate and volcanic cinder surfacing. The majority of the traveled way is constructed upon a raised roadbed and the road has drainage ditches, singular culverts, and ditch-relief culverts. The road is approximately 16'-20' wide. The road traveled way is very dry and contains many fine aggregate components and produces prodigious quantities of dust when driven over. Road shoulders are soft and unconsolidated.

6. Intersections with other roads and trails:

Road segment 1 intersects with the following forest road.

- 32N92Y
- 32N61

The maintenance level 2 roads have historically provided forest management access, fire suppression access, commodity haul, forest grazing access, and hunting and firewood gathering access. The proposed MMU intersections of 32N21 /ML3 may result in higher traffic merging speeds.

7. Other roadway factors:

- Roadway alignment was adequate for the assigned maintenance level. Alignment provides for vehicle closing speeds of approximately 90 mph.
- The road was maintained with a traveled way width of 16'-20".
- Raised roadbed creates soft unconsolidated shoulders. Emergency vehicle run-out among numerous lava rocks, Juniper trees, Pine trees, and brush may lead to loss of control for vehicle operators and/or collisions with immobile objects.
- The road provides administrative access for commodity haul, fire prevention patrol access, fire suppression access, wildlife management. Summer and fall seasons will experience peak use, winter and spring can bring snowy and icy conditions.

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 0-1%.
- Grade is 0-1%.
- Pine and Juniper trees are $\leq$18" and numerous lava ejecta rocks.
- 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.).
- Improved route identification and safety 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 road-parallel 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", 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:

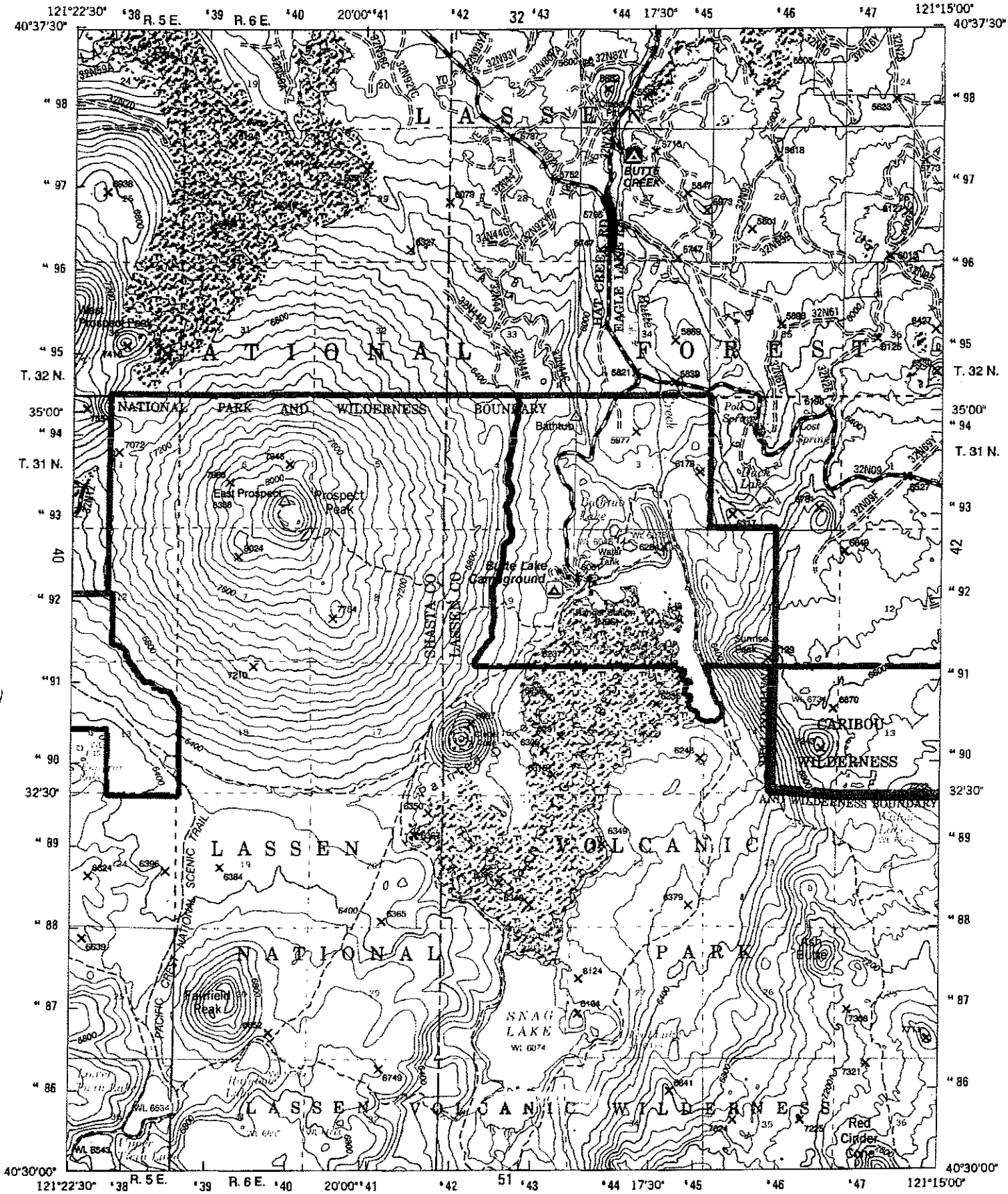
Signing on national forest system roads should conform to the standards presented in the FS sign and poster guidelines (available @ http://fsweb.wo.fs.fed.us/eng/roads_trails/signs_05/index.htm).

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:



Scale 1 : 63,360 (1 inch to the mile)

1 .5 0 1 Miles

1000 0 5000 10 000 Feet

Contour Interval 80 Feet

Produced by the U.S. Geological Survey
Revised by the U.S. Forest Service

Areas outside the National Forest System lands may not have been revised.

Control by USGS and NOS/NOAA

Compiled from aerial photographs taken 1980. Revised from aerial photographs taken 1993. Partial field check by U.S. Forest Service 1995.

North American Datum of 1927 (NAD 27). Projection: California coordinate system, zone 1 (Lambert Conformal Conic).

National Forest System lands Revised 1997.

This map is not a legal land line or ownership document. Public lands are subject to change and leasing, and may have access restrictions; check with local offices. Obtain permission before entering private lands.

MN GN 1°05' 19 MILS 16° 293 MILS

UTM GRID AND 1997 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

1 Old Station
2 Swains Hole
3 Poison Lake
4 West Prospect Peak
5 Bogard Buttes
6 Reading Peak
7 Mount Harkness
8 Red Cinder

ADJOINING 7.5' QUADRANGLES

HIGHWAYS AND ROADS

395 U.S.
139 State
11 County
30 National Forest
Gate

Primary Highway
Secondary Highway
Improved Road, Paved
Improved Road, Gravel
Improved Road, Dirt
Composition Unspecified
Unimproved Road
OHV 4 Wheel Drive Road
National Recreation Trail
Trail

Tim Dedrick July 29, 2009

Prepared by Tim Dedrick
Lassen NF Civil Engineer

Date

George Kulick
Region 5 Qualified Engineer

Date

Engineering Report:

Lassen National Forest

Eagle Lake Ranger District

Analysis of

National Forest System Road (NFSR)

32N22

for Motorized Mixed Use Designation

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

Road Number: **32N22** Road Name: **Westwood Logging Road**

Introduction: The 32N22 Road segment studied is located on the west side of Lassen National Forest (LNF) in the Pine Creek Valley quadrangle.

NFSR 32N22 ML3 begins at the intersection with State Highway 44 in Section 29 of said quadrangle and trends south and east to the intersection with County Road A21. The road length is approximately 8 miles.

The segment studied starts at road mile 0.00 in Section 33 of Pine Creek Valley quadrangle at the intersection with State Highway 44 and intersects with an unauthorized route for a distance of approximately 0.25 miles to road mile post 1.50.

This 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 32N22 / 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: **1.50**

32N53 to unauthorized route

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 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 possession of a valid driver's license.

Based on the Forest Service Directives and Travel Management purpose and need, to allow all motor vehicles on this segment with a designation of motorized mixed use for a segment or segments with a cumulative distance of 3 miles or less could be consistent with state and federal laws and directives with appropriate mitigation for safety concerns.

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

Road 32N22 / ML3 currently encourages use as an objective ML3 and operational ML3 collector road and functions as a forest highway connecting the State Highway 44 to the Hat Creek Ranger District, tree seed plantations, defensible fuel profile zones, and multiple recreation destinations.

This forest highway connects to all weather asphalt surfaced State highway and provides ingress and egress to a myriad of defensible fuel profile zones – DFPZ's, forest plan units for timber harvesting, and wildlife management areas.

32N22 is utilized by forest personnel for ingress and egress to Defensible Fuel Profile Zones – DFPZ's and their associated vegetation management and fire suppression functions, for wildlife management, and for recreation access to several forest destinations.

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 accordance with the Highway Safety Act.

The proposed use for these two segments of 32N22 / 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 mitigation measures, especially improved road / safety signing and comprehensive public education / outreach, will reduce crash probability although road alignment and associated higher closing speeds will continue to affect crash severity.

Road mitigation should include implementing a comprehensive communication, management, and enforcement plan. Associated implementation costs will depend on the designated allowed use for the road.

NFSR road 32N22 is an observed 1+ lane operational maintenance level 3 standard throughout its extent.

The road is maintained to a standard allowing efficient passenger car through traffic at speeds up to 40 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. Crash severity is determined by the dynamics of a vehicles speed or combined speeds, mass, and configurations.

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.
- 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 32N22 appears to be consistent with state law and forest policy for operational maintenance level 3 roads.

2. Crash history:

There are no reported motor 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)

3 civilian motor vehicles were observed along the 32N22 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: 40 mph.

5. Road surface type:

The road has a combination of native crushed rock aggregate and red volcanic cinder surfacing. The majority of the traveled way is constructed upon a raised roadbed and the road has drainage ditches, singular culverts, and ditch-relief culverts. The road is approximately 16'-20' wide. The road traveled way is very dry and contains many fine aggregate components and produces prodigious quantities of dust when driven over. Road shoulders are soft and unconsolidated.

6. Intersections with other roads and trails:

Road segment 1 intersects with the following forest road.

- 32N53
- Unauthorized Route

The maintenance level 2 roads have historically provided forest management access, fire suppression access, commodity haul, forest grazing access, and hunting and firewood gathering access. The proposed MMU intersections of 32N22 /ML3 may result in higher traffic merging speeds.

7. Other roadway factors:

- Roadway alignment was adequate for the assigned maintenance level. Alignment provides for vehicle closing speeds of approximately 90 mph.
- The road was maintained with a traveled way width of 16'-20".
- Raised roadbed creates soft unconsolidated shoulders. Emergency vehicle run-out among numerous lava rocks, Juniper trees, Pine trees, and brush may lead to loss of control for vehicle operators and/or collisions with immobile objects.
- The road provides administrative access for commodity haul, fire prevention patrol access, fire suppression access, wildlife management. Summer and fall seasons will experience peak use, winter and spring can bring snowy and icy conditions.

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 0-1%.
- Grade is 0-1%.
- Pine and Juniper trees are ≤18" and numerous lava ejecta rocks.
- 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.).
- Improved route identification and safety 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 road-parallel 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", 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:

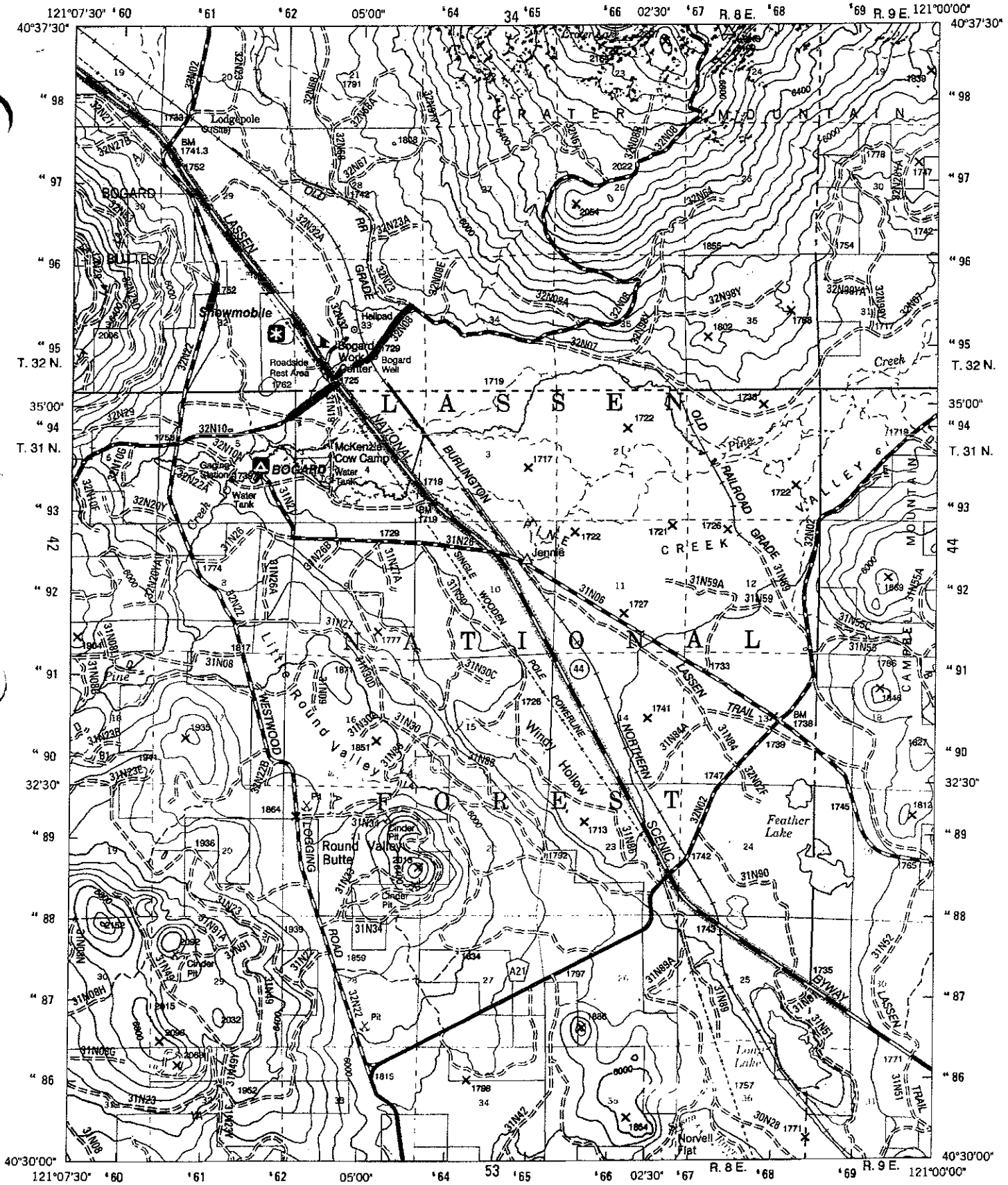
Signing on national forest system roads should conform to the standards presented in the FS sign and poster guidelines (available @ http://fsweb.wo.fs.fed.us/eng/roads_trails/signs_05/index.htm).

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:



Produced by the U.S. Geological Survey
Revised by the U.S. Forest Service
Areas outside the National Forest System lands may not have been revised.
Control by USGS and NOS/NOAA
Compiled from aerial photographs taken 1980. Revised from aerial photographs taken 1991 and 1993. Partial field check by U.S. Forest Service 1995.
North American Datum of 1927 (NAD 27). Projection: California coordinate system, zone 1 (Lambert Conformal Conic).

National Forest System lands. Revised 1997.

This map is not a legal land line or ownership document. Public lands are subject to change and leasing, and may have access restrictions; check with local offices. Obtain permission before entering private lands.

Tim Dedrick August 26, 2009

Prepared by Tim Dedrick
Lassen NF Civil Engineer

Date

George Kulick
Region 5 Qualified Engineer

Date

Engineering Report:

Lassen National Forest

Eagle Lake Ranger District

Analysis of

National Forest System Road (NFSR)

32N60

for Motorized Mixed Use Designation

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

Road Number: **32N60** Road Name: **Grays Flat Road**

Introduction: The 32N60 Road segment studied is located on the west side of Lassen National Forest (LNF) in the Pine Creek Valley quadrangle.

NFSR 32N60 ML3 begins at the intersection with State Highway 44 in Section 14 of the Poison Lake quadrangle and trends south and to the west, enters the Bogard Buttes quadrangle, then trends south again to an intersection with 32N09 and the beginning of the Bogard Buttes. The road length is approximately 7.5 miles in length.

The first segment studied starts at approximate road mile 1.50 in Section 22 of Bogard Buttes quadrangle at the intersection with 32N73Y and intersects with 32N73YE for a distance of approximately 1.00 miles to approx. road mile 2.50.

The second segment studied starts at approximate road mile 4.00 in Section 33 of said quadrangle at the intersection of 32N11 and intersects with 32N69Y and 32N37 for a distance of approximately 0.50 miles to approx. road mile 4.50.

This 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 32N60 / 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: **1.50** Ending Mile Post: **2.50**

32N73Y to 32N73YE

Traffic Service Level: ☐ A ☐ B ☒ C ☐ D

Objective Maintenance Level: ☐ 1 ☐ 2 ☒ 3 ☐ 4 ☐ 5

Operational Maintenance Level: ☐ 1 ☐ 2 ☒ 3 ☐ 4 ☐ 5

Segment 2: Beginning Mile Post: **4.00** Ending Mile Post: **4.50**

32N11 to 32N69Y/32N37

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 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 possession of a valid driver's license.

Based on the Forest Service Directives and Travel Management purpose and need, to allow all motor vehicles on this segment with a designation of motorized mixed use for a segment or segments with a cumulative distance of 3 miles or less could be consistent with state and federal laws and directives with appropriate mitigation for safety concerns.

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

Road 32N60 / ML3 currently encourages use as an objective ML3 and operational ML3 collector road and functions as a forest highway connecting the State Highway 44 to the Hat Creek Ranger District, tree seed plantations, defensible fuel profile zones, and multiple recreation destinations.

This forest highway connects to all weather asphalt surfaced State highway and provides ingress and egress to a myriad of defensible fuel profile zones – DFPZ's, forest plan units for timber harvesting, and wildlife management areas.

32N60 is utilized by forest personnel for ingress and egress to Defensible Fuel Profile Zones – DFPZ's and their associated vegetation management and fire suppression functions, for wildlife management, and for recreation access to several forest destinations.

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 accordance with the Highway Safety Act.

The proposed use for these two segments of 32N60 / 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 mitigation measures, especially improved road / safety signing and comprehensive public education / outreach, will reduce crash probability although road alignment and associated higher closing speeds will continue to affect crash severity.

Road mitigation should include implementing a comprehensive communication, management, and enforcement plan. Associated implementation costs will

depend on the designated allowed use for the road.

NFSR road 32N60 is an observed 1+ lane operational maintenance level 3 standard throughout its extent.

The road is maintained to a standard allowing efficient passenger car through traffic at speeds up to 40 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. Crash severity is determined by the dynamics of a vehicles speed or combined speeds, mass, and configurations.

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.
- 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 32N60 appears to be consistent with state law and forest policy for operational maintenance level 3 roads.

2. Crash history:

There are no reported motor 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)

2 civilian motor vehicles were observed along the 32N60 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: 40 mph.

5. Road surface type:

The road has a combination of native crushed rock aggregate and volcanic cinder surfacing. The majority of the traveled way is constructed upon a raised roadbed and the road has drainage ditches, singular culverts, and ditch-relief culverts. The road is approximately 16'-20' wide. The road traveled way is very dry and contains many fine aggregate components and produces prodigious quantities of dust when driven over. Road shoulders are soft and unconsolidated.

6. Intersections with other roads and trails:

Road segment 1 intersects with the following forest road.

- 32N73Y
- 32N60F
- 32N53
- 32N73YE

Road segment 2 intersects with the following forest road.

- 32N11
- 32N60C
- 32N69Y
- 32N37

The maintenance level 2 roads have historically provided forest management access, fire suppression access, commodity haul, forest grazing access, and hunting and firewood gathering access. The proposed MMU intersections of 32N60 /ML3 may result in higher traffic merging speeds.

7. Other roadway factors:

- Roadway alignment was adequate for the assigned maintenance level. Alignment provides for vehicle closing speeds of approximately 90 mph.
- The road was maintained with a traveled way width of 16'-20".
- Raised roadbed creates soft unconsolidated shoulders. Emergency

vehicle run-out among numerous lava rocks, Juniper trees, Pine trees, and brush may lead to loss of control for vehicle operators and/or collisions with immobile objects.

- The road provides administrative access for commodity haul, fire prevention patrol access, fire suppression access, wildlife management. Summer and fall seasons will experience peak use, winter and spring can bring snowy and icy conditions.

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 0-1%.
- Grade is 0-1%.
- Pine and Juniper trees are ≤18" and numerous lava ejecta rocks.
- 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.).
- Improved route identification and safety 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 road-parallel 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", 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 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 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/).

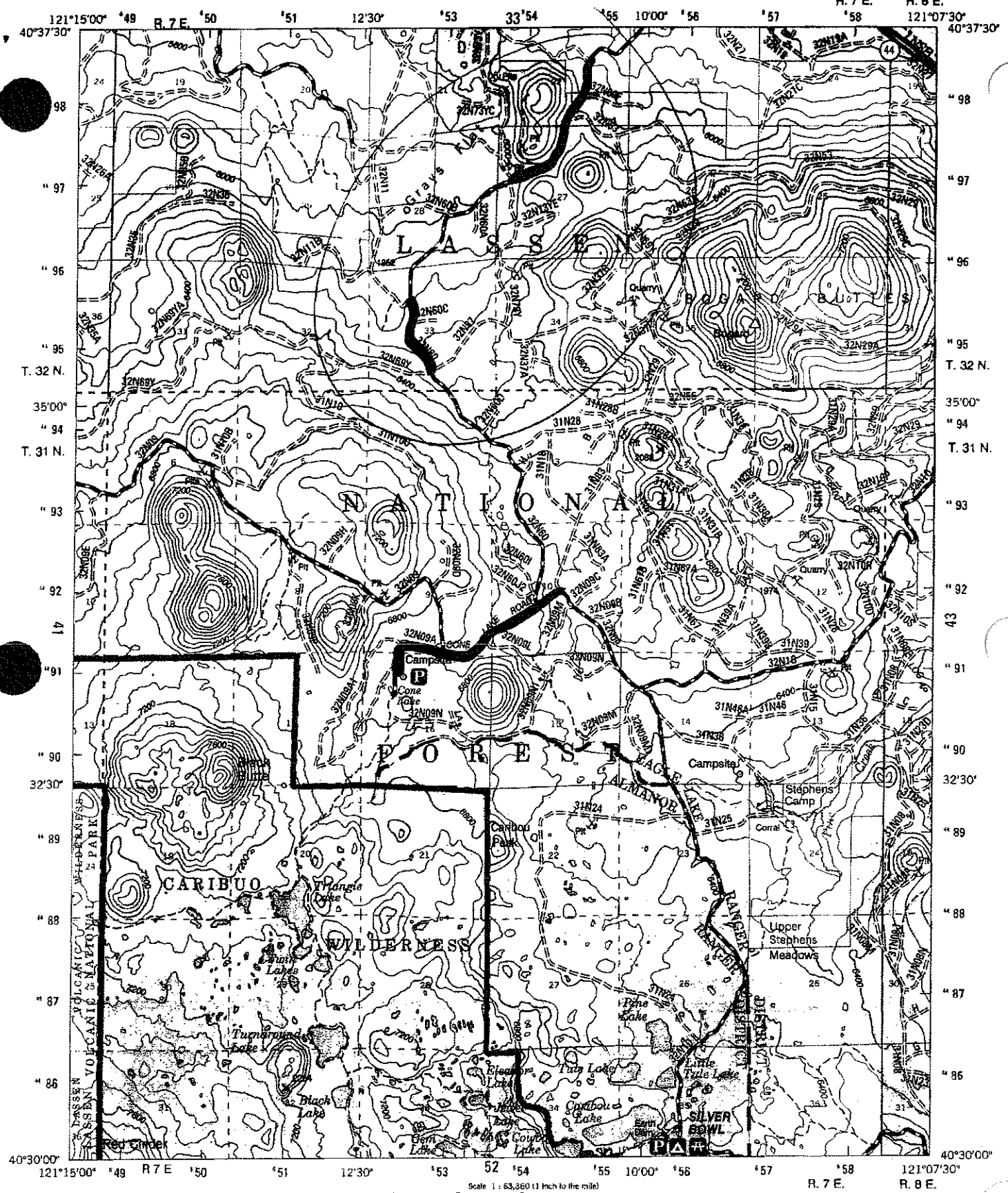
According to the Sign and Poster Guidelines for the Forest Service (2005):

> 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:



Produced by the U.S. Geological Survey
Revised by the U.S. Forest Service
Areas outside the National Forest System lands may not have been revised.
Control by USGS and NOS/NOAA
Compiled from aerial photographs taken 1980. Revised from aerial photographs taken 1991 and 1993. Partial field check by U.S. Forest Service 1995.
North American Datum of 1927 (NAD 27). Projection: California coordinate system, zone 1 (Lambert Conformal Conic).
National Forest System lands. Revised 1997.
This map is not a legal land line or ownership document. Public lands are subject to change and leasing, and may have access restrictions; check with local offices. Obtain permission before entering private lands.

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

Eagle Lake Ranger District

Analysis of

National Forest System Road (NFSR)

32N73

for Motorized Mixed Use Designation

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

Road Number: **32N73** Road Name: **Antelope Mountain Lookout Road**

Introduction: The 32N73 Road segments studied are located on the east side of Lassen National Forest (LNF) in the Antelope Mountain quadrangle, on Antelope Mountain.

NFSR 32N73 begins at the intersection of DR21 33N02/ML3 in Section 24 of the Antelope Mountain quadrangle and runs southeast to the south center quarter corner of S24, then proceeds due east for a short distance and turns due south and runs one mile through the east half of S25, the road then winds its way up the east and south flanks of Antelope Mountain to it's terminus at the summit and the fire lookout facility. This road is approximately 2.5 miles in length.

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 2 segments of 32N73, from the intersection of UNE637A Unauthorized Route to UNE636 Unauthorized Route and the intersection of 32N74/ML2 to UNE636 Unauthorized Route. The

LNF Travel Analysis (June 2008) identified these road sections as connectors 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: **0.50** Ending Mile Post: **1.00**

UNE637A to UNE636

Traffic Service Level: ☐ A ☐ B ☒ C ☐ D

Objective Maintenance Level: ☐ 1 ☐ 2 ☒ 3 ☐ 4 ☐ 5

Operational Maintenance Level: ☐ 1 ☐ 2 ☒ 3 ☐ 4 ☐ 5

Segment 2: Beginning Mile Post: **1.50** Ending Mile Post: **2.50**

32N74 to UNE636

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 and operational ML3 local collector road and functions as ingress/egress access for the Antelope Mountain Fire Lookout, commodity extraction/forest management for Antelope Mountain.

Road 32N73 provides access from 33N02/ML3-4 for a short distance of approximately two and a half miles from the forest through-road, south and easterly around Antelope Mountain toe of slope and then up the southern flank of Antelope Mountain. Speeds are approximately 15-20 mph with a travel way consisting of primarily red volcanic cinder aggregate and some areas of exposed base-rock.

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 32N73/ML3 identified in this analysis is to authorize motorized mixed vehicle class use. The proposal is to utilize the ML3 road segments to connect adjacent non-system Unauthorized Routes and ML2 roads into loops 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 32N73 is an observed 1 lane objective and operational maintenance level 3 standard throughout it's extents to the summit of the mountain and the fire lookout.

The road is maintained to a standard allowing efficient passenger car through traffic at speeds up to 20 mph for reasonable and prudent drivers on straightaways. The road grade is steep with segments that are approximately 12%. The road grade and loose surface of the travel way dramatically limit vehicle adhesion to the travel way, road is steep and loose with much associated wash-boarding. Sight distance is poor with numerous tight horizontal and vertical curves. Vegetation encroaches upon travel way in many locations. 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 it's road system's adherence to maintenance levels. This road is an objective ML3 as it provides fire lookout tower access which necessitates a high level ingress/egress emergency access road.
- Topologically, the unit is a series of midlevel volcanic peaks with semi-arid open pine forests and manzanita brushfields vegetating the intervening lower elevations and mountain flanks. There is a predominance of manzanita brush covering the slopes of Antelope Mountain. The operational level of this road is classified as a 3. 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 emergency fire detection and suppression response, wildlife management, private property access, and commodity extraction.
- 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 32N73 appears to be consistent with state law and forest policy for operational maintenance level 3 roads.
- Many roads in this vicinity, including the study segment, were dry and contributed significant dust when driven over.

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 29, 2008.

4 pickup trucks were observed on this road.

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

The speed greatly varies, depending on the roadway conditions. The 85th percentile would be estimated at: 15 mph.

5. Road surface type:

The road has a predominance of red volcanic cinder aggregate surfacing, minor areas with native crushed rock, and portions of exposed base-rock. Portions of the traveled way are raised and the shoulders are soft and non-compacted. The road is approximately 12' wide. The grade is consistently steep with pitches up to 12%. New road construction requires that road grades over 8% require approval of the Regional Engineer. The steep grade and loose surface material have produced a consistent wash-boarding of the steeper pitches of the travel way. Vehicle speed and control is limited due to surface steepness, cinder material, and tight vertical and horizontal curves.

6. Intersections with other roads and trails:

The segment intersects with the following forest roads.

- 32N02/ML3-4
- UNE637A Unauthorized Route
- UNE636 Unauthorized Route
- 32N74/ML2
- 32N03/ML2

The maintenance level 2 roads have historically provided forest management access, fire suppression access, commodity access, and hunting and firewood gathering access.

The proposed MMU intersections of 32N73/ML3 may result in higher traffic merging speeds.

7. Other roadway factors:

- Substantial horizontal and 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 12+', approximately.
- Cross slope of approximately 40% in stretches of alignment.
- Grade of road is up to 12+%.
- The road provides administrative access for fire lookout access. Summer and fall seasons will experience peak use, winter and spring can bring snowy and icy conditions.

8. Roadside conditions:

- The segment runs through both open pine forest and manzanita brush.
- Cross slope is 5-40%.
- Grade is up to 12+%.
- Pine trees are ≥18", encroaching roadside manzanita, volcanic rocks.

- Emergency run-out is limited as the steep cross-slope 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.
- Remove cinder material and replace with compacted crushed rock aggregate.
- Notify the Commissioner of the California Highway Patrol and review their opinion.
- Approximate Implementation Cost: $ 50,000
- 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

0 0.5 1 Miles

Antelope Mtn

NFS Surfaced Roads or Non-NFS Jurisdiction Roads Open to Highway Legal Vehicles Only (Includes NFS Maintenance Level 3-5 Roads, State and County Roads, etc.)

Mixed Use Analysis Pending

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

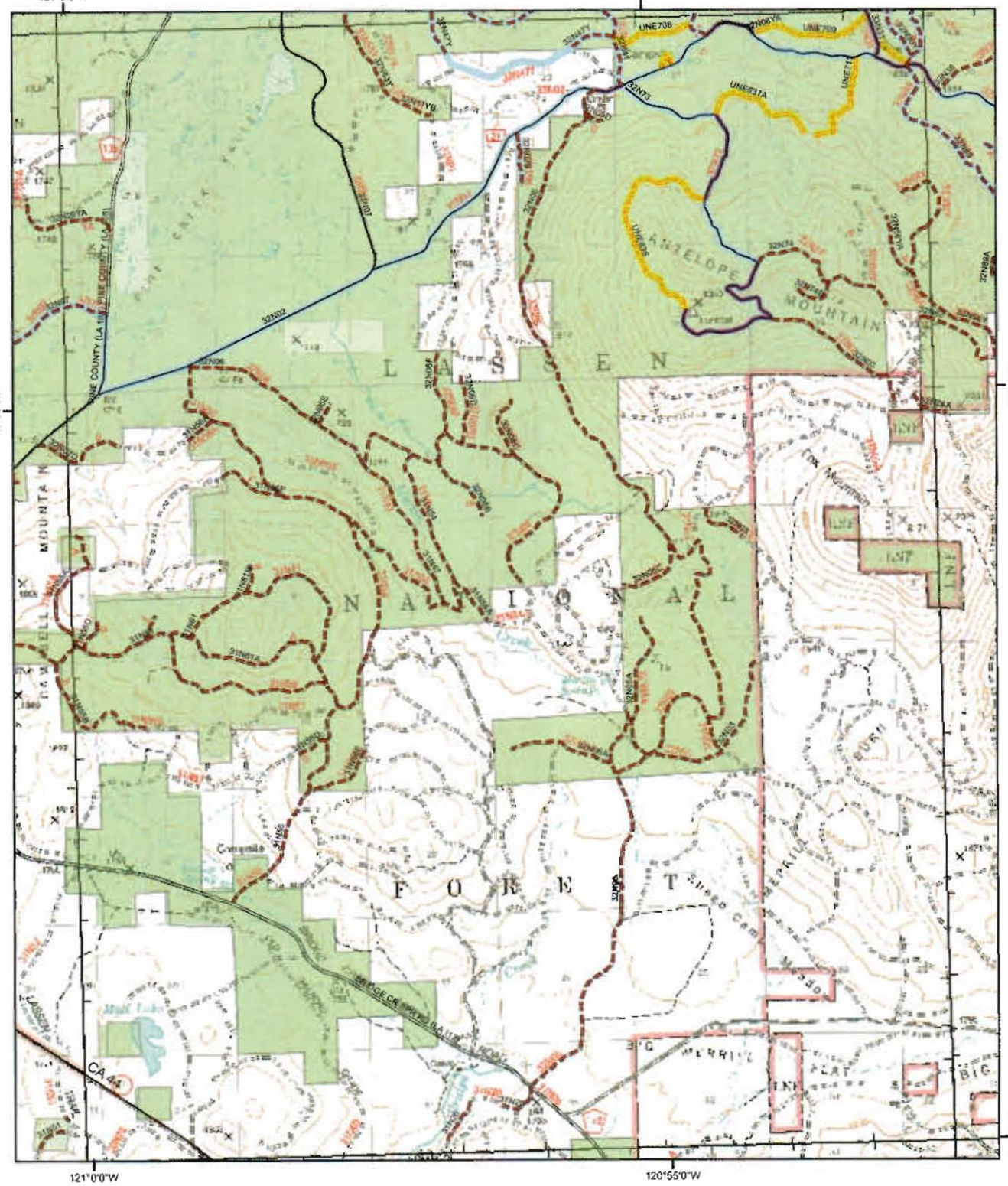
Restrict Season of Use to Summer/Fall (Winter Rec Trail)

Motor Vehicles Prohibited

Lassen National Forest

Private Land

! Areas Open to Motorized Vehicle Use



Prepared by
Tim Dedrick

Forest Transportation Planner/Civil Engineer
Lassen National Forest

Date 9/29/08

Reviewed by
George Kulick

Date

Region 5 Qualified Engineer
Region 5 Office of Engineering

Engineering Report:

Lassen National Forest

Eagle Lake Ranger District

Analysis of

National Forest System Road (NFSR)

33N02

for Motorized Mixed Use Designation

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

Road Number: **33N02** Road Name: **Harvey Mountain Road**

Introduction: The 33N02 Road segments studied are located on the east side of Lassen National Forest (LNF) in the Harvey Mountain quadrangle, on the western boundary of Harvey Valley.

NFSR 33N02 begins at State Highway 44 in Section 29 of the Bogard Buttes Quadrangle and continues into the Harvey Mountain Quadrangle due north on the western boundary of Harvey Valley, then continues north and east past Aspen Well, continues east past Dixie Springs and Burgess Springs to an intersection with NFSR 33N06/ML3 at which point the road continues north past Burgess Well then due east past Stanford Springs into the Champs Flat Quadrangle and due north to the eastern toe of slope of Ashurst Mountain. 33N02 then makes an acute change of direction at an intersection with NFSR 33N52Y/ML2, continuing to south south-east for a short distance to an intersection with NFSR 33N61/ML2, changes direction again to the north then east to a terminus at an intersection with NFSR 34N02/ML2 in Section 11 of the Champs Flat Quadrangle. Road 33N02 is approximately 14 miles in length as described above.

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 33N02, from the intersection of 33N11 to 33N04YB for Segment 1, and from 33N81 to 34N01 for Segment 2. The LNF Travel Analysis (June 2008) identified these road sections as connectors 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: **4.20** Ending Mile Post: **4.90**

35N04 to 33N04YB

Traffic Service Level: ☐ A ☐ B ☒ C ☐ D

Objective Maintenance Level: ☐ 1 ☐ 2 ☒ 3 ☐ 4 ☐ 5

Operational Maintenance Level: ☐ 1 ☐ 2 ☐ 3 ☒ 4 ☐ 5

Segment 2: Beginning Mile Post: **6.40** Ending Mile Post: **7.70**

33N81 to 34N01

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 Harvey Mountain Fire Lookout, commodity extraction/forest management for Cone Mountain, Harvey Mountain, Ashurst Mountain, and range allotments/livestock water in Harvey Valley, Burgess Meadow, Squaw Valley, and Champs Flat Meadows.

Road 33N02 provides access from State Highway 44, a two-lane all weather asphalt surfaced highway, through the middle of the Eagle Lake Ranger District as a continuous ML3-4 forest highway (with changes to and connections to 33N06 and Lassen County Road 105) with speeds up to 45 mph. This forest highway, as parts of the three roads listed herein, provides a 25 mile long critical mid-District transportation network to pine forest, rangeland, and dispersed recreation sites. This highway is utilized heavily by District personnel for fire detection, fire suppression, hazardous fuels reduction, wildlife management, livestock allotments, and recreation. At mile 25 this route connects to Lassen County Road A1 which is a two-lane all weather asphalt surfaced highway.

Road 33N02's intersection with State Highway 44 is approximately 2 miles west of the forest service Bogard Work Center which is home to the Lassen Hotshot fire crew as well as Engine xx and Water Tender xx.

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 2 segments of 33N02/ML3 identified in this analysis is to authorize motorized mixed vehicle class use. The proposal is to utilize the ML3 road segments 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 33N02 is an observed 1+ lane operational maintenance level 3+ standard to approximate road mile 8.5 where it connects/intersects with NFSR 33N06/ML3. 33N02 continues as a maintenance level 2 from this intersection to it's terminus with 34N02 at approximate road mile 14.

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 it's road system's adherence to maintenance levels. This road is an objective ML3 as it provides fire lookout tower access which necessitates a high level ingress/egress emergency access road.
- Topologically, the unit is semi-mountainous, fairly dry, and sandwiched between 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 rangeland of the Harvey Valley area to the east. The operational level of this road is classified as a 3+. 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 emergency fire detection and suppression response, wildlife management in conjunction with the State Game Refuge, commodity extraction, forest management, rangeland allotments, and dispersed recreation.
- 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 33N02 appears to be consistent with state law and forest policy for operational maintenance level 3 roads.
- Many roads in this vicinity, including the study segment, were dry and contributed significant dust when driven over.

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.

No vehicles observed.

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

The speed greatly varies, depending on the roadway conditions. The 85th percentile would be estimated at: 25 mph.

5. Road surface type:

The road has a combination of crushed rock aggregate and red volcanic cinder aggregate surfacing. Portions of the traveled way are raised and the shoulders are soft and non-compacted. The road is approximately 16' wide. The surface appeared well-maintained.

6. Intersections with other roads and trails:

Segment 1 intersects with the following forest roads.

- 33N11/ML2
- 33N04YB/ML2

Segment 2 intersects with the following forest roads.

- 33N81/ML2
- 33N97/ML2
- 35N04/ML3
- 34N01/ML2

The maintenance level 2 roads have historically provided forest management access, fire suppression access, commodity 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 horizontal and 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 fire lookout access. 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 0-6%.
- Grade is 0-2%.
- Pine trees are ≥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:

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

0 0.5 1 Miles

Bogard Buttes

NFS Surfaced Roads or Non-NFS Jurisdiction Roads Open to Highway Legal Vehicles Only (Includes NFS Maintenance Level 3-5 Roads, State and County Roads, etc.)

Mixed Use Analysis Pending

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

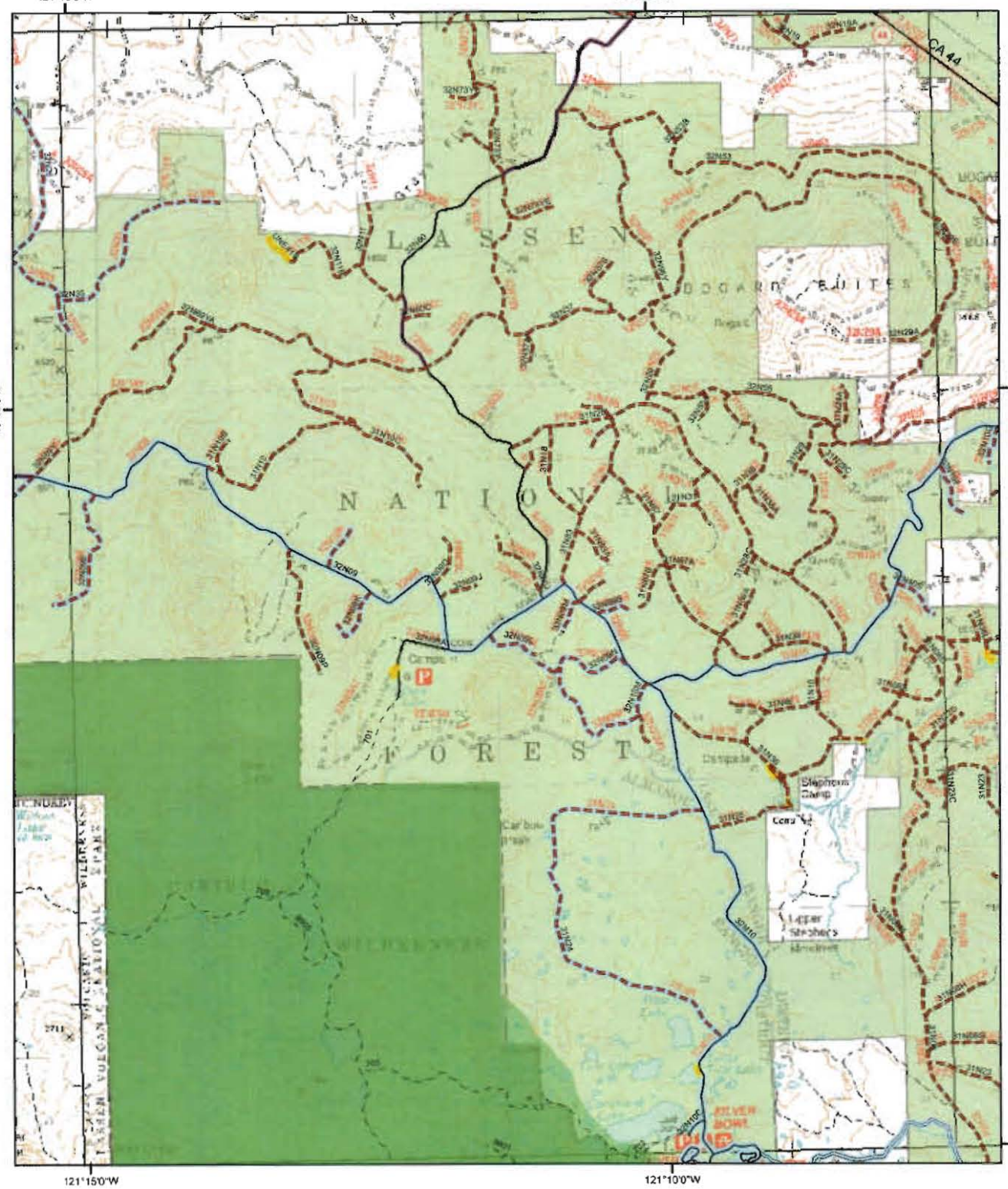
Restrict Season of Use to Summer/Fall (Winter Rec Trail)

Motor Vehicles Prohibited

Lassen National Forest

Private Land

Areas Open to Motorized Vehicle Use



May 2008 DRAFT

Alternative 5
(Motorized Emphasis)
Travel Management
Lassen National Forest

0 0.5 1 Miles

Harvey Mtn

NFS Surfaced Roads or Non-NFS Jurisdiction Roads Open to Highway Legal Vehicles Only (Includes NFS Maintenance Level 3-5 Roads State and County Roads, etc.)

Mixed Use Analysis Pending

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

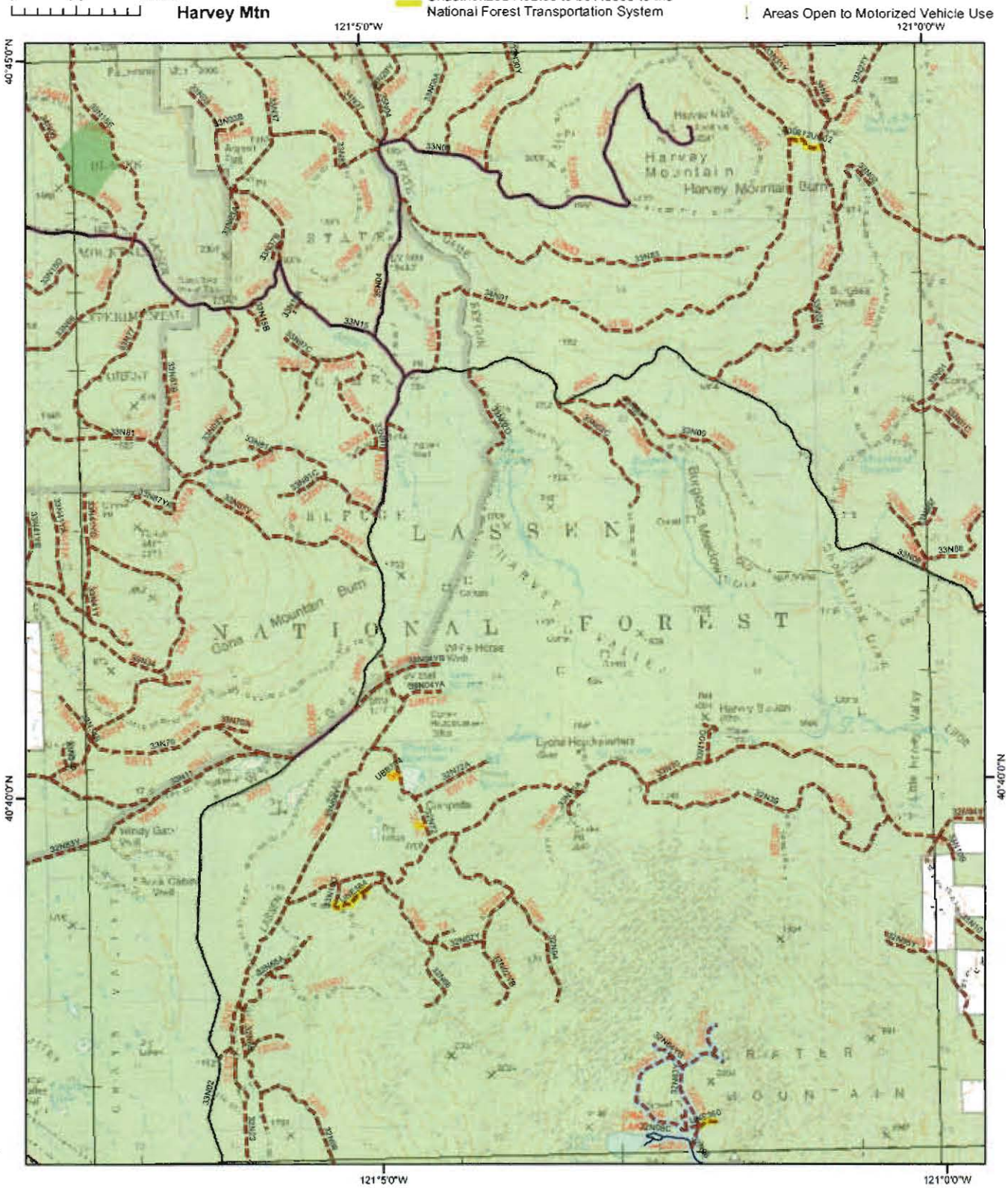
Restrict Season of Use to Summer/Fall (Winter Rec Trail)

Motor Vehicles Prohibited

Lassen National Forest

Private Land

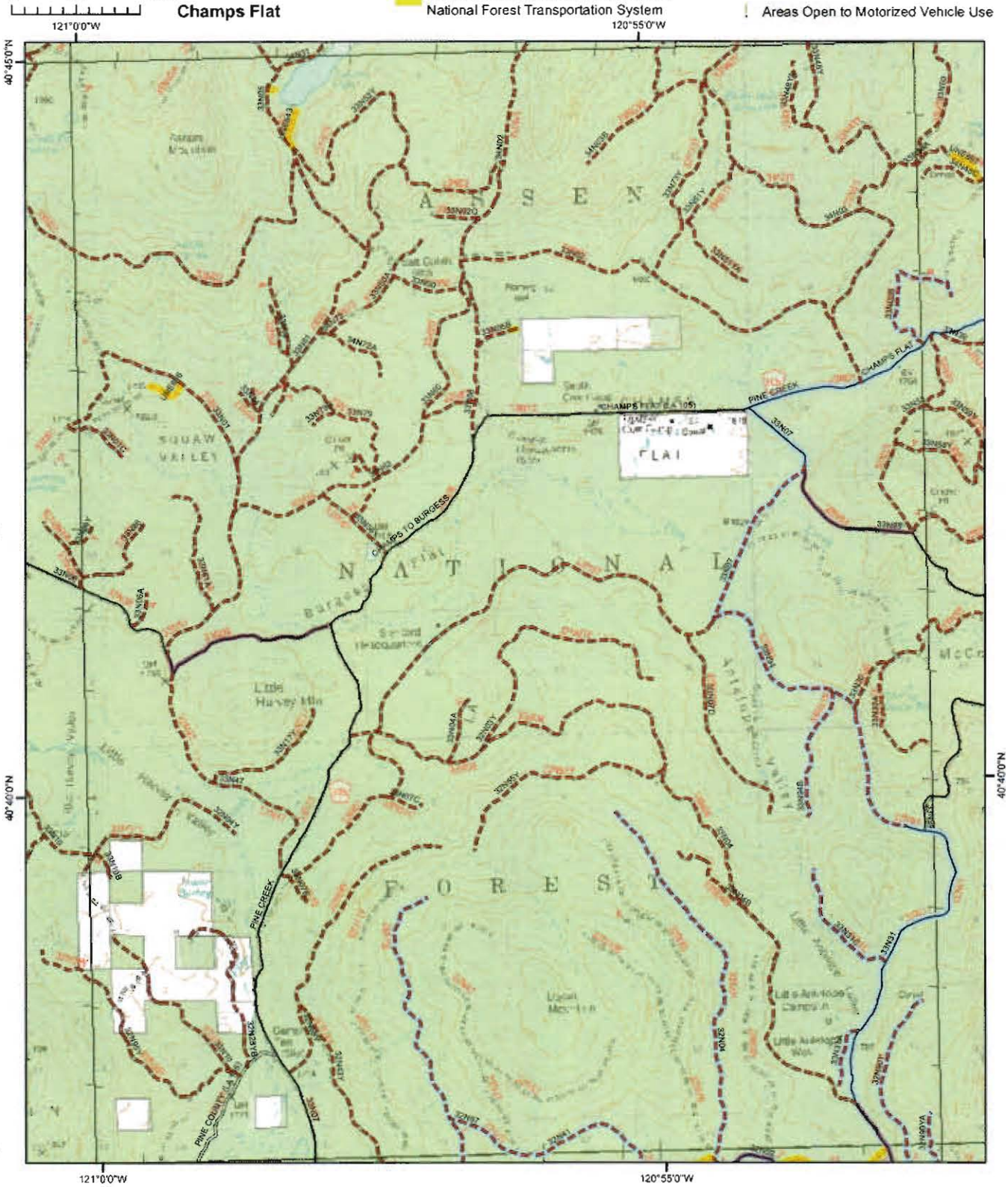
Areas Open to Motorized Vehicle Use



May 2008 DRAFT

Alternative 5
(Motorized Emphasis)
Travel Management
Lassen National Forest

Champs Flat




ASHURST LAKE 6
SHOESTRING DRAW 1
CHAMPS FLAT 7
33N02
33N06
2008/07/29

Prepared by
Tim Dedrick

Tim Dedrick

Forest Transportation Planner/Civil Engineer
Lassen National Forest

Date 9/29/08

Reviewed by
George Kulick

Date

Region 5 Qualified Engineer
Region 5 Office of Engineering

Engineering Report:

Lassen National Forest

Eagle Lake Ranger District

Analysis of

National Forest System Road (NFSR)

33N06

for Motorized Mixed Use Designation

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

Road Number: **33N06** Road Name: **Little Harvey Mountain**

Introduction: This segment of Little Harvey Mountain Road is located on the east side of Lassen National Forest (LNF) in the Champs Flat quadrangle, approximately .5 miles northwest of Little Harvey Mountain. NFSR 33N06 begins at an intersection with NFSR 33N02 near Burgess Well and ends at an intersection with NFSR 33N50 near Salt Cabin. The road starts in Section 24, southwest of Burgess Well and travels southeast to Little Harvey Mountain and an intersection with Lassen County Road 105. County Road 105 then utilizes 33N06 as it's alignment as it trends northeast past the Champs Flat Meadow and the intersection with 35N05. The road provides an easy grade access from the pine forest around Burgess Well to the grazing land of Champs Flat/Fleming Well. The entire road is currently managed by LNF as an ML3 open only to highway-legal vehicles.

The road segment was 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, that are not licensed or certified for general operation on public roads within the State) from the intersection of Lassen County Road 105 approximately 1 mile to the

intersection of 33N61. The LNF Travel Analysis (June 2008) identified this road section as a connector for recreational off-highway vehicle (OHV) loop opportunities on the adjacent 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: **1.65** Ending Mile Post: **2.40**

33N61 to Lassen County Road 105

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 in this segment.

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 serves as a ML3 collector road and functions as access from the pine forest area by Burgess Well and 33N02, unto the meadow/grazing area by Champs Flat and the Salt Cabin. Situated near the mid western boundary of the Champs Flat quadrangle in the Eagle Lake Ranger District, this route connects to a network of lower standard ML2 system roads that access NFS lands near Little Harvey Mountain, Logan Mountain, and Squaw Valley.

The road has traditionally served range access to Salt Cabin and Fleming Well as well as the pine forest by Burgess Well for commodity extraction, fire suppression, and recreation.

The road is signed at each end with correct horizontal ML3 route identification markers, but along the road's alignment the route identification marker's are vertical ML2 fiberglass posts with reflective number stickers.

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 accordance with the Highway Safety Act.

Proposed use is to allow mixed motor vehicle use on this segment to connect from NFSR ML2 33N61 to Lassen County Road 105 and then to connect through Road 105 to NFSR ML2 33N07 as a connector to an existing NFSR ML2 road system. This ML3 connector as described above is not a legal possibility as half of the segment resides on Lassen County Road 105 and Lassen County has not approved motor vehicle mixed use on it's forest highway system. As-is the segment of 33N06 that is NFSR will not provide access to anywhere but a County forest highway where it is currently against California Motor Vehicle Code to operate a non-highway legal vehicle upon forest highways.

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. The other portion of this connector route proposed to connect 33N61 via 33N06 to 33N07 is Lassen County Road 105. Lassen County currently manages the road as a highway and the provisions of the California Vehicle Code 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.

The road is an observed 1-lane operational maintenance level 3 standard throughout the selected segment.

The road is maintained to a standard allowing efficient passenger car through traffic at speeds up to 30 mph for reasonable and prudent drivers on straightaways. Based on speeds and their associated risk for crash severity, designating the road 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. Topologically, the unit is dry and flat with pronounced relief features, once roads are improved for management activities, the improvements are long lasting. Culverts are common drainage features on maintenance level 2 roads and standard on maintenance level 3 roads. Often roads on this national forest could be classified one maintenance level higher.
- 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 33N06 appears to be consistent with state law and forest policy for operational maintenance level 3 roads.
- Many roads in this vicinity, including the study segment, were dry and contributed significant dust when driven over.

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 29, 2008.

No vehicles observed.

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

The speed greatly varies, depending on the roadway conditions. The 85th percentile would be estimated at: 30 mph.

5. Road surface type:

The segment has a combination of native rock and red volcanic cinder aggregate surfacing. Portions of the traveled way are raised and the shoulders are soft and non-compacted. The segment was approximately 16' wide. The surface appeared well-maintained.

6. Intersections with other roads and trails:

The study segment begins at an intersection with NFSR ML2 33N61 and ends with an intersection with Lassen County Road 105.

33N61 and 33N47 are maintenance level 2 roads. They intersect with 33N06 which is signed on this segment as a maintenance level 2 road as well. 33N06 lacks the appropriate intersection signing needed to provide for the appropriate traffic management strategies of discourage off highway vehicle use.

33N06 is a maintenance level 3 road and lacks the appropriate ML3 route identification signing along it's alignment of discourage off highway vehicles.

7. Other roadway factors:

- Low vertical curves are present.
- Roadway alignment was adequate for the assigned maintenance level.
- The road was maintained with a traveled way width of 16', approximately.
- The road provides administrative access for a range allotment and commodity extraction. 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 segment runs from rangeland to an open pine forest.
- Cross slope is 0-5%.
- Grade is 0-2%.
- Pine trees are ≤ 18" and numerous volcanic rocks. Emergency run-out is possible.

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 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**

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

0 0.5 1 Miles

Champs Flat

NFS Surfaced Roads or Non-NFS Jurisdiction Roads Open to Highway Legal Vehicles Only (Includes NFS Maintenance Level 3-5 Roads, State and County Roads, etc.)

Mixed Use Analysis Pending

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

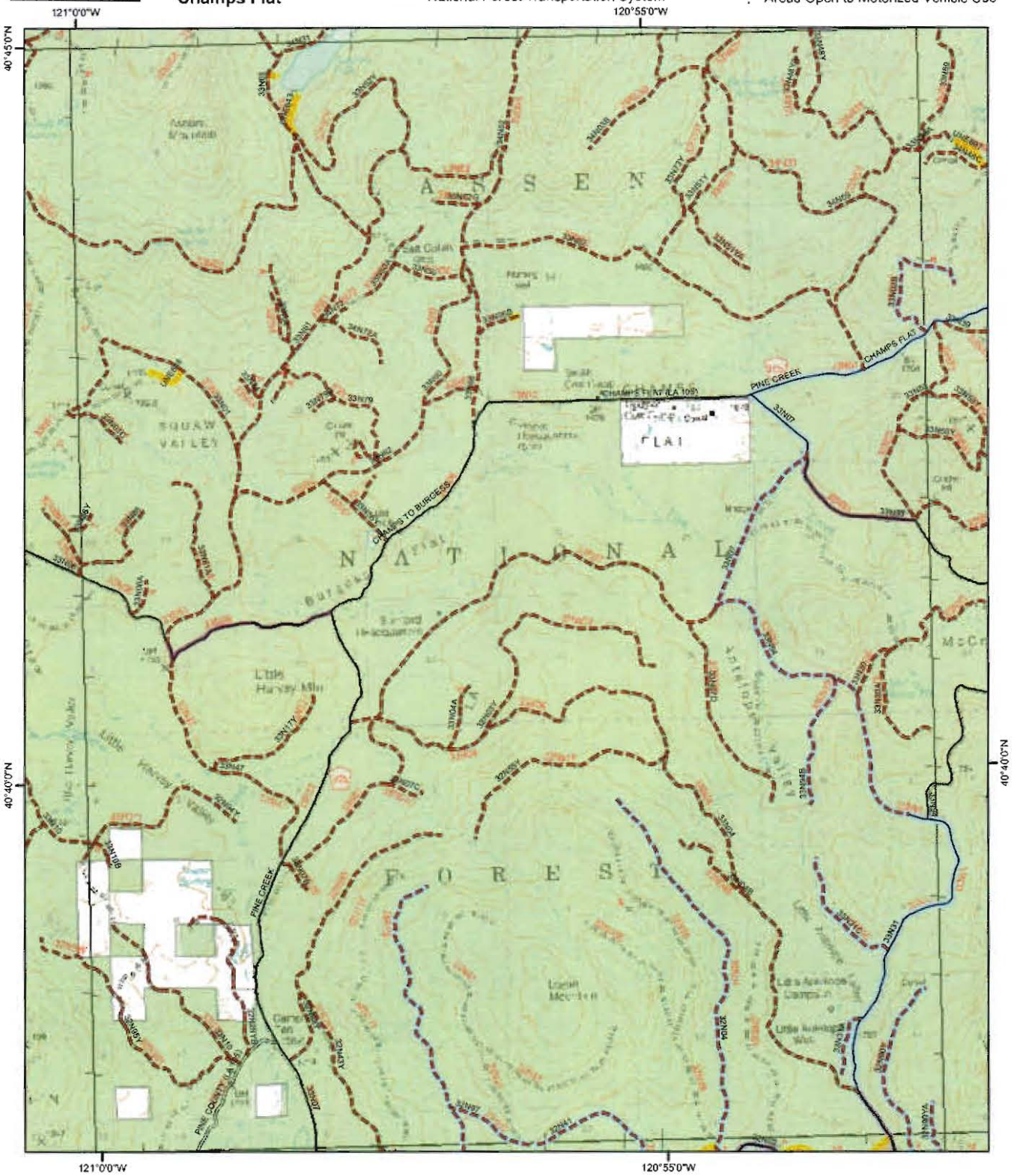
Restrict Season of Use to Summer/Fall (Winter Rec Trail)

Motor Vehicles Prohibited

Lassen National Forest

Private Land

! Areas Open to Motorized Vehicle Use




33N06
2008/07/29


2008/07/29


33N06
2008/07/29


33N06
2008/07/29


ASHURST LAKE 6
HIGHWAY 44 14
CHAMPS FLAT 4
2008/07/29


2008/07/29

Prepared by
Tim Dedrick

Forest Transportation Planner/Civil Engineer
Lassen National Forest

Date 9/29/08

Reviewed by
George Kulick

Date

Region 5 Qualified Engineer
Region 5 Office of Engineering

Engineering Report:

Lassen National Forest

Eagle Lake Ranger District

Analysis of

National Forest System Road (NFSR)

33N08

for Motorized Mixed Use Designation

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

Road Number: **33N08** Road Name: **Harvey Mountain Lookout Road**

Introduction: The 33N08 Road segment studied is located on the east side of Lassen National Forest (LNF) in the Harvey Mountain quadrangle, on the flanks of Harvey Mountain. NFSR 33N08 begins at a 5-way intersection, primary of which is 35N04, and ends at Harvey Mountain Lookout. The road starts approximately 10 miles due north of State Highway 44, approximately 1.5 miles south of the Eagle Lake RD and Hat Creek RD boundary on NFSR ML3 35N04. From this point the 33N08 road travels east approximately 2 miles to the toe of slope of Harvey Mountain where the road follows a due north traverse up the west flank of the mountain approximately 1 mile to the summit.

The entire road is currently managed by LNF as open only to highway-legal vehicles. The road segment analyzed was 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 33N08, from the intersection of 35N04 to the summit of the mountain. The LNF Travel Analysis (June 2008) identified this road section as a connector for recreational off-

highway vehicle (OHV) loop opportunities on the adjacent 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: **2.47**

35N04 to terminus/summit

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 serves as a ML3 local road and functions as a fire lookout station access as well as commodity extraction from Harvey Mountain to the State of California Highway 44.

The road provides summit access from a saddle on the west flank of Harvey Mountain which is the intersections of 35N04/ML3, 33N85/ML2, 34N37/ML2, 35N04/ML3, and 33N08A/ML2. Road 33N08 provides an important function as an ML3 local road providing access to a staffed fir lookout tower. From the lookout tower it is approximately 12.5 miles on NFSR maintenance level 3 roads to State Highway 44 which is an all-weather two lane asphalt highway. This intersection is approximately 2 miles west of the forest service Bogard Work Center which is home to the Lassen Hotshot fire crew as well as Engine xx and Water Tender xx.

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 accordance with the Highway Safety Act.

The proposed use for 33N08/ML3 identified in this analysis is to authorize motorized mixed vehicle class use. The proposal is to utilize the ML3 road 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.

The road is an observed 1-lane operational maintenance level 2+ standard throughout it's length.

The road is maintained to a standard allowing efficient passenger car through traffic at speeds up to 25 mph for reasonable and prudent drivers on straightaways. Based on speeds and their associated risk for crash severity, designating the road 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. A "typical ML2" road is a two-track through the forest, usually without culverts, and many times without a constructed road-prism. The Lassen is not "typical" in it's road's adherence to maintenance levels. This road is an objective ML3 as it provides fire lookout tower access which necessitates a higher level emergency access road that is not a recreational opportunity and is not identified in the ROS or Recreational Opportunity Spectrum. As a remote emergency fire detection and communication station the road does not receive much public traffic but does provide daily access in all-weather spring-summer-fall conditions for the lookout's staff as well as weekly deliveries of drinking/cooking/bathing potable water via a large commercial water truck as well as regular deliveries of propane via a large commercial propane gas truck. Topologically, the unit is semi-mountainous, fairly dry, and sandwiched between the Pacific Southwest Research Station's research forest, Black's

Mountain Experimental Forest to the west, and the forest rangeland of the Champs Flat area to the east. The operational level of this road is classified as a 2+ or 3-, something we call a Super-2 here on the Lassen. 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 emergency fire detection access. Lookout tower staff perform a vital fire crew communication, area dispatch, and area navigation function for interagency Wildland fire suppression forces. As an existing ML3 road public access for visitors is provided to visit the lookout which provides a public educational opportunity as well as a scenic driving opportunity for highway legal vehicles. All-terrain vehicle access may not benefit unrestricted access of professional forest fire detection and suppression staff and large fire vehicles.

- 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 33N08 appears to be consistent with state law and forest policy for operational maintenance level 3 roads.
- Many roads in this vicinity, including the study segment, were dry and contributed significant dust when driven over.

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.

No vehicles observed.

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

The speed greatly varies, depending on the roadway conditions. The 85th percentile would be estimated at: 25 mph.

5. Road surface type:

The road has a combination of crushed rock aggregate and red volcanic cinder aggregate surfacing. Portions of the traveled way are raised and the shoulders are soft and non-compacted. The road is approximately 16' wide. The surface appeared well-maintained.

6. Intersections with other roads and trails:

The beginning of 33N08 is a five-way intersection with the following;

- 35N04/ML3
- 35N04/ML2
- 33N85/ML2
- 34N37/ML2
- 33N08A/ML2

There are also four additional forest roads with access from 33N08, they are;

- 33N30Y/ML2
- 34N01/ML2
- 33N08B/ML2
- 33N32Y/ML2

These maintenance level 2 roads have historically provided forest management access, fire suppression access, commodity 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 horizontal and vertical curves are present.
- Roadway alignment was adequate for the assigned maintenance level.
- The road was maintained with a traveled way width of 16', approximately.
- The road provides administrative access for fire lookout access. 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 0-35%.
- Grade is 0-8%.
- Pine trees are ≥18" and numerous rocks. Emergency run-out is not possible for the majority of the road as it climbs up the flank of Harvey Mountain and vertical drops are commonplace.

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**

- Approximate Implementation Cost: $ 50,000
- 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

0 0.5 1 Miles

Harvey Mtn

NFS Surfaced Roads or Non-NFS Jurisdiction Roads Open to Highway Legal Vehicles Only (Includes NFS Maintenance Level 3-5 Roads, State and County Roads, etc.)

Mixed Use Analysis Pending

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

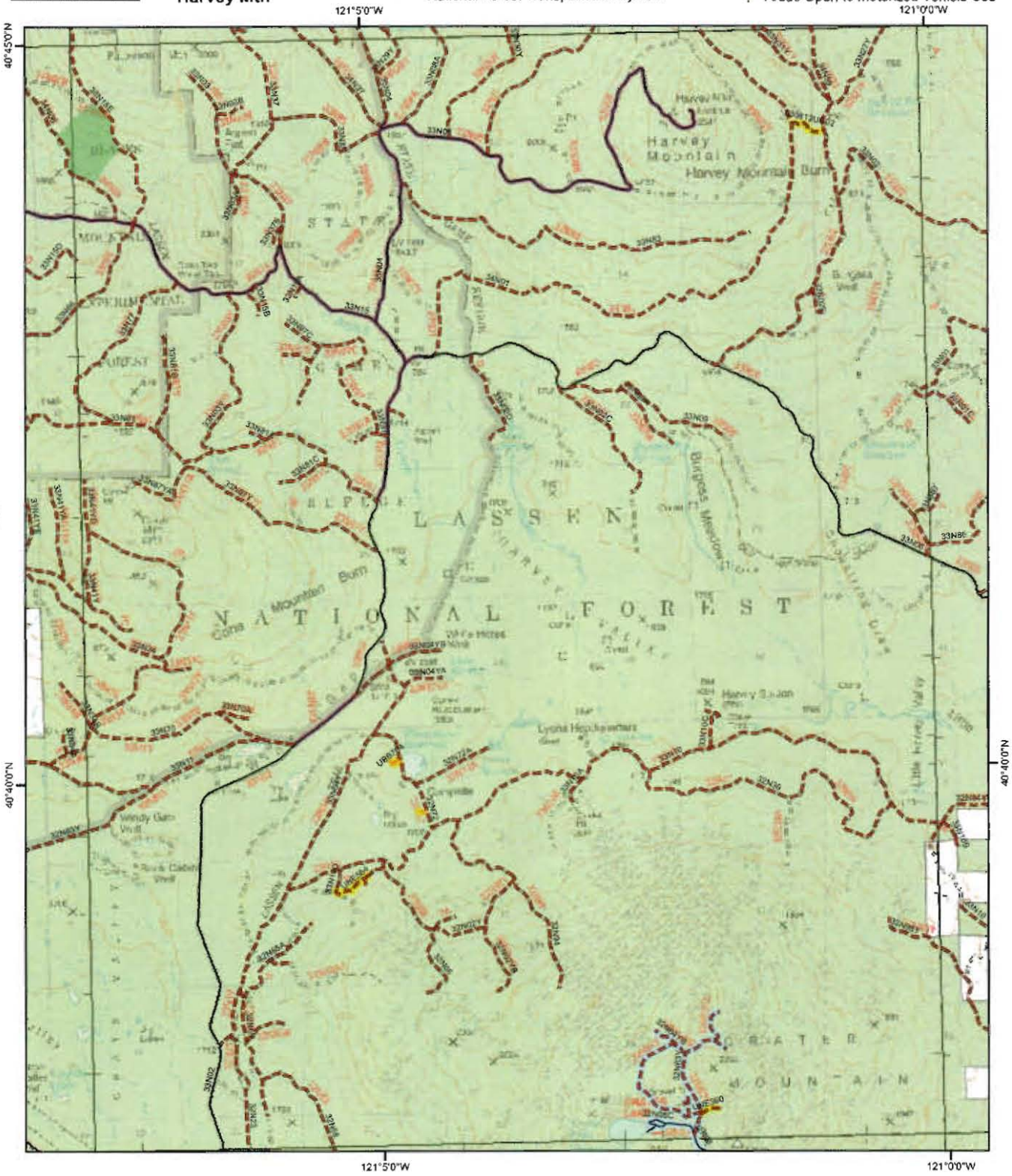
Restrict Season of Use to Summer/Fall (Winter Rec Trail)

Motor Vehicles Prohibited

Lassen National Forest

Private Land

Areas Open to Motorized Vehicle Use




34N27
BARRELL PIT RLSVR. 1/2
STANFORD SPRINGS 2
2008/07/29


2008/07/29


2008/07/29

Prepared by
Tim Dedrick

Forest Transportation Planner/Civil Engineer
Lassen National Forest

Date 9/29/08

Reviewed by
George Kulick

Date

Region 5 Qualified Engineer
Region 5 Office of Engineering

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 ≥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

0 0.5 1 Miles

Harvey Mtn

NFS Surfaced Roads or Non-NFS Jurisdiction Roads Open to Highway Legal Vehicles Only (Includes NFS Maintenance Level 3-5 Roads, State and County Roads, etc.)

Mixed Use Analysis Pending

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

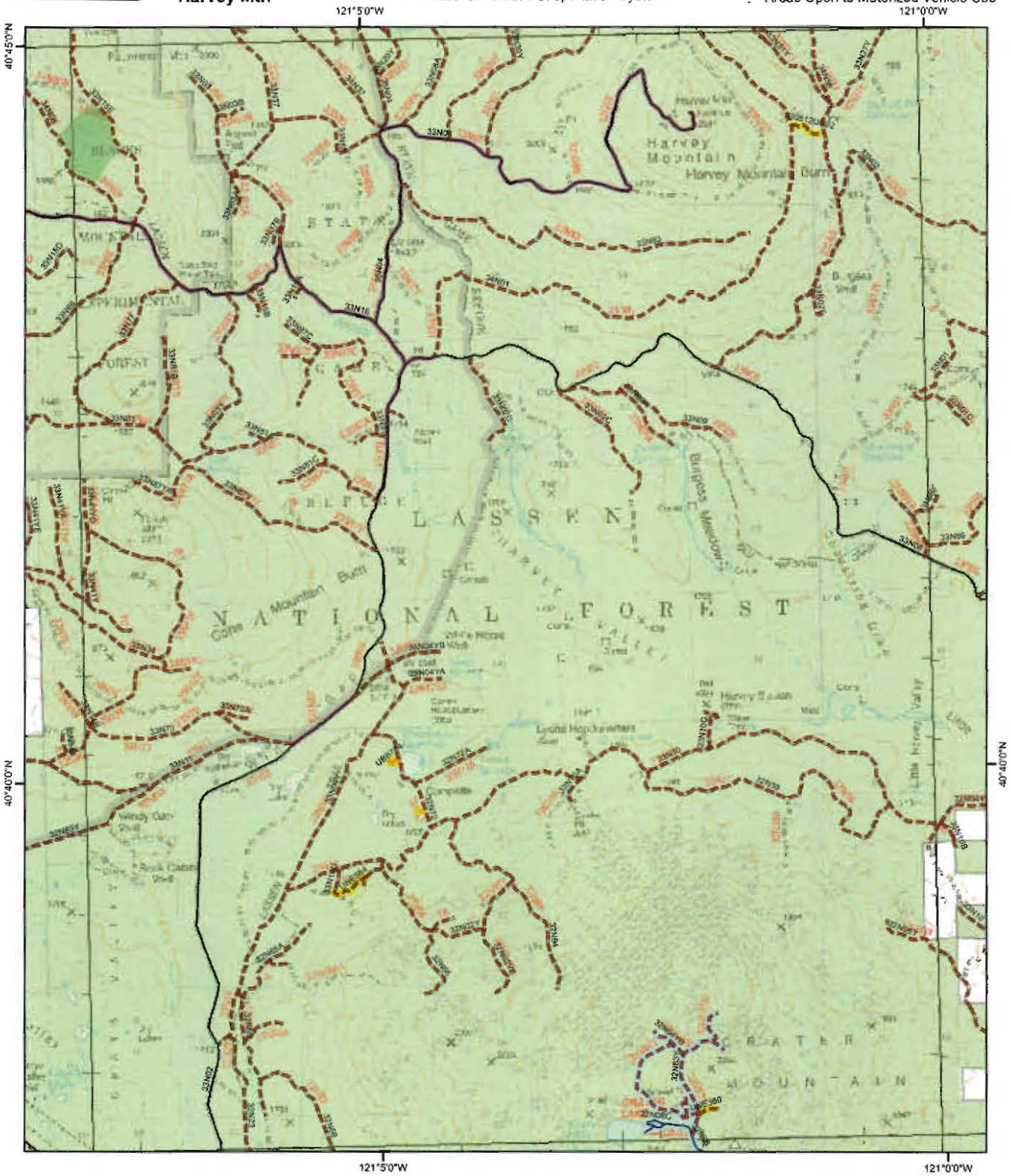
Restrict Season of Use to Summer/Fall (Winter Rec Trail)

Motor Vehicles Prohibited

Lassen National Forest

Private Land

Areas Open to Motorized Vehicle Use



Prepared by
Tim Dedrick

Forest Transportation Planner/Civil Engineer
Lassen National Forest

Date 9/29/08

Reviewed by
George Kulick

Date

Region 5 Qualified Engineer
Region 5 Office of Engineering

Engineering Report:

Lassen National Forest

Eagle Lake Ranger District

Analysis of

National Forest System Road (NFSR)

33N31

for Motorized Mixed Use Designation

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

Road Number: **33N31** Road Name: **Little Antelope Valley**

Introduction: The Little Antelope Valley Road is located on the east side of Lassen National Forest (LNF) in the Antelope Mountain and Champs Flat quadrangles, approximately 1 mile west of Whaleback Mountain. NFSR 33N31 begins at NFSR Distinguished Route 21 – 32N02 and ends at NFSR 33N94 in Antelope Valley near McCoy Water Pit. The road starts at the north-northeast toe of the slope of Antelope Mountain and extends on a northerly alignment along the western flank of Whaleback Mountain to the eastern boundary of Antelope Valley. The road provides an easy grade access from the DR21 NFSR 33N02 road to the grazing land of Antelope Valley. The entire road is currently managed by LNF as open only to highway-legal vehicles.

The road segment was 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) from the intersection of 33N02 and the intersection of 33N04. The LNF Travel Analysis (June 2008) identified this road section as a connector for recreational off-highway vehicle (OHV) loop opportunities on the adjacent

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: **0.42**

33N02 to 33N04

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.

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 serves as a ML3 collector road and functions as access from DR21 and is a northerly traverse along the western flank of Whaleback Mountain to the grazing meadows of Antelope Valley. Situated at the northeast dividing line between Antelope Mountain quadrangle and the Champs Flat quadrangle near the mid eastern boundary of the Eagle Lake Ranger District, this route connects to a network of lower standard system roads that access NFS lands near Antelope Mountain, Whaleback Mountain, Little Antelope Well, and Antelope Valley.

The road has traditionally served range access to Little Antelope Well, Antelope Valley, McCoy Water Pit, and an easy grade access for commodity extraction from Antelope Mountain, Logan Mountain, Whaleback Mountain, and for fire suppression.

The road is marked inappropriately at the intersection of DR21/33N02, 33N04 and along the entire alignment with vertical fiberglass ML2 route identification markers.

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 accordance with the Highway Safety Act.

Proposed use is to allow mixed motor vehicle use on a segment of NFSR ML3 33N31 to connect from NFSR ML3 DR21/33N02 to unauthorized route UNE709, and an abandoned barrow pit which is acting as a very small (.25 acre) unauthorized riding site, and to NFSR ML2 33N04. It is currently against California Motor Vehicle Code to operate a non-highway legal vehicle upon forest highways.

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.

The road is an observed 1-lane operational maintenance level 3 standard throughout the selected segment.

The road is maintained to a standard allowing efficient passenger car through traffic at speeds up to 30 mph for reasonable and prudent drivers on straightaways. Based on speeds and their associated risk for crash severity, designating the road 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. Topologically, the unit is dry and flat with pronounced relief features, once roads are improved for management activities, the improvements are long lasting. Culverts are common drainage features on maintenance level 2 roads and standard on maintenance level 3 roads. Often roads on this national forest could be classified one maintenance level higher.
- 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 33N31 appears to be consistent with state law and forest policy for operational maintenance level 3 roads.
- Many roads in this vicinity, including the study segment, were dry and contributed significant dust when driven over.

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 29, 2008.

No vehicles observed.

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

The speed greatly varies, depending on the roadway conditions. The 85th percentile would be estimated at: 30 mph.

5. Road surface type:

The segment has a combination of native rock and red volcanic cinder aggregate surfacing. Portions of the traveled way are raised and the shoulders are soft and non-compacted. The segment was approximately 16' wide. The surface appeared well-maintained.

6. Intersections with other roads and trails:

The study segment begins at an intersection with DR21/33N02 ML3 and ends with an intersection with 33N04 ML2

33N04 is a maintenance level 2 road and does not possess the appropriate entrance treatments (high clearance vehicle barrier(s)) needed to provide for the appropriate traffic management strategies of discourage or prohibit passenger cars. The road is an operational ML3 road and is indistinguishable in operational level from the road studied, 33N31 which is an ML3. 33N04 has the appropriate vertical ML route identification marker.

UNE709 is an unauthorized route and does not have any route identification markers. The route is overgrown with vegetation.

The unauthorized riding site, which is an abandoned barrow source, is filled with water during the wet seasons and is not suitable in size to provide a recreation opportunity as it is only 100 feet by 40 feet in size.

The intersection with 33N04 is a merge and not a 90 degree point of intersect. Highway vehicles merging with off highway vehicles may have difficulty in seeing eachother as trees disrupt the visual triangle for safe sight distance. The intersection with DR21 is at an acceptable point of intersect, close to 90 degrees. The intersection with the unauthorized routes are completely uncontrolled and are at odd angles to 33N31.

7. Other roadway factors:

- Two sharp horizontal curves are present.
- Roadway alignment was adequate for the assigned maintenance level.
- The road was maintained with a traveled way width of 16', approximately.
- The road provides administrative access for a range allotment and provides fire suppression access. 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 segment runs open pine forest to rangeland.
- Cross slope is 0-2%.
- Grade is 0-2%.
- Pine trees are ≤ 18" and numerous volcanic rocks. Emergency run-out is possible.

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**

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**

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.

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

0 0.5 1 Miles

Antelope Mtn

NFS Surfaced Roads or Non-NFS Jurisdiction Roads Open to Highway Legal Vehicles Only (Includes NFS Maintenance Level 3-5 Roads, State and County Roads, etc.)

Mixed Use Analysis Pending

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

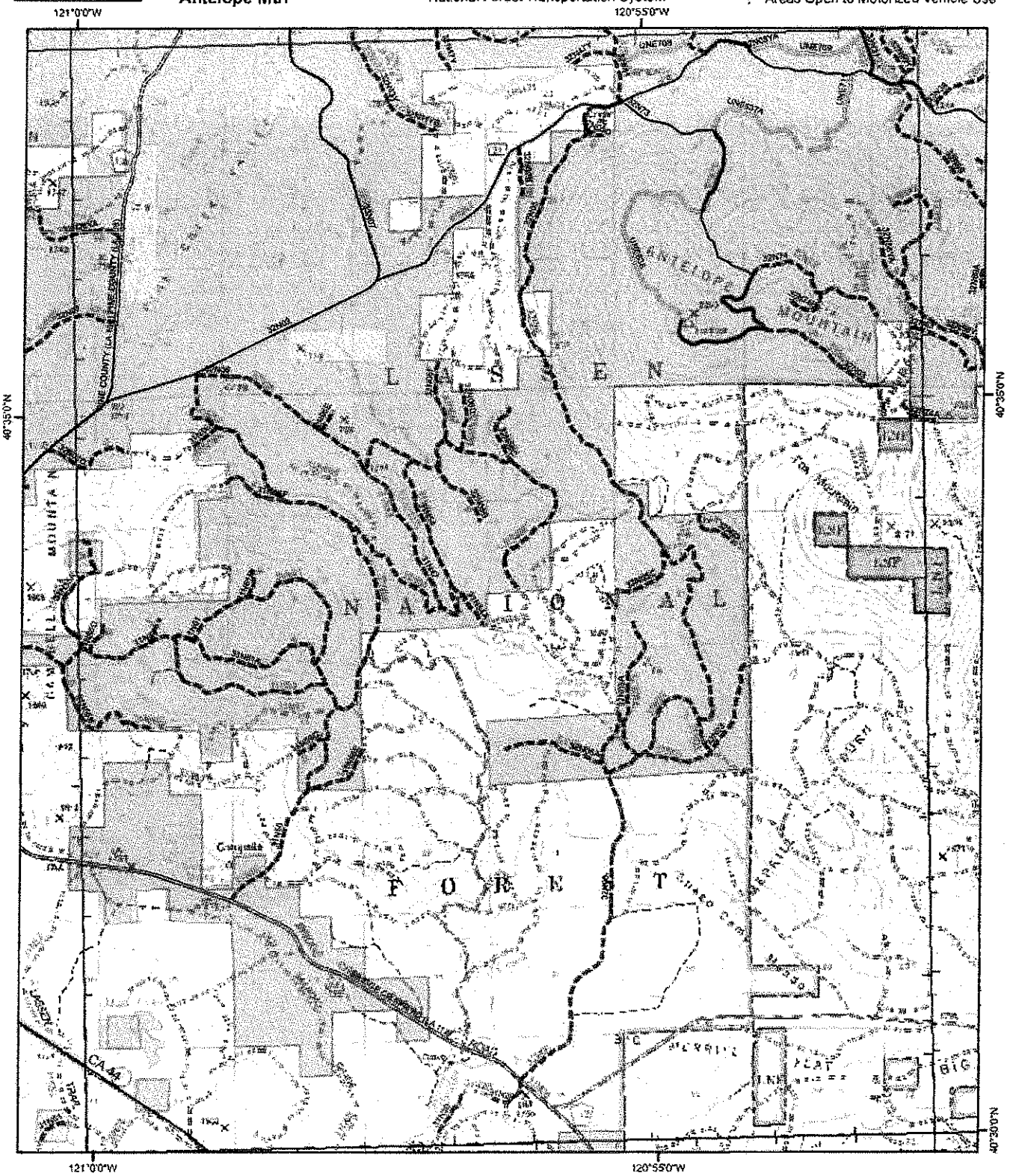
Restrict Season of Use to Summer/Fall (Winter Rec Trail)

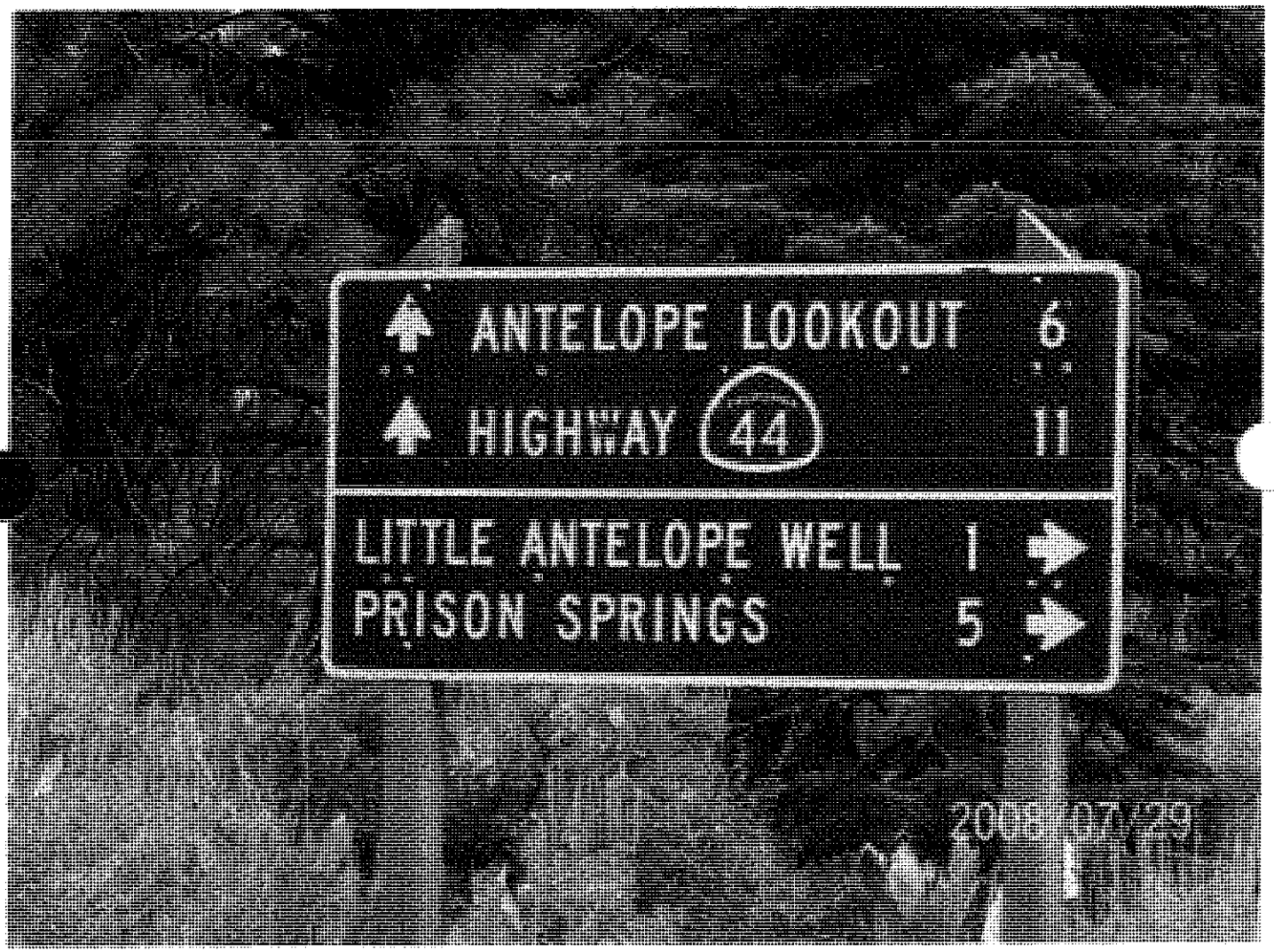
Motor Vehicles Prohibited

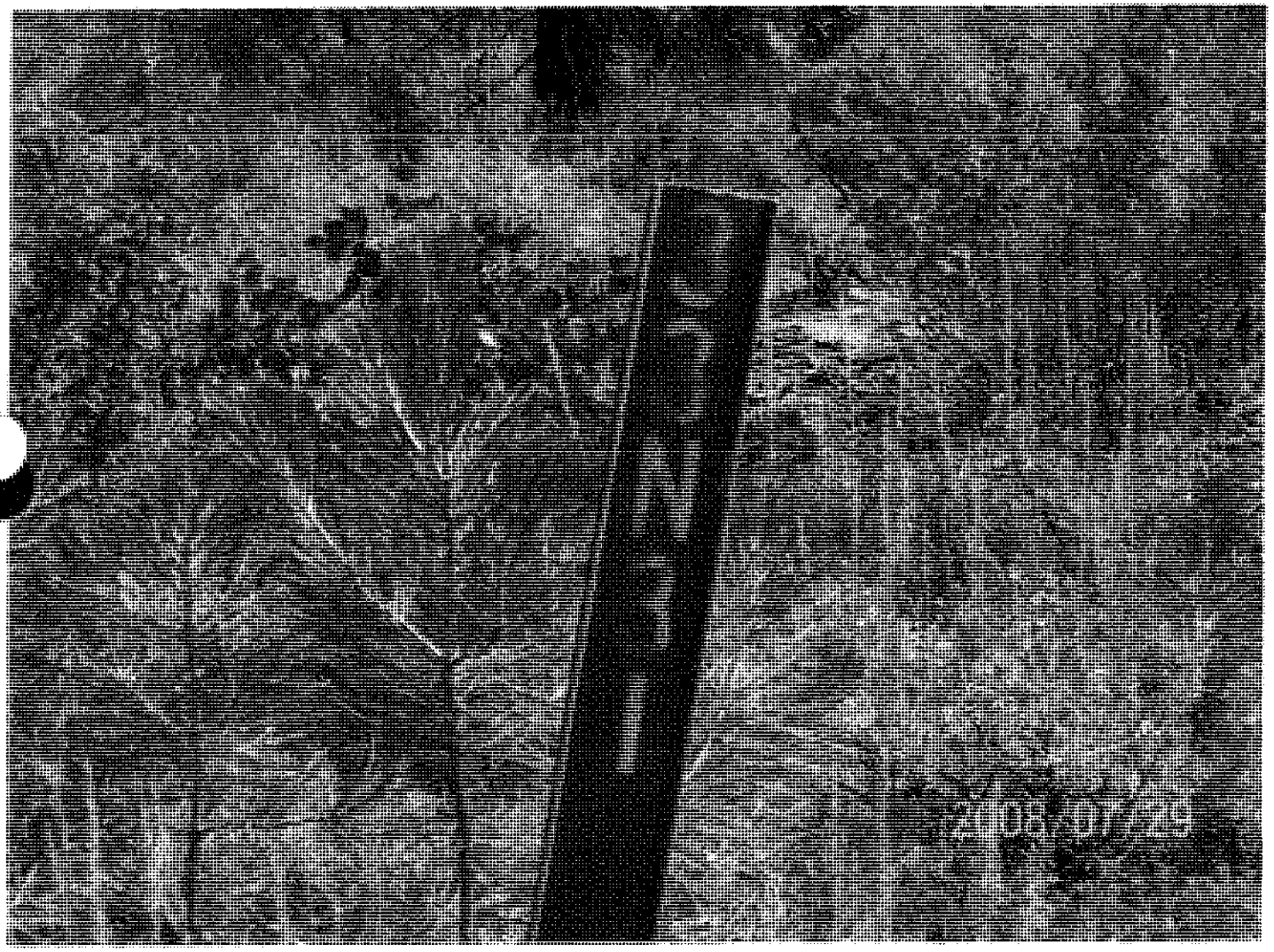
Lassen National Forest

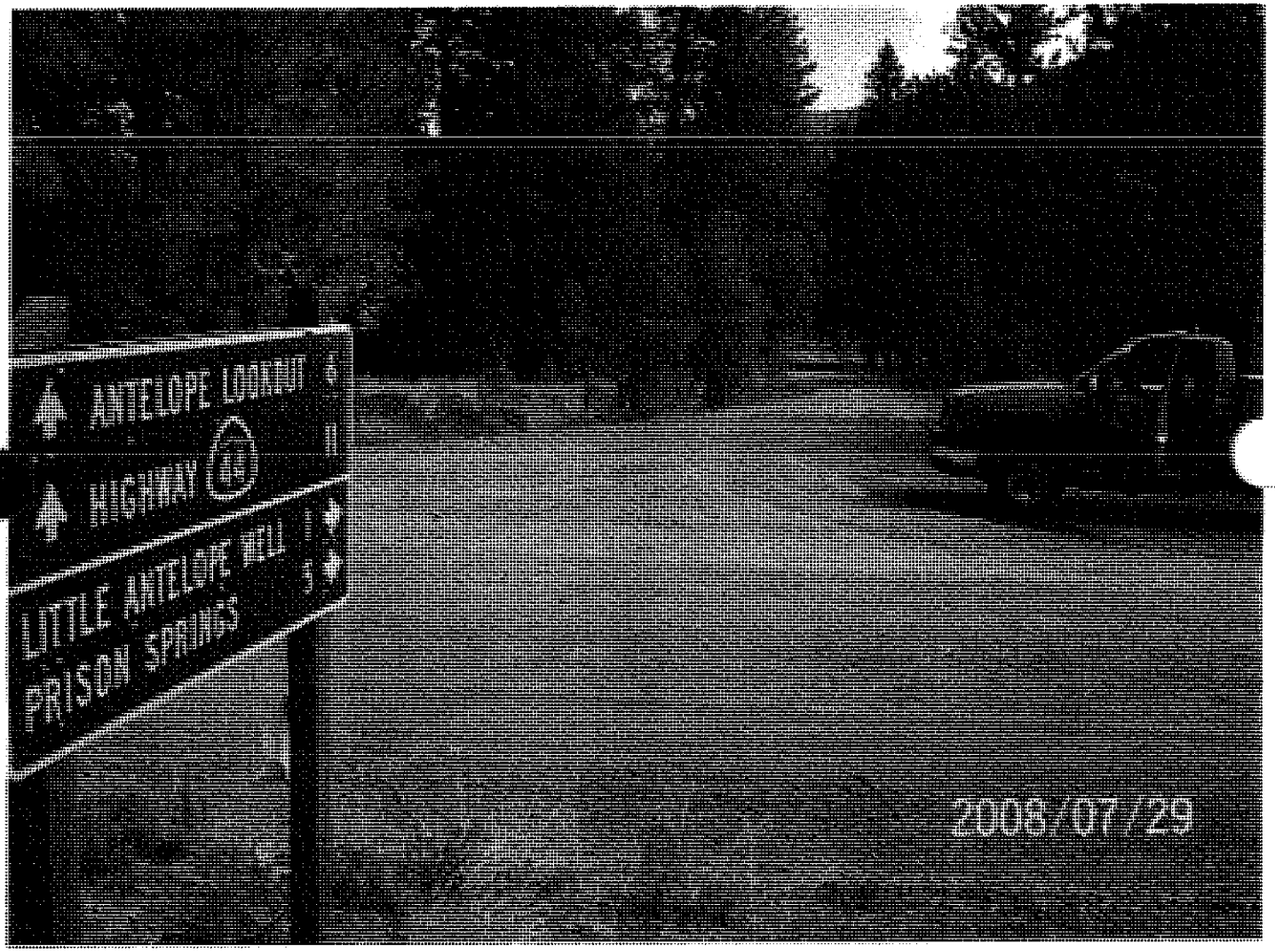
Private Land

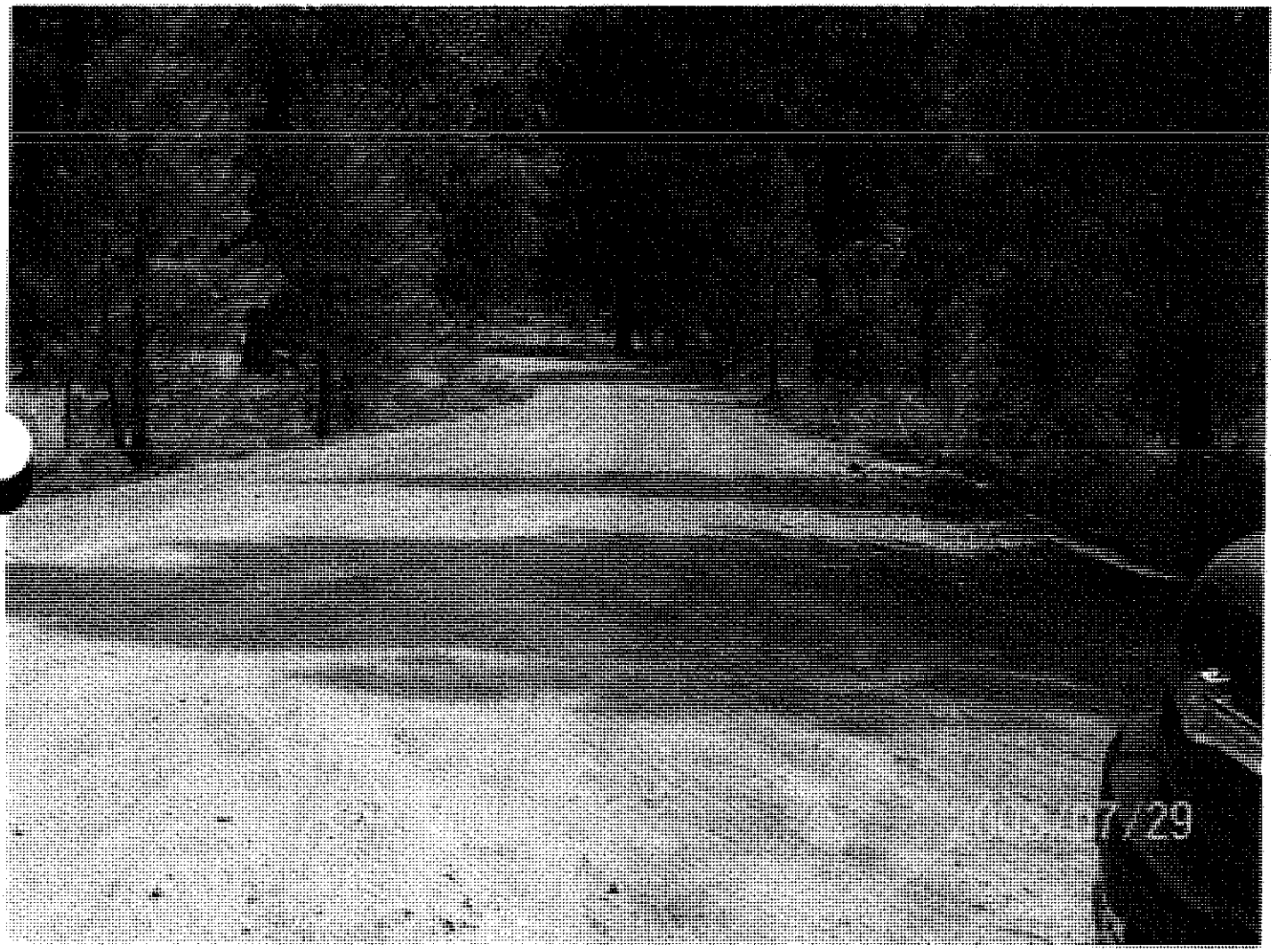
Areas Open to Motorized Vehicle Use

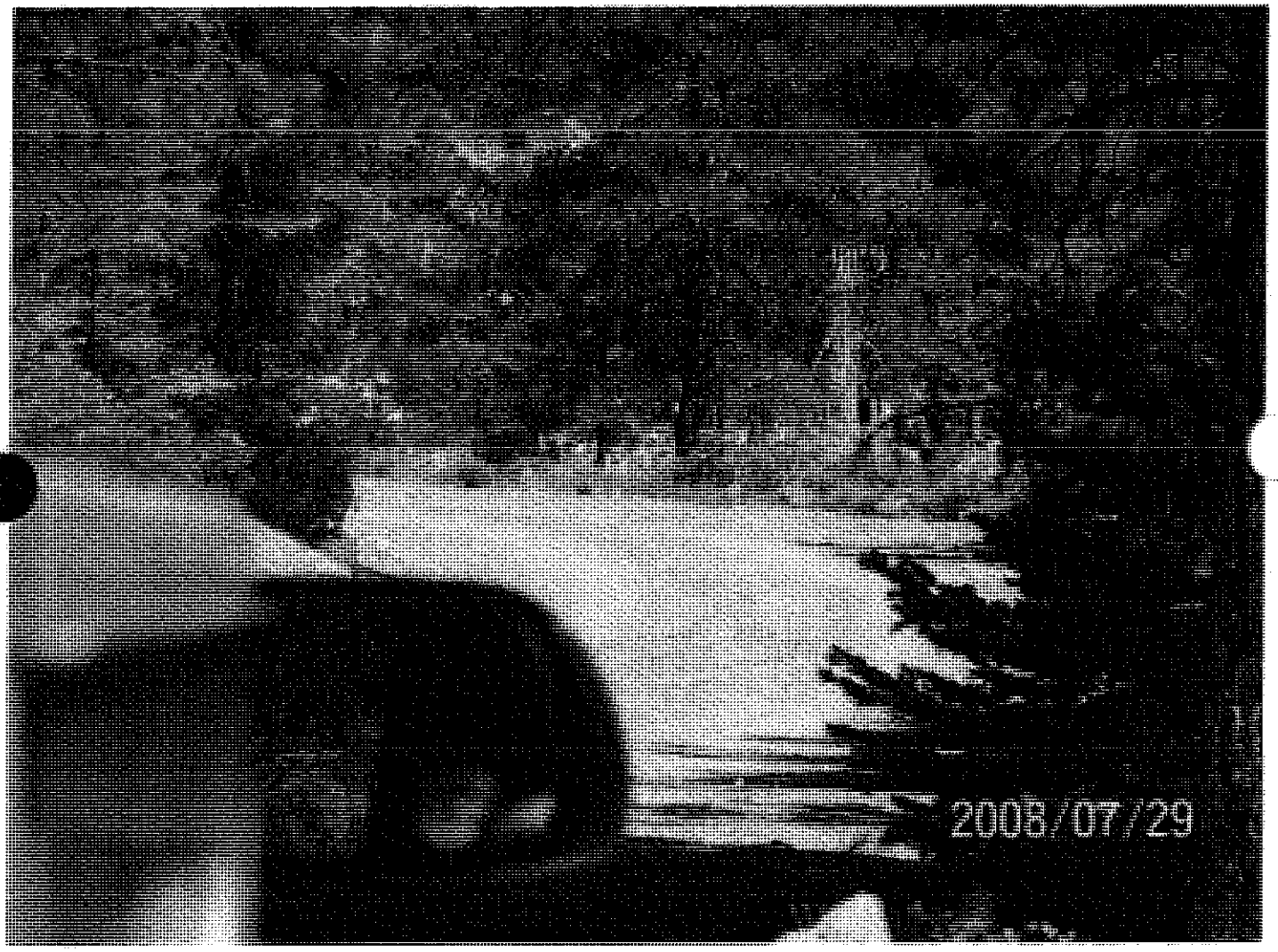



ANTELOPE LOOKOUT 6
HIGHWAY 44 11
LITTLE ANTELOPE WELL 1
PRISON SPRINGS 5
2008 07 29

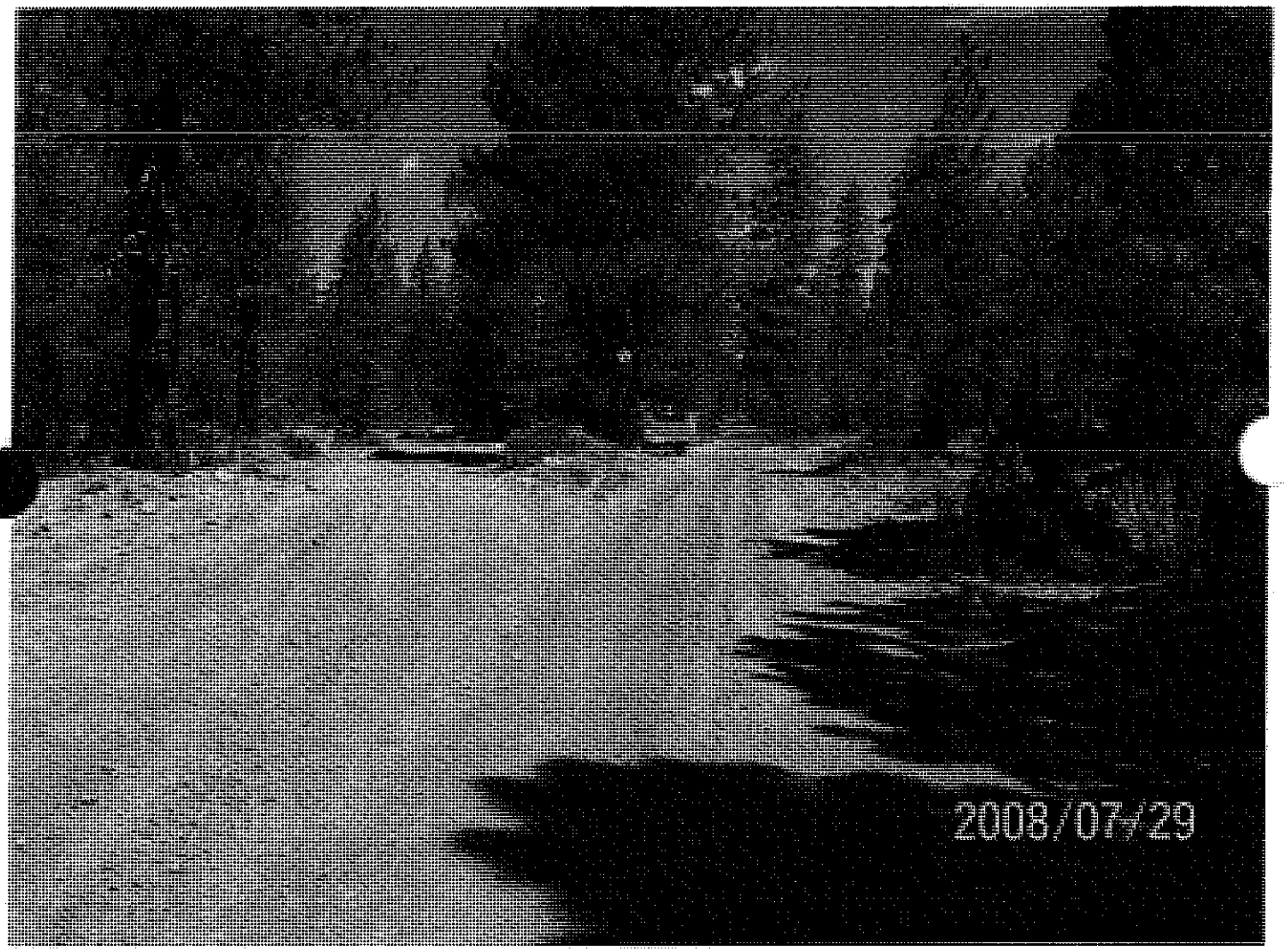



ANTELOPE LOOKOUT
HIGHWAY 62
LITTLE ANTELOPE HILL
PRISON SPRINGS
2008/07/29


7/29


2008/07/29

33N31
2008/07/29


2008/07/29


COUNTY NO. 105 6
LITTLE ANTELOPE WELL 1

Prepared by
Tim Dedrick
Tim Dedrick
Forest Transportation Planner/Civil Engineer
Lassen National Forest

Date 9/29/08

Reviewed by
George Kulick

Date

Region 5 Qualified Engineer
Region 5 Office of Engineering

Engineering Report:

Lassen National Forest

Eagle Lake Ranger District

Analysis of

National Forest System Road (NFSR)

 # 33N93

for Motorized Mixed Use Designation

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

Road Number: **33N93** Road Name: **West Ice Cave Ridge**

Introduction: The West Ice Cave Road is located on the east side of Lassen National Forest (LNF) in the Champs Flat quadrangle, approximately 1 mile west of Cave Mountain. NFSR 33N93 begins at Lassen County (LA) Road A1 and ends at NFSR 33N07 near Opdyke Cow Camp. The road starts at the northwest extent of the Brockman Flat Lava Beds and travels northwest between the Ice Cave Ridge and the ridge of Prison Springs providing easy grade access from the county road and lava fields to the grazing land of Champs Flat. The entire road is currently managed by LNF as open only to highway-legal vehicles.

The road segment was 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, that are not licensed or certified for general operation on public roads within the State) from the intersection of 33N07 and the intersection of 33N53. The LNF Travel Analysis (June 2008) identified this road section as a connector for recreational off-highway vehicle (OHV) loop opportunities on the adjacent 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: **5.06** Ending Mile Post: **5.80**

33N53 to 33N07

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.

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 serves as a ML3 collector road and functions as access from Lassen County Road A1 and is a traverse between Ice Cave Ridge and the ridge of Poison Springs to access the Champs Flat grazing meadow. Situated near the mid eastern boundary of the Eagle Lake Ranger District, this route connects to a network of lower standard system roads that access NFS lands near Cave Mountain, Champs Flat, and the backside of Logan Mountain.

The road has traditionally served range access to Stone Headquarters, Opdyke Cow Camp, commodity extraction, fire suppression, and recreation.

The road is missing the route identification marker at the intersection of 33N07 and is marked inappropriately at the intersection of 33N53 with a vertical ML2 route identification marker. 33N07 is an ML3 and is appropriately signed at the 33N93 intersection with a horizontal route identification marker. 33N53 is an ML2 and is appropriately signed at the intersection of 33N93 with a vertical route identification marker, although the route marker is broken-off from the ground and was found nailed to a convenient roadside tree.

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 accordance with the Highway Safety Act.

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.

The road is an observed 1-lane operational maintenance level 3 standard throughout the selected segment.

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 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. Topologically, the unit is dry and flat with pronounced relief features, once roads are improved for management activities, the improvements are long lasting. Culverts are common drainage features on maintenance level 2 roads and standard on maintenance level 3 roads. Often roads on this national forest could be classified one maintenance level higher.
- 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 33N93 appears to be consistent with state law and forest policy for operational maintenance level 3 roads.
- Frequent residential, recreational, and commercial traffic was observed on LA A1 at the intersection with 33N93.
- Many roads in this vicinity, including the study segment, were dry and contributed significant dust when driven over.

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 29, 2008.

No vehicles observed.

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 segment has a combination of native rock and red volcanic cinder aggregate surfacing. Portions of the traveled way are raised and the shoulders are soft and non-compacted. The segment was approximately 16' wide. The surface appeared well-maintained.

6. Intersections with other roads and trails:

The study segment begins at an intersection with 33N07/ML3 and ends with an intersection with 33N53/ML2

33N53 is a maintenance level 2 road and lacks the appropriate entrance treatments needed to provide for the appropriate traffic management strategies of discourage or prohibit passenger cars.

33N07 is a maintenance level 3 road and lacks the appropriate entrance treatment of discourage high-clearance vehicles.

The current intersection may result in higher traffic merging speeds.

7. Other roadway factors:

- Low vertical curves are present.
- Roadway alignment was adequate for the assigned maintenance level.
- The road was maintained with a traveled way width of 16', approximately.
- The road provides administrative access for a range allotment and is a winter sports trail. 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 segment runs from rangeland to an open pine forest.
- Cross slope is 0-5%.
- Grade is 0-2%.

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**

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**

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

0 0.5 1 Miles

NFS Surfaced Roads or Non-NFS Jurisdiction Roads Open to Highway Legal Vehicles Only (Includes NFS Maintenance Level 3-5 Roads, State and County Roads, etc.)

Mixed Use Analysis Pending

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

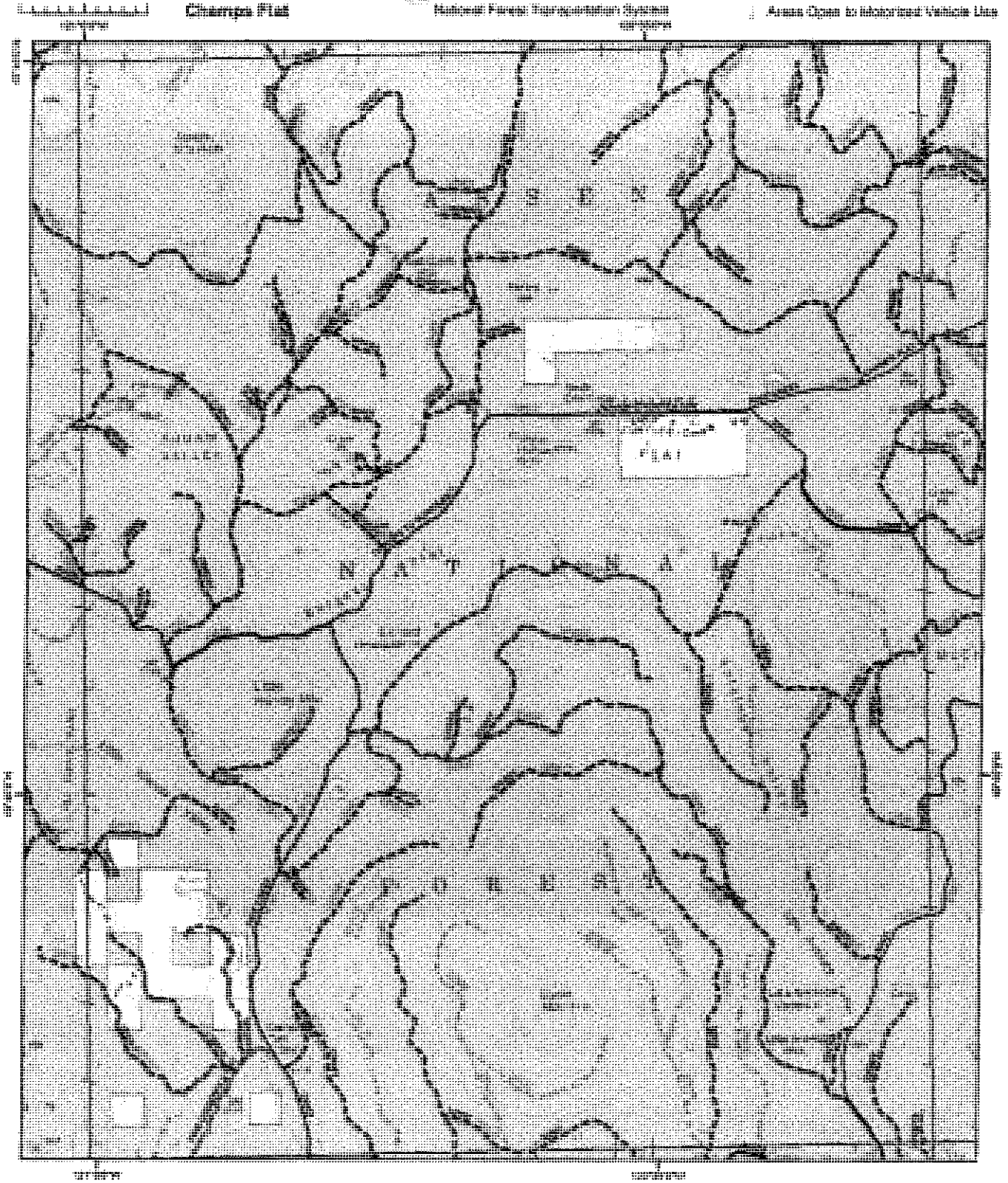
Restrict Season of Use to Summer/Fall (Winter Rec Trail)

Motor Vehicles Prohibited

Lassen National Forest

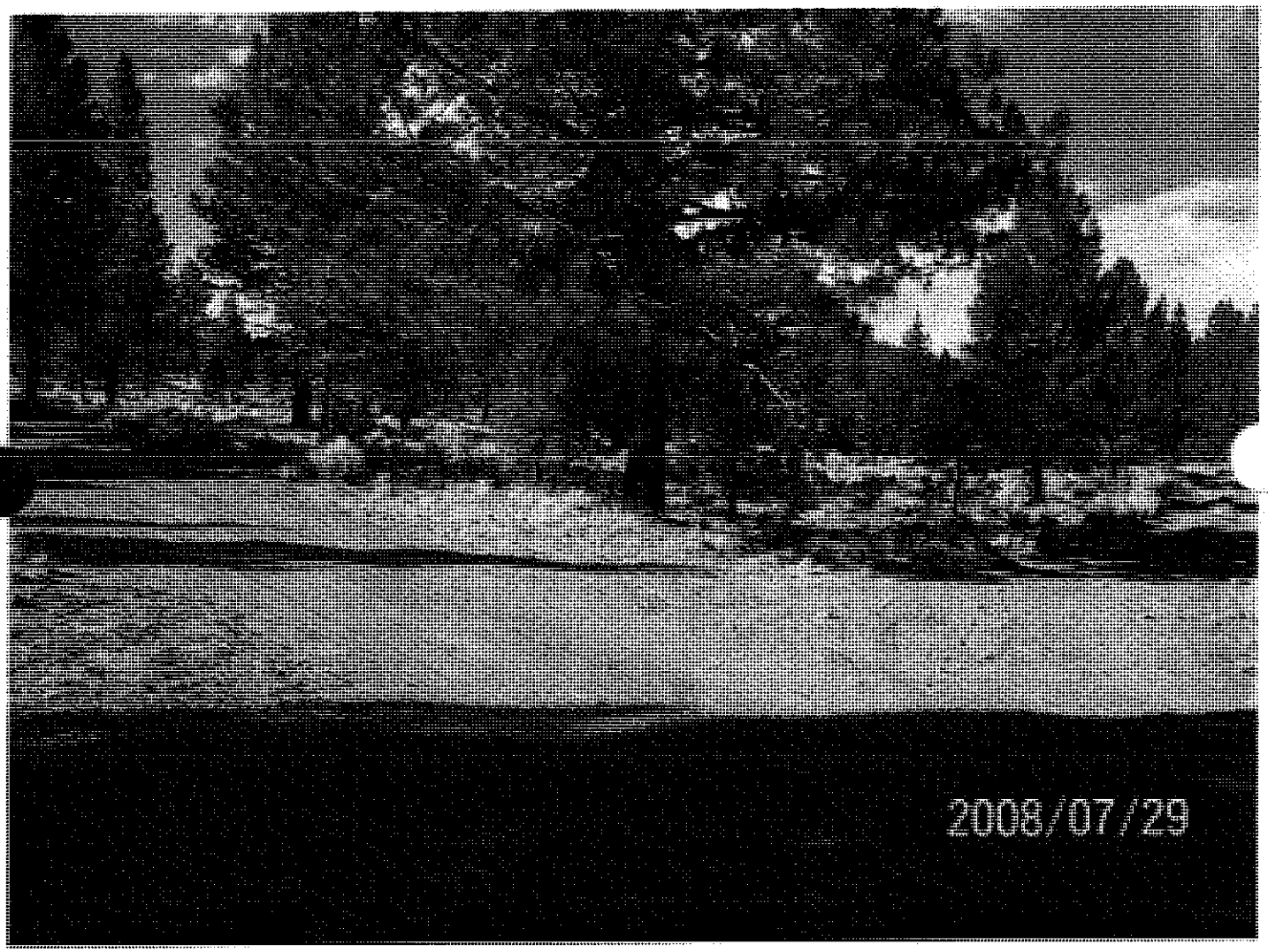
Private Land

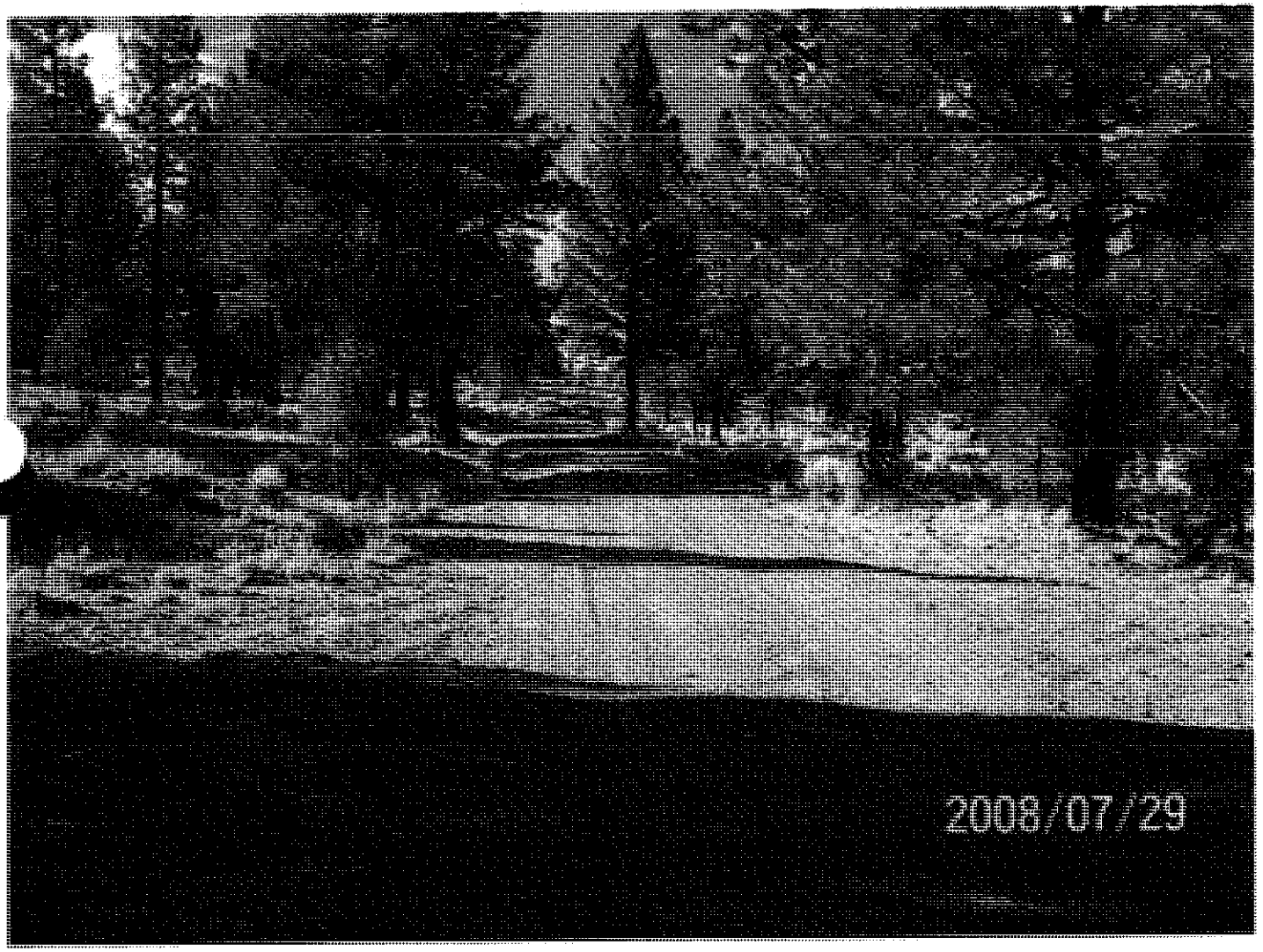
Area Open to Motorized Vehicle Use

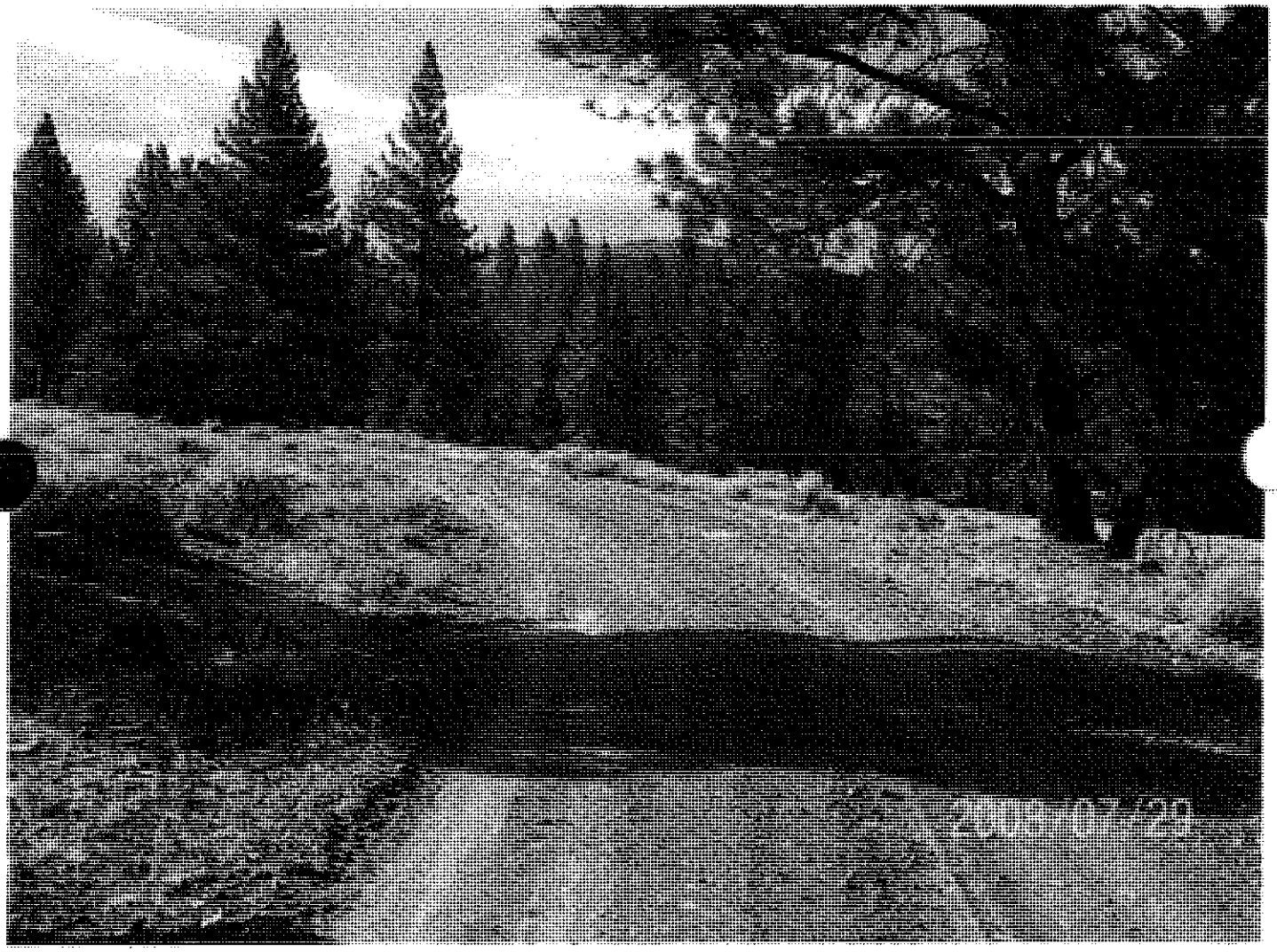


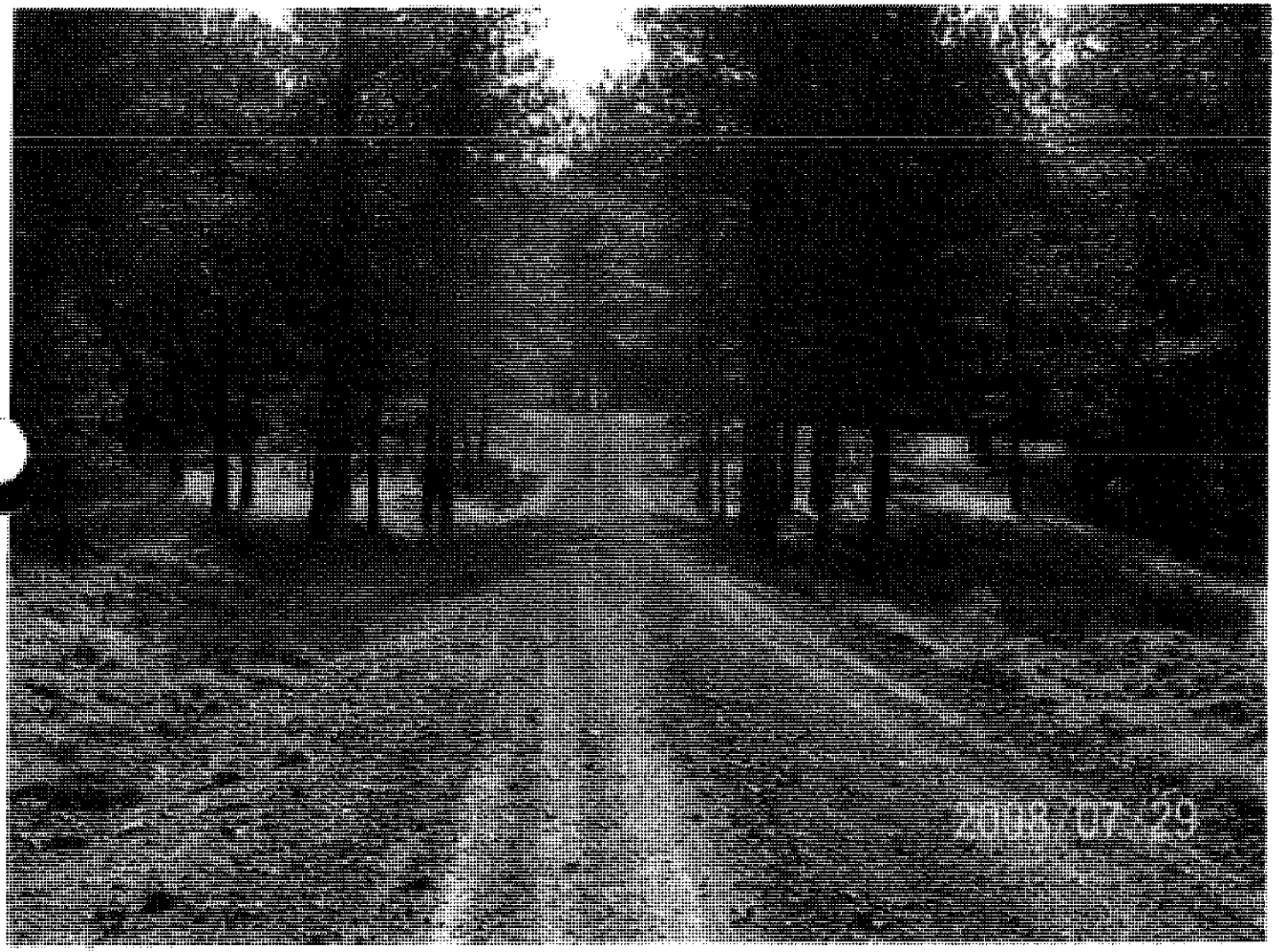

33N07
2008/07/29

2008/07/29

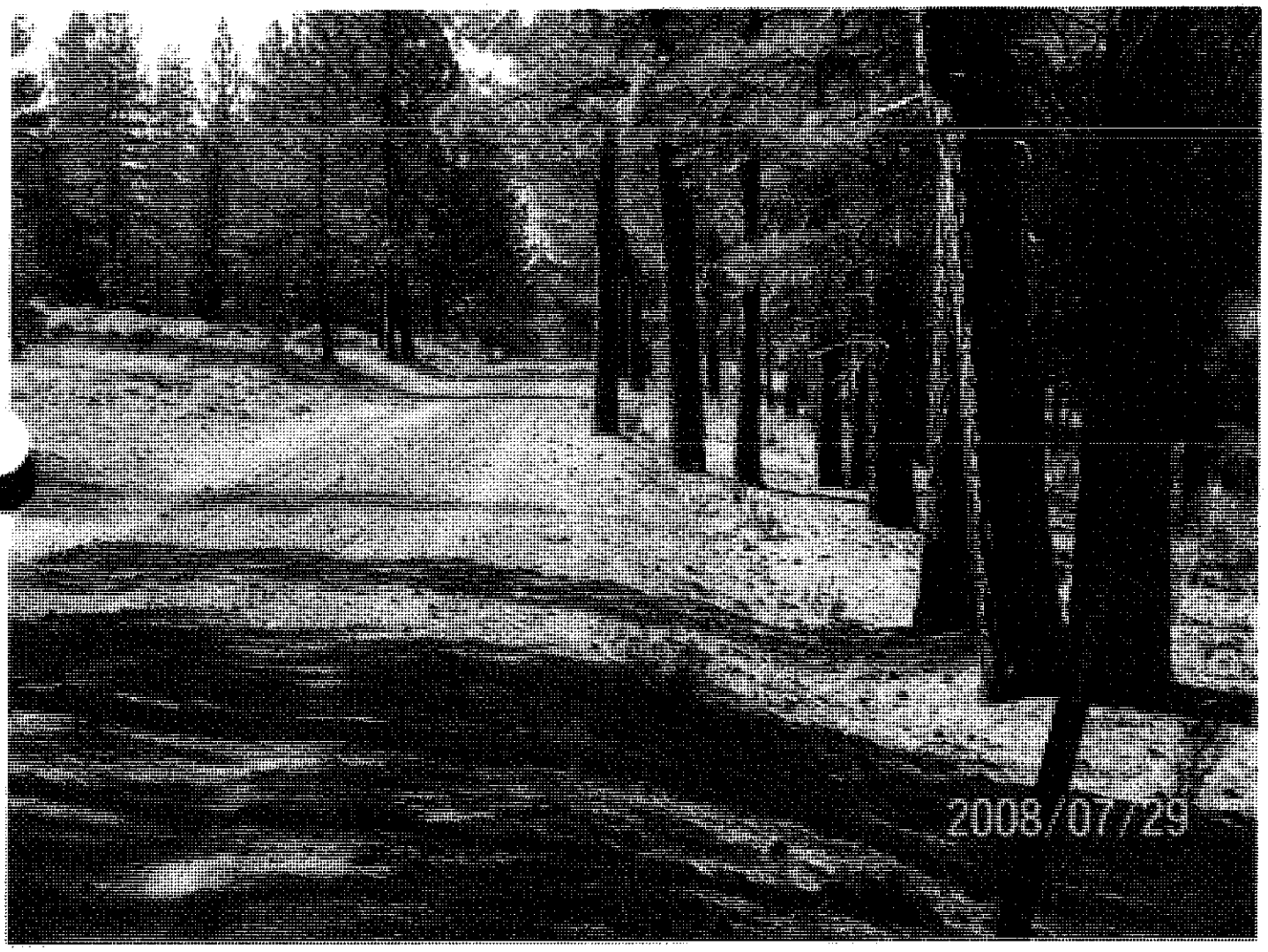

2008/07/29

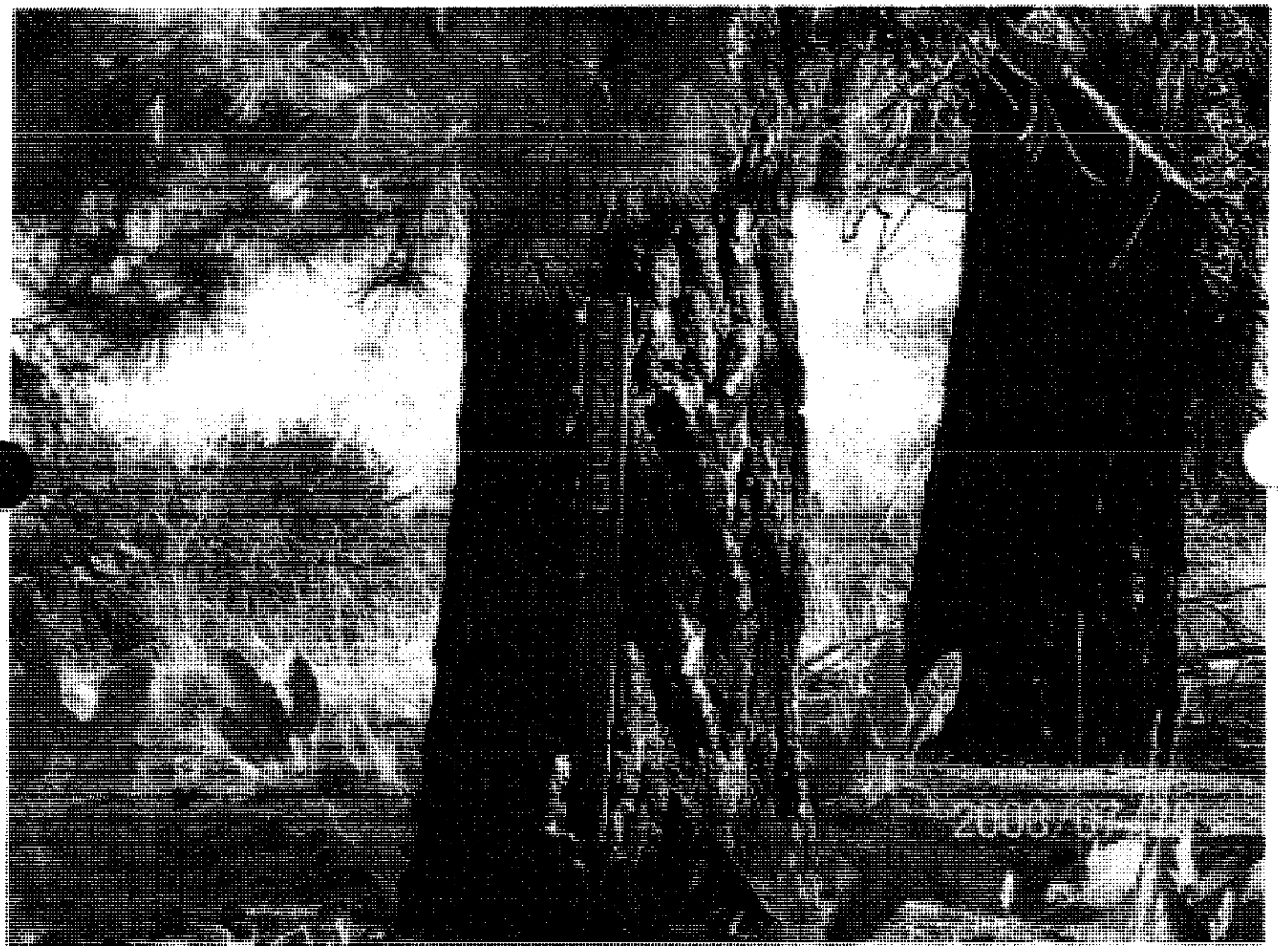

2008/07/29




2008.07.29


2008


2008/07/29



Prepared by
Tim Dedrick

Forest Transportation Planner/Civil Engineer
Lassen National Forest

Date 9/29/08

Reviewed by
George Kulick

Date

Region 5 Qualified Engineer
Region 5 Office of Engineering

Engineering Report:

Lassen National Forest

Eagle Lake Ranger District

Analysis of

National Forest System Road (NFSR)

34N34

for Motorized Mixed Use Designation

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

Road Number: **34N34** Road Name: **Hat Creek Rim Road**

Introduction: The 34N34 Road segment studied is located on the west side of Lassen National Forest (LNF) in the Old Station quadrangle.

NFSR 34N34 begins at the intersection of State Highway 44 in Section 22 of the Old Station quadrangle and runs northerly along the top of the Hat Creek Rim through Plum Valley, then northeasterly to the proximity of Grassy Lake, thence to a sharp horizontal curve at Porcupine Reservoir bearing to the northwest and an intersection with 34N36/ML3 which becomes the route alignment to a terminus with DR18 36N18/ML4. NFSR 34N34/ML3 becomes a ML2 after its intersection with 34N36 and continues due north past Government Well, gradually veering to the northeast and it's terminus at an intersection with DR18 36N18/ML4. This road is approximately 8 miles in length.

The entire road is currently managed by LNF as open only to highway-legal vehicles. The road segment analyzed was 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 this segment from the

intersection of 33N57/ML2 to 33N84Y/ML2. The LNF Travel Analysis (June 2008) identified these road sections as connectors 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: **2.50** Ending Mile Post: **2.65**

33N57 to 33N84Y

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 and operational ML3 local collector road and functions as ingress/egress access to the Hat Creek Rim area and provides for fire suppression, commodity extraction, wildlife management, and forest management activities.

Road 34N34 provides access from State Highway 44 which is a two lane all weather asphalt surfaced highway, through Plum Valley and is a forest through-way connecting a State highway to a forest Distinguished Route, DR18 a maintenance level 4 forest highway. This forest collector road serves as the only maintenance level 3 through-way that connects these two forest highways and provides primary access to the Hat Creek Rim, the Pacific Crest Scenic Trail, Grassy Lake, Porcupine Reservoir, and Government Well. Speeds are approximately 25-40 mph with a travel way consisting primarily of red volcanic cinder aggregate and some areas of native crushed rock.

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 34N34/ML3 identified in this analysis is to authorize motorized mixed vehicle class use. The proposal is to utilize the ML3 road segments to connect adjacent non-system Unauthorized Routes and ML2 roads into loops 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 34N34 is an observed 1.5 lane objective and operational maintenance level 3 standard to the intersection with 34N36/ML3 which becomes the route alignment.

The road is maintained to a standard allowing efficient passenger car through traffic at speeds up to 40 mph for reasonable and prudent drivers on straightaways. The road grade is fairly flat with segments that may approach 2%. Sight distance is limited along the extents of the road alignment and the study segment is a series of a 45 degree horizontal curve and a 90 degree horizontal curve. 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 it's road system's adherence to maintenance levels. This road is an objective ML3 and operational ML3-4.
- Topologically, the unit is overshadowed by a dramatic fault-block with relief in excess of 1000 vertical feet and a length of approximately 20 miles. The study segment is on the upper elevation and runs through a series of ephemeral small-lake drainage basins with semi-arid meadows, open pine forests, lava rock and brush. 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) forest management activities. The objective of the road is to provide access for emergency fire suppression response, wildlife management, private property access, and commodity extraction.
- Road is a high-level forest collector/arterial ML3-4 haul through-way from State Highway 44 to forest DR 18.
- 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 34N34 appears to be consistent with state law and forest policy for operational maintenance level 3 roads.
- Many roads in this vicinity, including the study segment, were dry and contributed significant dust when driven over.

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 31, 2008.

None 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 predominance of red volcanic cinder aggregate surfacing with minor areas of native crushed rock. Portions of the traveled way are raised and the shoulders are soft, non-compacted and have vegetation brush and pine tree encroachment. The road is approximately 20' wide. The grade is consistently flat with pitches up to 2%. The dry travel way, loose surface material, tight horizontal curves, and higher vehicle driving speeds may have an effect upon vehicle control.

6. Intersections with other roads and trails:

The study segment intersects with the following forest roads.

- 33N84Y/ML2
- 33N57/ML2

The maintenance level 2 roads have historically provided forest management access, fire suppression access, commodity access, and hunting and firewood gathering access.

The proposed MMU intersections of 34N34/ML3 may result in higher traffic merging speeds.

7. Other roadway factors:

- Substantial horizontal 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 20'.
- Cross slope is negligible.
- Grade of road is up to approximately 2%.
- The road provides administrative access for forest management activities, wildlife management, fire suppression access, 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 along lake shores, through arid meadows, open pine forest and manzanita brush.
- Cross slope is negligible.
- Grade is up to 2%.
- Pine trees are ≥18", encroaching roadside brush, volcanic rocks.
- Emergency run-out is limited as the roadbed is raised in segments with vertical drop-offs, road shoulders are soft and unconsolidated, and adjacent terrain is covered with numerous lava rocks, trees, and brush.

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.
- Remove cinder material and replace with compacted crushed rock aggregate.
- Notify the Commissioner of the California Highway Patrol and review their opinion.
- Approximate Implementation Cost: $ 50,000
- 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

0 0.5 1 Miles

Old Station

NFS Surfaced Roads or Non-NFS Jurisdiction Roads Open to Highway Legal Vehicles Only (includes NFS Maintenance Level 3-5 Roads, State and County Roads, etc.)

Mixed Use Analysis Pending

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

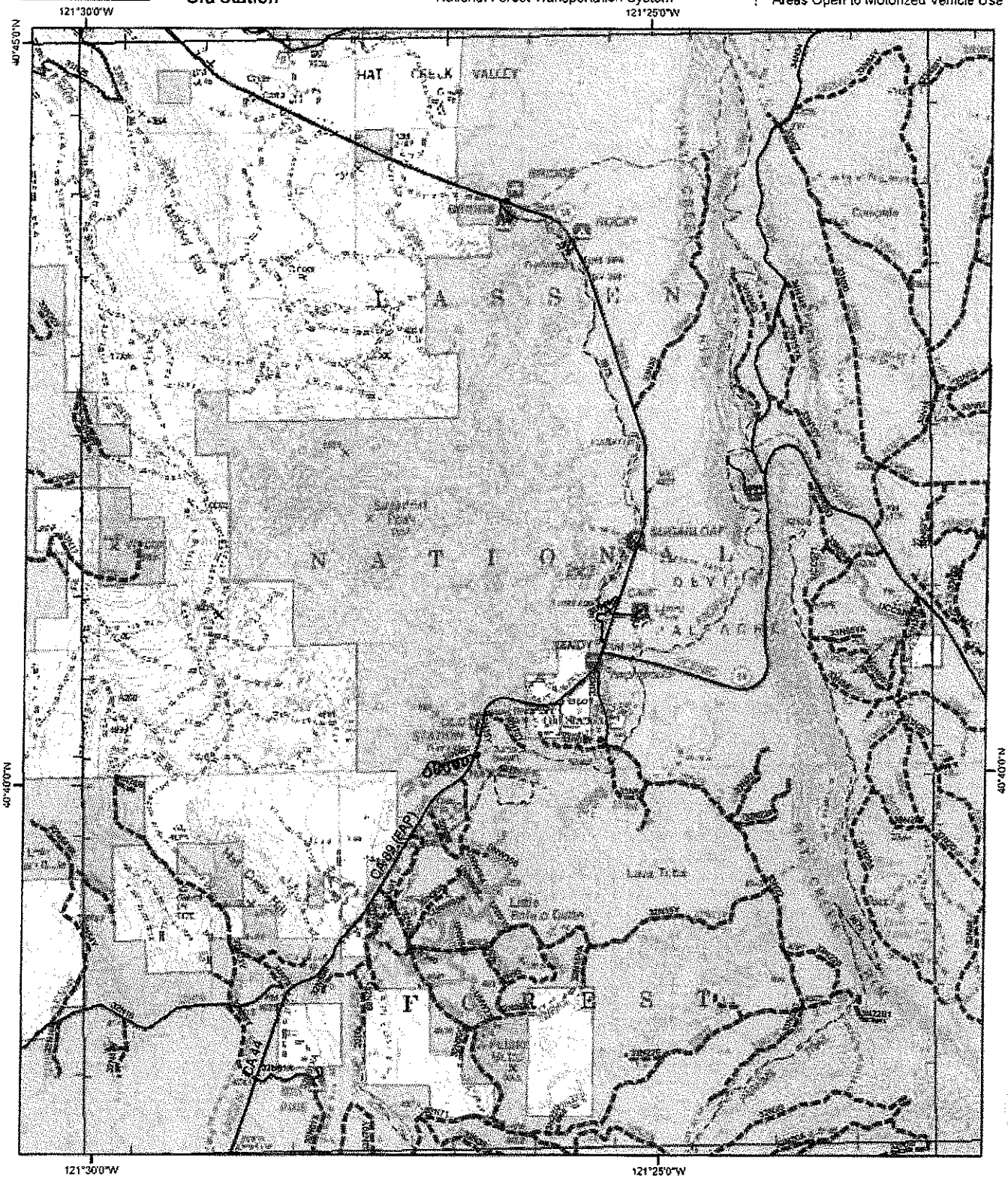
Restrict Season of Use to Summer/Fall (Winter Rec Trail)

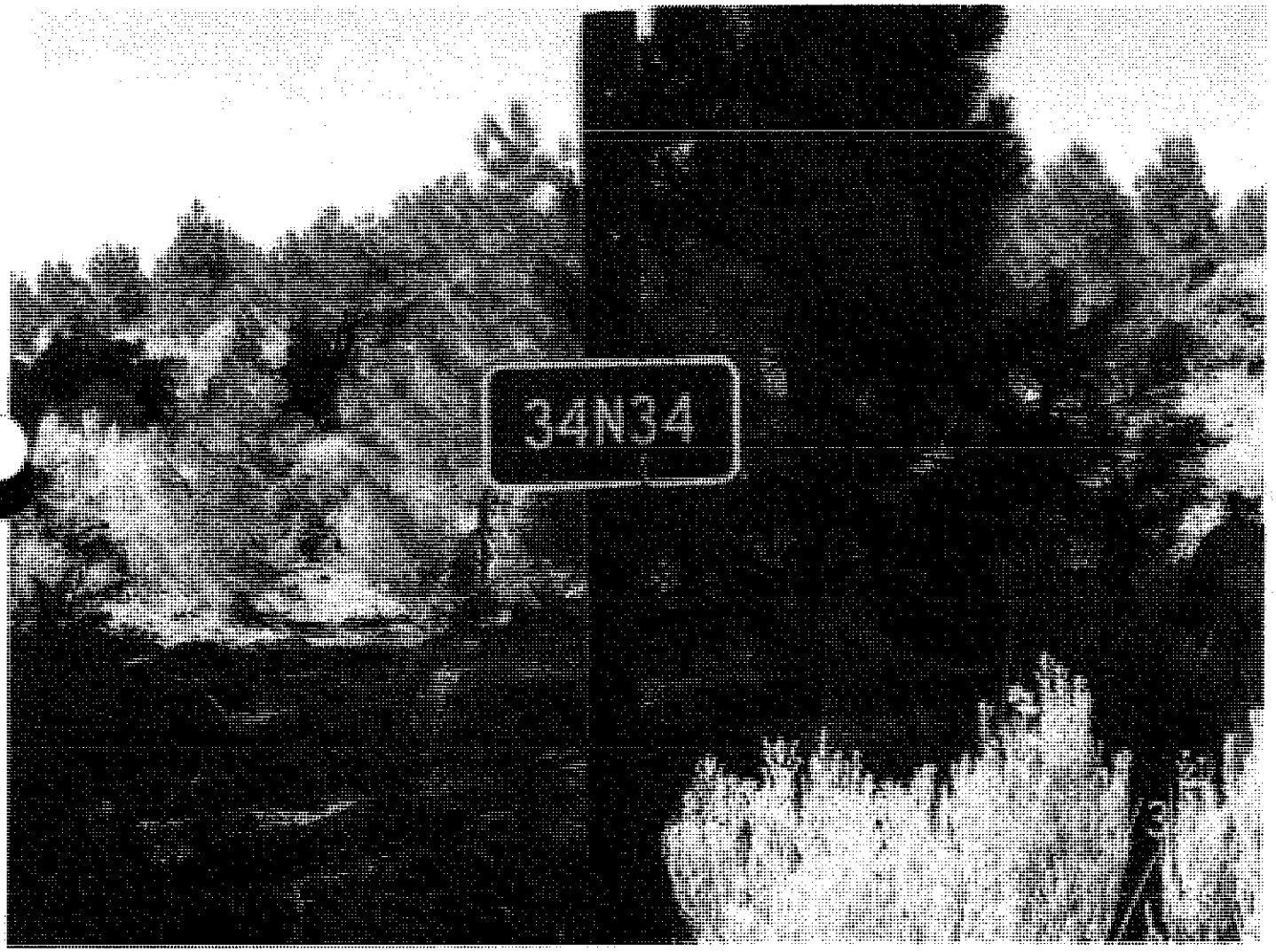
Motor Vehicles Prohibited

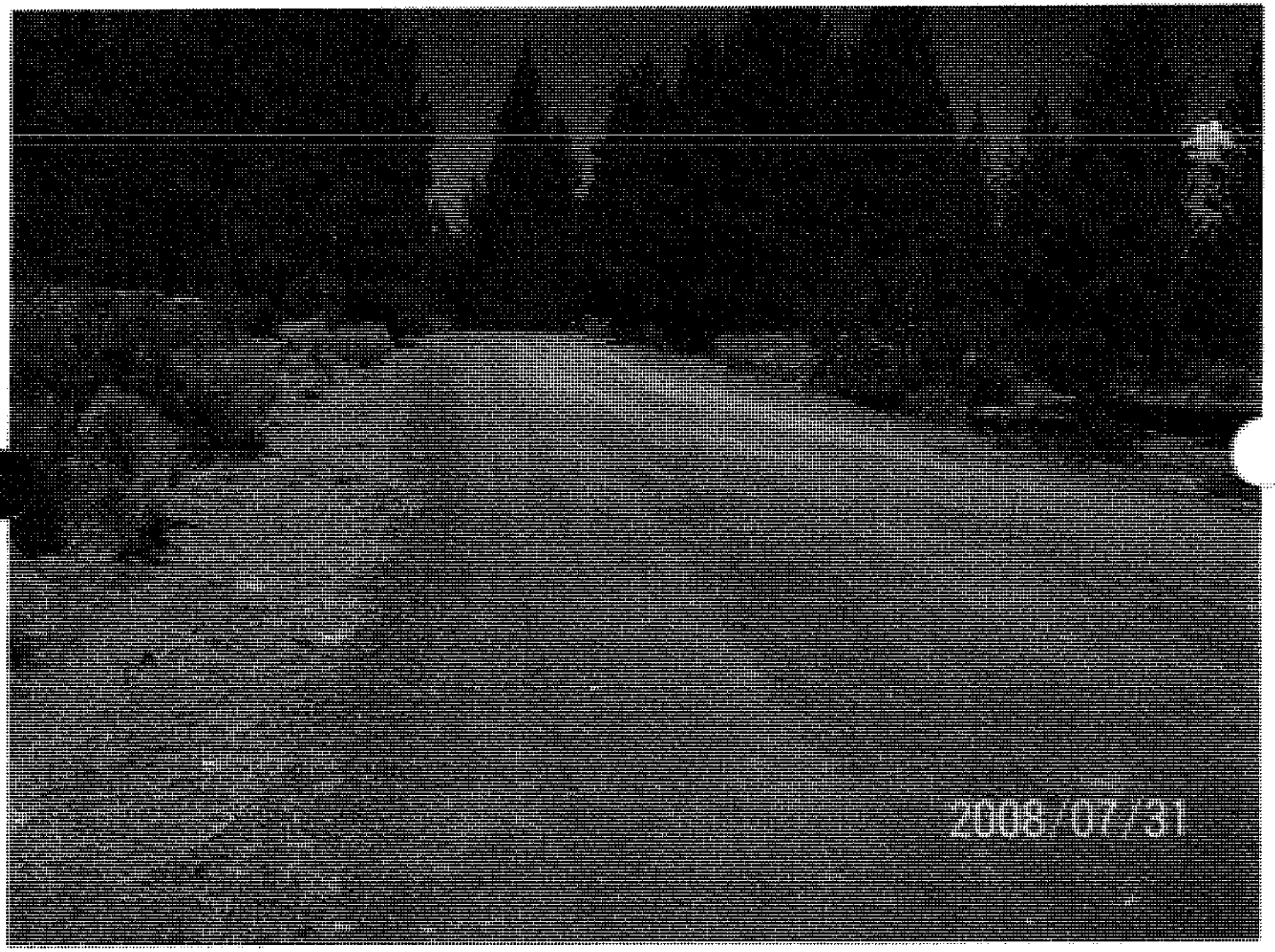
Lassen National Forest

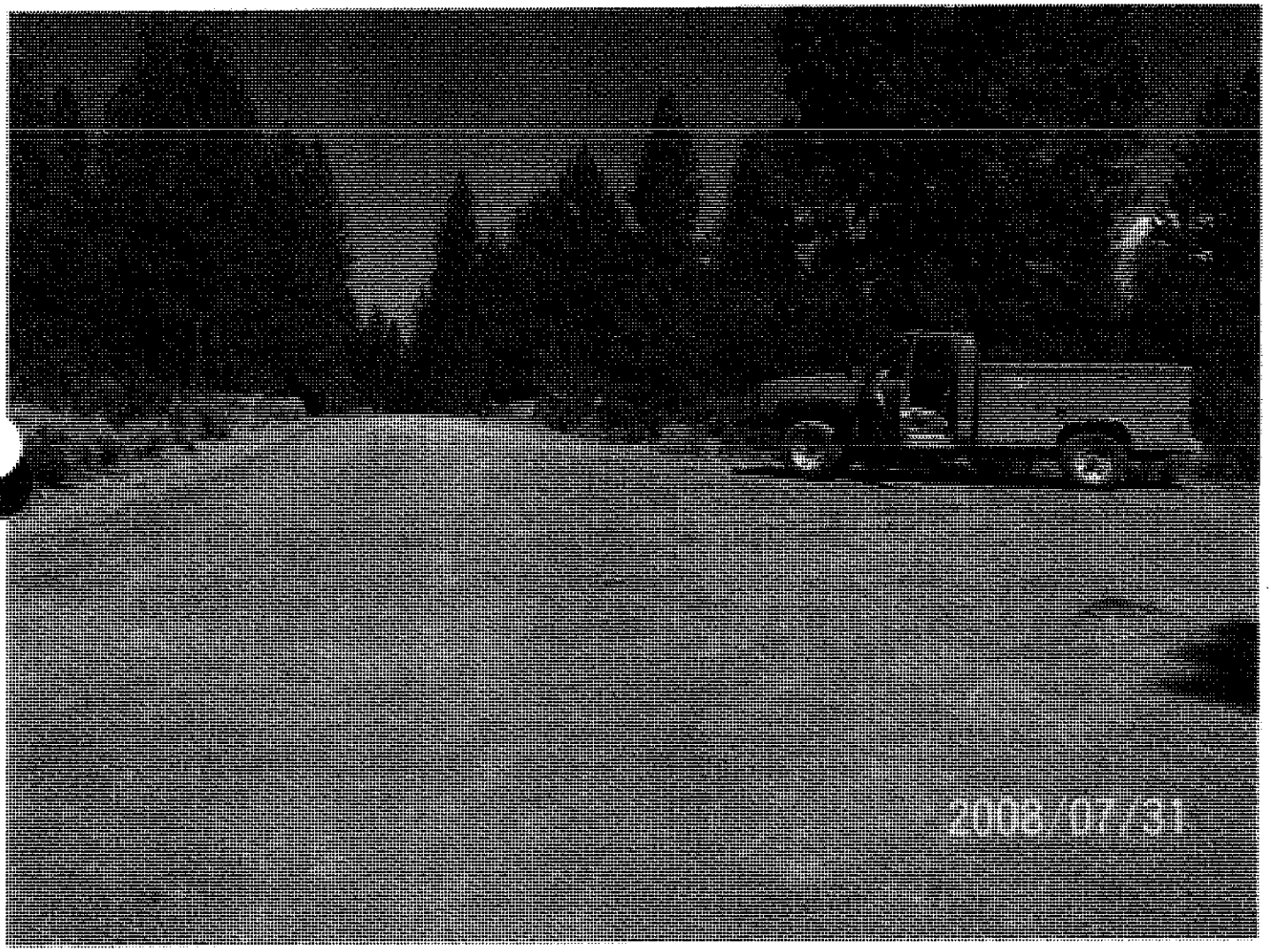
Private Land

! Areas Open to Motorized Vehicle Use




34N34


2008/07/31


2003 07 31

Prepared by
Tim Dedrick

Forest Transportation Planner/Civil Engineer
Lassen National Forest

Date 9/29/08

Reviewed by
George Kulick

Date

Region 5 Qualified Engineer
Region 5 Office of Engineering

Engineering Report:

Lassen National Forest

Eagle Lake Ranger District

Analysis of

National Forest System Road (NFSR)

35N04

for Motorized Mixed Use Designation

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

Road Number: **35N04** Road Name: **Harvey Mountain Lookout Road**

Introduction: The 35N04 Road segment studied is located on the east side of Lassen National Forest (LNF) in the Harvey Mountain quadrangle, on the western boundary of Harvey Valley.

NFSR 35N04 begins at the intersection of 33N02/ML3 in Section 21 of the Harvey Mountain Quadrangle and runs northwest to an intersection with 33N15/ML3 and then turns due north up the western flank of Harvey Mountain to a four way intersection with 33N08/ML3, 33N85/ML2, 34N37/ML2, and 33N29Y/ML2. This road segment is approximately 2 miles in length.

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 35N04, from the intersection of 33N02 to 33N15 and the four way intersection and connection to 33N08. The LNF Travel Analysis (June 2008) identified these road sections as connectors 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: **2.10**

33N02 to 33N08

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 and operational ML3 local collector road and functions as ingress/egress access for the Harvey Mountain Fire Lookout, commodity extraction/forest management for Harvey Mountain and Aspen Flats.

Road 35N04 provides access from 33N02/ML3-4 for a short distance of approximately two miles from the Harvey Valley western margin, up the southwest and western flank of Harvey Mountain. Speeds are approximately 25-30 mph on native crushed rock and volcanic cinder aggregate.

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 35N04/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 35N04 is an observed 1+ lane operational maintenance level 3 standard to approximate road mile 2.2 where it intersects with four NFSR roads. 35N04 continues as a maintenance level 2 from this intersection to it's terminus with 34N12 at approximate road mile 3.

The road is maintained to a standard allowing efficient passenger car through traffic at speeds up to 30 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 it's road system's adherence to maintenance levels. This road is an objective ML3 as it provides fire lookout tower access which necessitates a high level ingress/egress emergency access road.
- Topologically, the unit is semi-mountainous, fairly dry, and sandwiched between 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 rangeland of the Harvey Valley area to the east. The operational level of this road is classified as a 3. 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 emergency fire detection and suppression response, wildlife management in conjunction with the State Game Refuge, commodity extraction, forest

management, rangeland allotments, and dispersed recreation.

- 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 35N04 appears to be consistent with state law and forest policy for operational maintenance level 3 roads.
- Many roads in this vicinity, including the study segment, were dry and contributed significant dust when driven over.

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.

No vehicles observed.

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

The speed greatly varies, depending on the roadway conditions. The 85th percentile would be estimated at: 25 mph.

5. Road surface type:

The road has a combination of crushed rock aggregate and red volcanic cinder aggregate surfacing. Portions of the traveled way are raised and the shoulders are soft and non-compacted. The road is approximately 16' wide. The surface appeared well-maintained.

6. Intersections with other roads and trails:

The segment intersects with the following forest roads.

- 33N15/ML3
- 34N37/ML2
- 35N85B/ML2
- 33N02Y/ML2
- 33N90Y/ML2
- 33N83/ML2
- 34N01/ML2

The maintenance level 2 roads have historically provided forest management access, fire suppression access, commodity 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 horizontal and 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 fire lookout access. 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 5-25%.
- Grade is 2-4%.
- Pine trees are ≥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

0 0.5 1 Miles

Harvey Mtn

NFS Surfaced Roads or Non-NFS Jurisdiction Roads Open to Highway Legal Vehicles Only (Includes NFS Maintenance Level 3-5 Roads, State and County Roads, etc.)

Mixed Use Analysis Pending

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

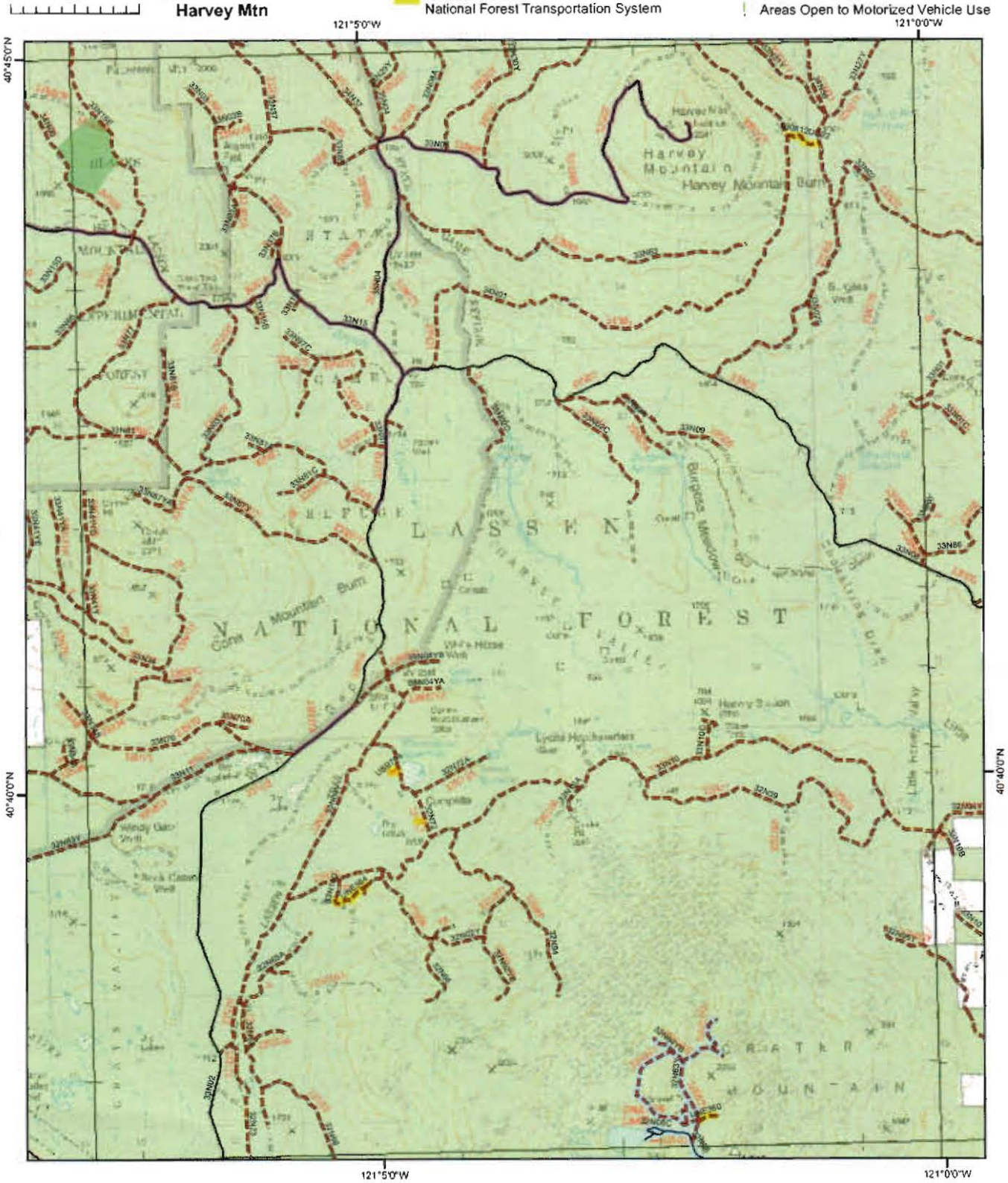
Restrict Season of Use to Summer/Fall (Winter Rec Trail)

Motor Vehicles Prohibited

Lassen National Forest

Private Land

Areas Open to Motorized Vehicle Use



May 2008 DRAFT

Alternative 5
(Motorized Emphasis)
Travel Management
Lassen National Forest

0 0.5 1 Miles

Straylor Lake

NFS Surfaced Roads or Non-NFS Jurisdiction Roads Open to Highway Legal Vehicles Only (Includes NFS Maintenance Level 3-5 Roads, State and County Roads, etc.)

Mixed Use Analysis Pending

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

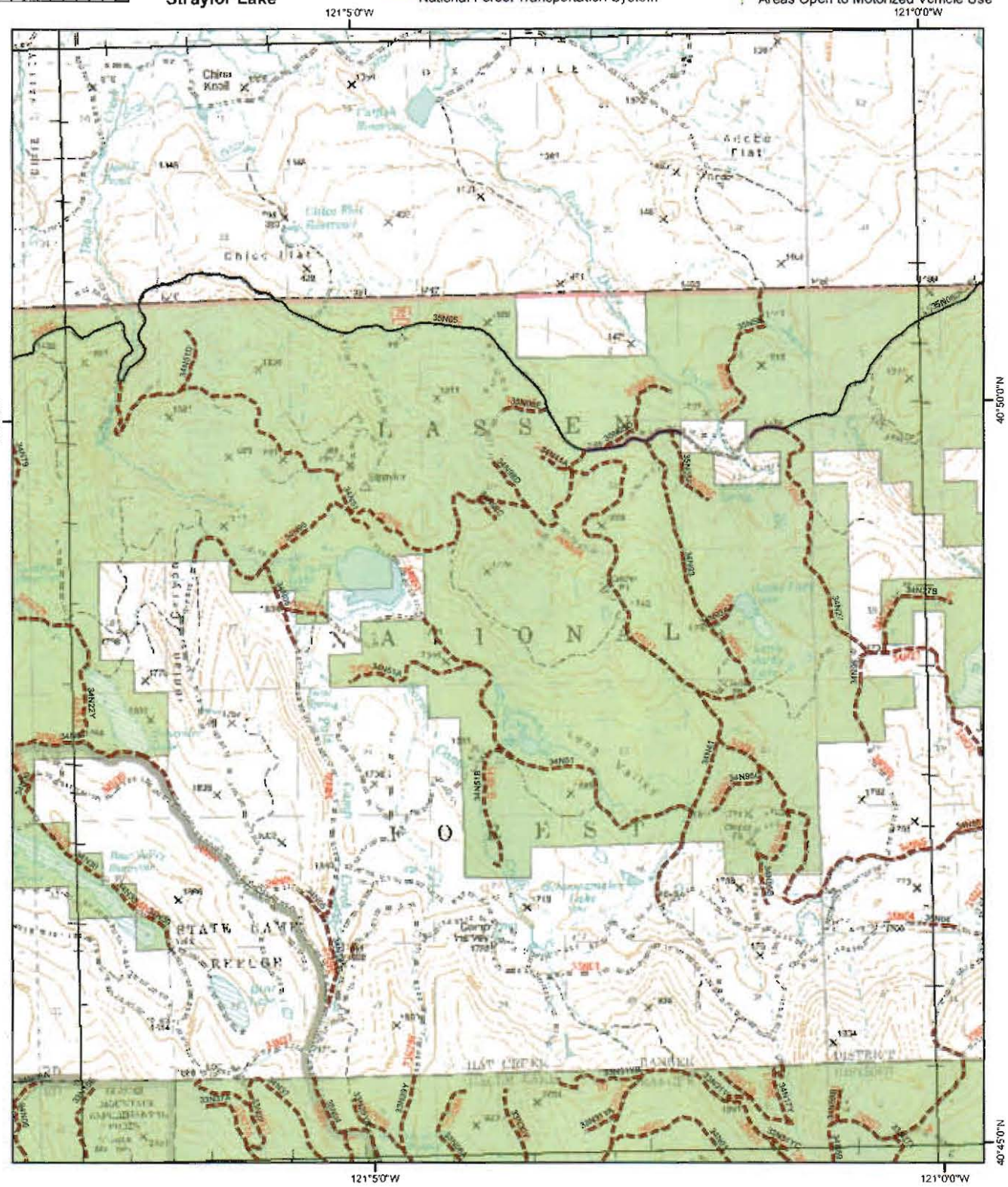
Restrict Season of Use to Summer/Fall (Winter Rec Trail)

Motor Vehicles Prohibited

Lassen National Forest

Private Land

Areas Open to Motorized Vehicle Use



Prepared by
Tim Dedrick

Forest Transportation Planner/Civil Engineer
Lassen National Forest

Date 9/29/08

Reviewed by
George Kulick

Date

Region 5 Qualified Engineer
Region 5 Office of Engineering

Engineering Report:

Lassen National Forest

Eagle Lake Ranger District

Analysis of

National Forest System Road (NFSR)

35N08

for Motorized Mixed Use Designation

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

Road Number: **35N08** Road Name: **Blacks Mountain Road**

Introduction: The 35N08 Road segments studied are located on the east side of Lassen National Forest (LNF) in the Poison Lake quadrangle.

NFSR 35N08 begins at the intersection of State Highway 44 in Section 9 of the Poison Lake quadrangle and runs northeast along the west boundary of Poison Lake, thence north parallel to and crossing the Burlington Northern Railroad tracks and into the State Game Refuge, thence runs north and northwest past the east boundary of Dry Lake, enters the southern extents of the Blacks Mountain Experimental Forest and continues along the western boundary of said experimental forest, thence turns northeast and exits the northern boundary of said experimental forest, road continues northeasterly into the Blacks Mountain quadrangle and the proximity of Bear Valley Reservoir, then continues east and north past the west side of Corders Reservoir and changes direction to the northwest and it's terminus in Section 35 with the intersection of NFSR 35N05ML3-4. This road is approximately 13.5 miles in length.

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 2 segments of 35N08, from the intersection of 33N28Y/ML2 to 35N08N/ML2 and the intersection of the Pittville Road – Lassen County Road 111 to 33N61Y/ML2. The LNF Travel Analysis (June 2008) identified these road sections as connectors 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: **0.50** Ending Mile Post: **1.50**

33N28Y to 35N08N

Traffic Service Level: ☐ A ☐ B ☒ C ☐ D

Objective Maintenance Level: ☐ 1 ☐ 2 ☒ 3 ☐ 4 ☐ 5

Operational Maintenance Level: ☐ 1 ☐ 2 ☒ 3 ☐ 4 ☐ 5

Segment 2: Beginning Mile Post: **2.25** Ending Mile Post: **2.75**

Lassen County Road 111 to 33N61Y

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 and operational ML3 local collector road and functions as ingress/egress access to the west shore of Poison Lake, commodity extraction, wildlife management, and forest management activities.

Road 35N08 provides access from State Highway 44 which is a two lane all weather asphalt surfaced highway, through the Poison Lake and Blacks Mountain quadrangles. This collector road serves as the only maintenance level 3 through-road that connects these two quadrangles and provides primary access to Poison Lake, Dry Lake, Blacks Mountain Experimental Forest, Blacks Mountain, Bear Valley Reservoir, Busters Reservoir, Corders Reservoir, and NFSR 35N05 a forest perimeter ML4 forest highway. Speeds are approximately 25-45 mph with a travel way consisting primarily of red volcanic cinder aggregate and some areas of native crushed rock.

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 these segments of 35N08/ML3 identified in this analysis is to authorize motorized mixed vehicle class use. The proposal is to utilize the ML3 road segments to connect adjacent non-system Unauthorized Routes and ML2 roads into loops 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 35N08 is an observed 1.5 lane objective and operational maintenance level 3-4 standard throughout its extents.

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. The road grade is fairly flat with segments that may approach 3%. Sight distance is limited along the extents of the road alignment with numerous horizontal and vertical curves. Vegetation encroaches upon travel way in many locations. 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 it's road system's adherence to maintenance levels. This road is an objective ML3 and operational ML3-4.
- Topologically, the unit is a series of ephemeral small-lake drainage basins with semi-arid meadows in the lower elevations and open pine forests and manzanita brushfields vegetating the low-mid elevations and mountain flanks. 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) forest management activities. The objective of the road is to provide access for emergency fire suppression response, wildlife management, private property access, and commodity extraction.
- Road is a high-level forest collector/arterial ML3-4 haul through-road to Blacks Mtn Experimental Forest.
- 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 35N08 appears to be consistent with state law and forest policy for operational maintenance level 3 roads.
- Many roads in this vicinity, including the study segment, were dry and contributed significant dust when driven over.

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.

1 agency pickup truck was observed on this road.

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

The speed greatly varies, depending on the roadway conditions. The 85th percentile would be estimated at: 45 mph.

5. Road surface type:

The road has a predominance of red volcanic cinder aggregate surfacing with minor areas with native crushed rock. Portions of the traveled way are raised and the shoulders are soft and non-compacted. The road is approximately 15'-18' wide. The grade is consistently flat with pitches up to 3%. The dry travel way, loose surface material, and higher vehicle driving speeds have produced a consistent wash-boarding of the acceleration/deceleration zones (horizontal

curves) along the road. Vehicle control is limited due to loose travel way surface material (volcanic cinder aggregate) and horizontal curves.

6. Intersections with other roads and trails:

Segment 1 intersects with the following forest roads.

- 33N28Y/ML2
- 35N08M/ML2
- 35N08N/ML2

Segment 2 intersects with the following forest roads.

- Lassen County Road 111, (Pittville Rd.)
- 33N61Y/ML2

The maintenance level 2 roads have historically provided forest management access, fire suppression access, commodity access, and hunting and firewood gathering access.

The proposed MMU intersections of 35N08/ML3 may result in higher traffic merging speeds.

7. Other roadway factors:

- Substantial horizontal and 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 15'-18', approximately.
- Cross slope of approximately 6% in stretches of alignment.
- Grade of road is up to approximately 3%.
- The road provides administrative access for forest management activities, wildlife management, fire suppression access, 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 along lake shores, through arid meadows, open pine forest and manzanita brush.
- Cross slope is maximum 6%.
- Grade is up to 3%.
- Pine trees are ≥18", encroaching roadside manzanita, volcanic rocks.
- Emergency run-out is limited as the roadbed is raised with vertical drop-offs of up to 6 feet from the road shoulders and associated culverts.

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.
- Remove cinder material and replace with compacted crushed rock aggregate.
- Notify the Commissioner of the California Highway Patrol and review their opinion.

- Approximate Implementation Cost: $ 50,000
- 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

0 0.5 1 Miles

Poison Lake

NFS Surfaced Roads or Non-NFS Jurisdiction Roads Open to Highway Legal Vehicles Only (Includes NFS Maintenance Level 3-5 Roads, State and County Roads, etc.)

Mixed Use Analysis Pending

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

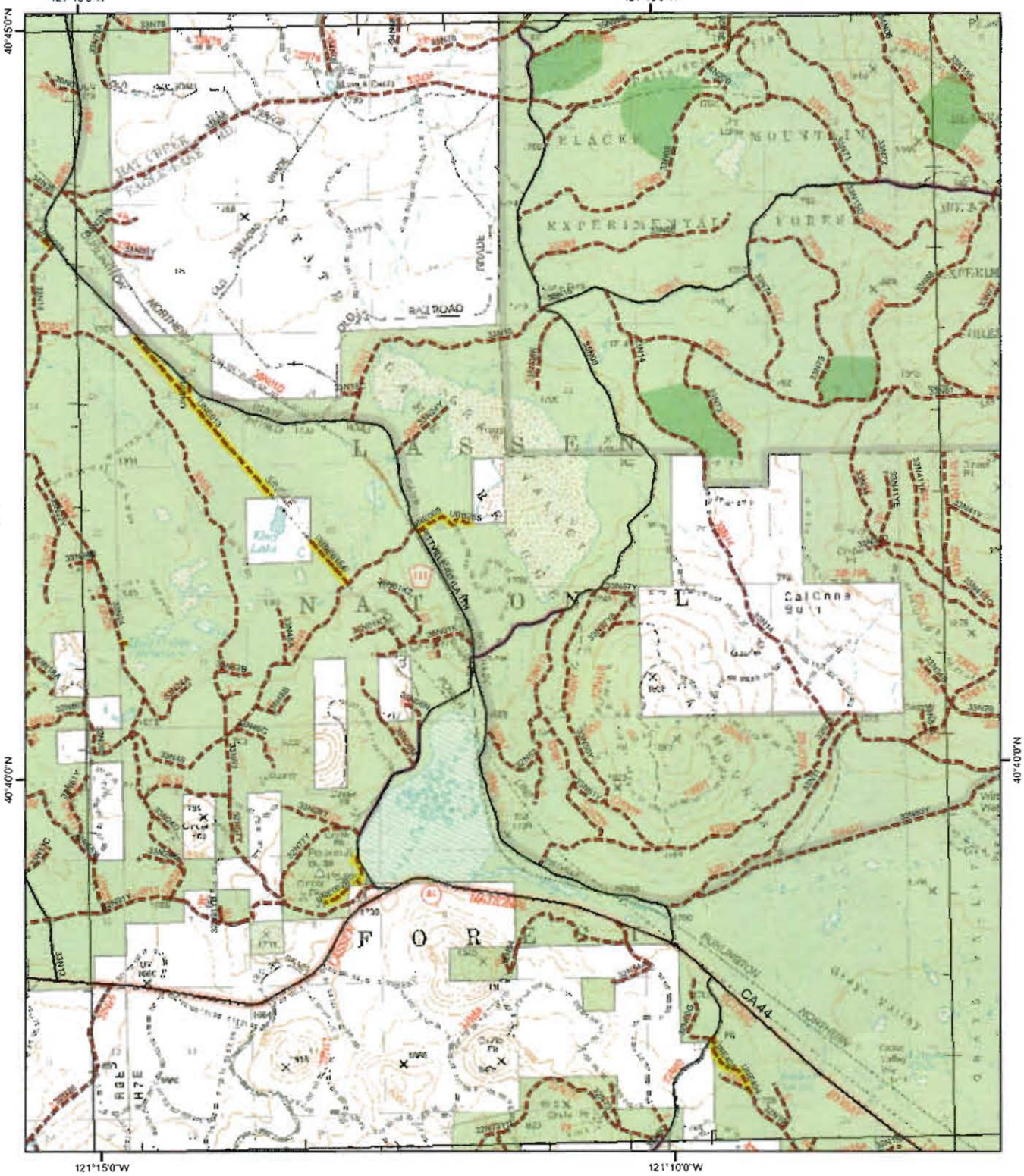
Restrict Season of Use to Summer/Fall (Winter Rec Trail)

Motor Vehicles Prohibited

Lassen National Forest

Private Land

Areas Open to Motorized Vehicle Use



Prepared by
Tim Dedrick

Forest Transportation Planner/Civil Engineer
Lassen National Forest

Date 9/29/08

Reviewed by
George Kulick

Date

Region 5 Qualified Engineer
Region 5 Office of Engineering

Engineering Report:

Lassen National Forest

Hat Creek Ranger District

Analysis of

National Forest System Road (NFSR)

36N18

for Motorized Mixed Use Designation

Forest: **Lassen** District: **Eagle lake/Hat Creek**

Road Number: **36N18** Road Name: **DR 18 Road**

Introduction: The 36N18 Road segments studied are located on the east side of Lassen National Forest (LNF) in the Swains Hole quadrangle, on the eastern/western boundary of the Hat Creek/Eagle Lake Ranger Districts respectively.

NFSR 36N18/ML4 begins at the intersection of State Highway 44 in Section 11 of the Swains Hole quadrangle and trends due north and east to the Swains Hole, then trends northwest along the western base of the Butte Creek Rim to Mountain Home, continuing north along the western base of the fault block of Butte Creek Rim, past the Cone and Ward Ranch, continuing past Twin Ponds , Bainbridge, and Alcohol Jack Reservoirs in the Jellico quadrangle. 36N18/ML3 continues northwest into the Murken Bench quadrangle approaching the upper elevations and eastern extents of the Hat Creek Rim, where it parallels the Rim and the Pacific Crest National Scenic Trail until it's terminus in the Hogback Ridge quadrangle at the intersection with County Road 7RO2. The road length is approximately 23 miles.

The two road segments studied are both in the Swain's Hole quadrangle and start at the intersections of UCC706 an Unauthorized Route to 32N52/ML2 for approximately 1.25 miles and the intersections of 33N13YA/ML2 to 33N32/ML2 for approximately 0.25 miles respectively.

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 36N18/ML4. 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: **0.25** Ending Mile Post: **1.50**

UCC076 to 32N52

Traffic Service Level: ☐ A ☐ B ☒ C ☐ D

Objective Maintenance Level: ☐ 1 ☐ 2 ☒ 3 ☐ 4 ☐ 5

Operational Maintenance Level: ☐ 1 ☐ 2 ☒ 3 ☐ 4 ☐ 5

Segment 2: Beginning Mile Post: **3.50** Ending Mile Post: **3.75**

33N13YA to 33N32

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 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 possession of a valid driver's license.

Based on the Forest Service Directives and Travel Management purpose and need, to allow all motor vehicles on this segment with a designation of motorized mixed use for a segment or segments with a cumulative distance of 3 miles or less could be consistent with state and federal laws and directives with appropriate mitigation for safety concerns.

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

Road DR18 36N18/ML4 currently encourages use as an objective ML4 and operational ML4 collector/arterial road and functions as a forest throughway connecting the Hat Creek Ranger District and nearby State Highway 299 and County Road 7RO2 to the Eagle Lake Ranger District and nearby State Highway 44. This forest highway connects on each end to all weather asphalt surfaced State highways and provides ingress and egress to a myriad of Defensible Fuel Profile Zones – DFPZ's, forest plan units for timber harvesting, grazing allotments and livestock and wildlife watering holes.

36N18 is utilized by forest personnel for ingress and egress to Defensible Fuel Profile Zones – DFPZ's and their associated vegetation management and fire suppression functions, for range allotment management, for wildlife management at Buffelhead Reservoir, and for fire prevention patrol to a very large area that bisects two Ranger District's and two County boundaries.

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 these two segments of 36N18/ML4 identified in this analysis is to authorize motorized mixed vehicle class use. The proposal is to utilize the ML4 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 36N18 is an observed 1+ lane operational maintenance level 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 ML4 and an operational ML4. It provides forest commodity haul, livestock grazing area access 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.
- Although the road rests upon the top of the fault block of the Hat Creek Rim, topologically the unit is dry and flat. The objective level of this road is classified as a 4, and the operational level is a ML4. 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, livestock grazing, wildlife management, emergency fire detection and suppression response.
- 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 36N18 appears to be consistent with state law and forest policy for operational maintenance level 4 roads.

2. Crash history:

In April 2005 there was a single vehicle crash/collision with a roadside boulder. Vehicle was a passenger car traveling at 35-45 mph as estimated by the California Highway Patrol. Approximate location was on 36N18 about 4.4 miles east of Cassell California. The crash location was the approximate intersection with DR 22, forest highway 35N72/ML4.

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.

3 Forest Service Timber Sale Administration vehicles were observed along the 36N18 road.

An additional 3 log trucks were observed on road 36N18.

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

The speed greatly varies, depending on the roadway conditions. The 85th percentile would be estimated at: 45 mph.

5. Road surface type:

The road has a combination of native crushed rock aggregate and red volcanic cinder surfacing. The majority of the traveled way is constructed upon a raised roadbed and the road has drainage ditches, singular culverts, and ditch-relief culverts. The road is approximately 16'-20' wide. The road traveled way is very dry and contains many fine aggregate components and produces prodigious quantities of dust when driven over. Road shoulders are soft and unconsolidated.

6. Intersections with other roads and trails:

Road segment 1 intersects with the following forest roads.

- UCC076/Unauthorized Route
- 32N52/ML2

Road segment 2 intersects with the following forest roads.

- 33N13YA/ML2
- 33N32

The maintenance level 2 roads have historically provided forest management access, fire suppression access, commodity haul, forest grazing access, and hunting and firewood gathering access. The proposed MMU intersections of 36N18/ML4 may result in higher traffic merging speeds.

7. Other roadway factors:

- Roadway alignment was adequate for the assigned maintenance level. Alignment provides for vehicle closing speeds of approximately 80-100 mph.
- The road was maintained with a traveled way width of 16'-20".
- Raised roadbed creates soft unconsolidated shoulders. Emergency vehicle run-out among numerous lava rocks, Juniper trees, Pine trees, and brush may lead to loss of control for vehicle operators and/or collisions with immobile objects.
- The road provides administrative access for meadows/grazing, fire prevention patrol access, fire suppression access, wildlife management, 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 high elevation, 5,000 ft., open Pine forest, open Juniper, brush, native grass and lava rock forest land.
- Cross slope is 0-5%.
- Grade is 0-3%.
- Pine and Juniper trees are ≤18" and numerous lava ejecta rocks.
- 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.).
- 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 segments 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:

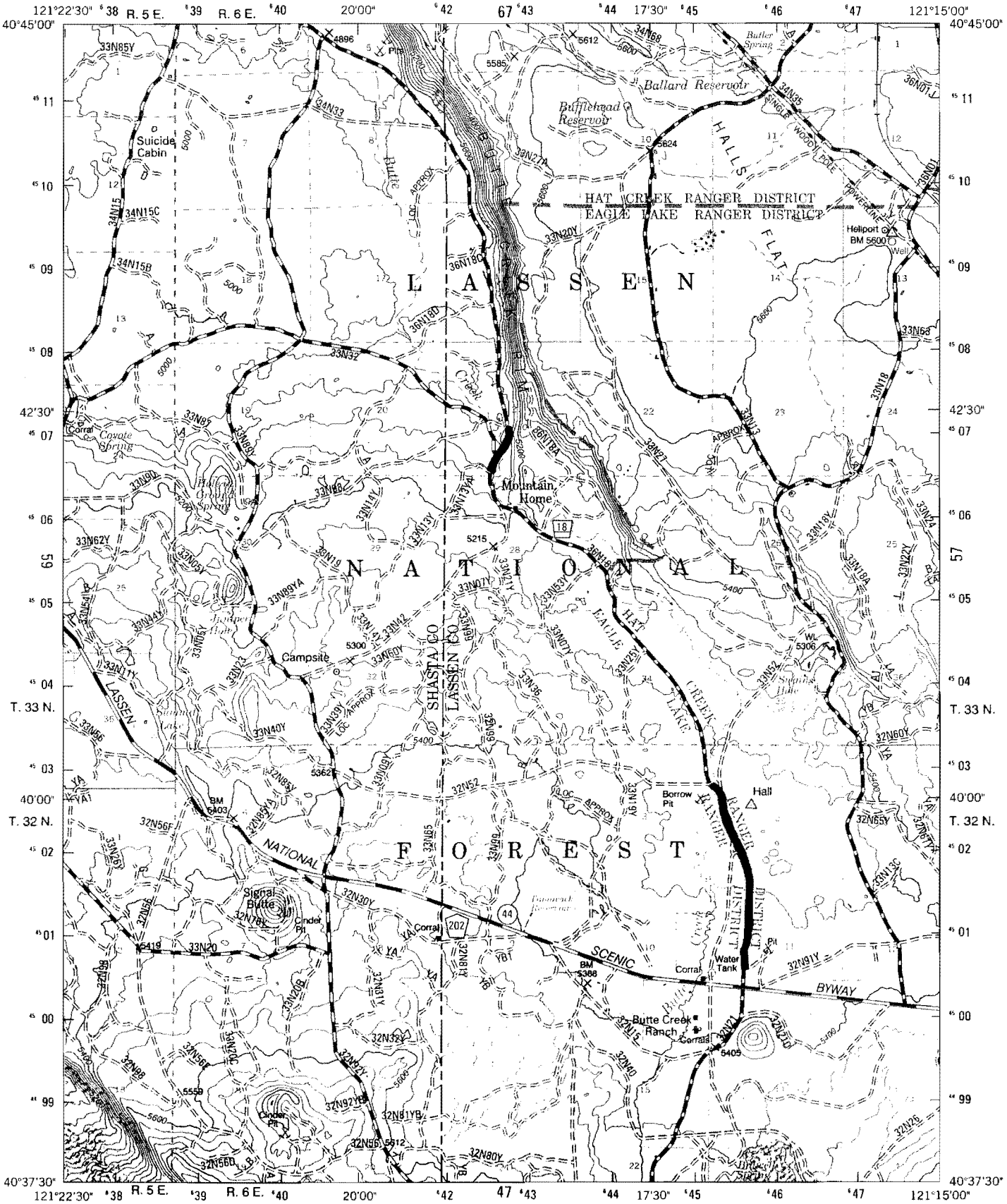
Tim Dedrick July 17, 2009

Prepared by
Tim Dedrick Civil Engineer

Date

George Kulick
Region 5 Qualified Engineer

Date



Produced by the U.S. Geological Survey
Revised by the U.S. Forest Service

Areas outside the National Forest System lands may not have been revised.

Control by USGS and NOS/NOAA

Compiled from aerial photographs taken 1980. Revised from aerial photographs taken 1991 and 1993. Partial field check by U.S. Forest Service 1995

North American Datum of 1927 (NAD 27). Projection: California coordinate system, zone 1 (Lambert Conformal Conic).

National Forest System lands. Revised 1997

This map is not a legal land line or ownership document. Public lands are subject to change and leasing, and may have access restrictions; check with local offices. Obtain permission before entering private lands.

Maps & Photos:

George Kulick
Region 5 Qualified Engineer

Date

May 2008 DRAFT

Alternative 5
(Motorized Emphasis)
Travel Management
Lassen National Forest

0 0.5 1 Miles

Swains Hole

NFS Surfaced Roads or Non-NFS Jurisdiction Roads Open to Highway Legal Vehicles Only (Includes NFS Maintenance Level 3-5 Roads State and County Roads, etc.)

Mixed Use Analysis Pending

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

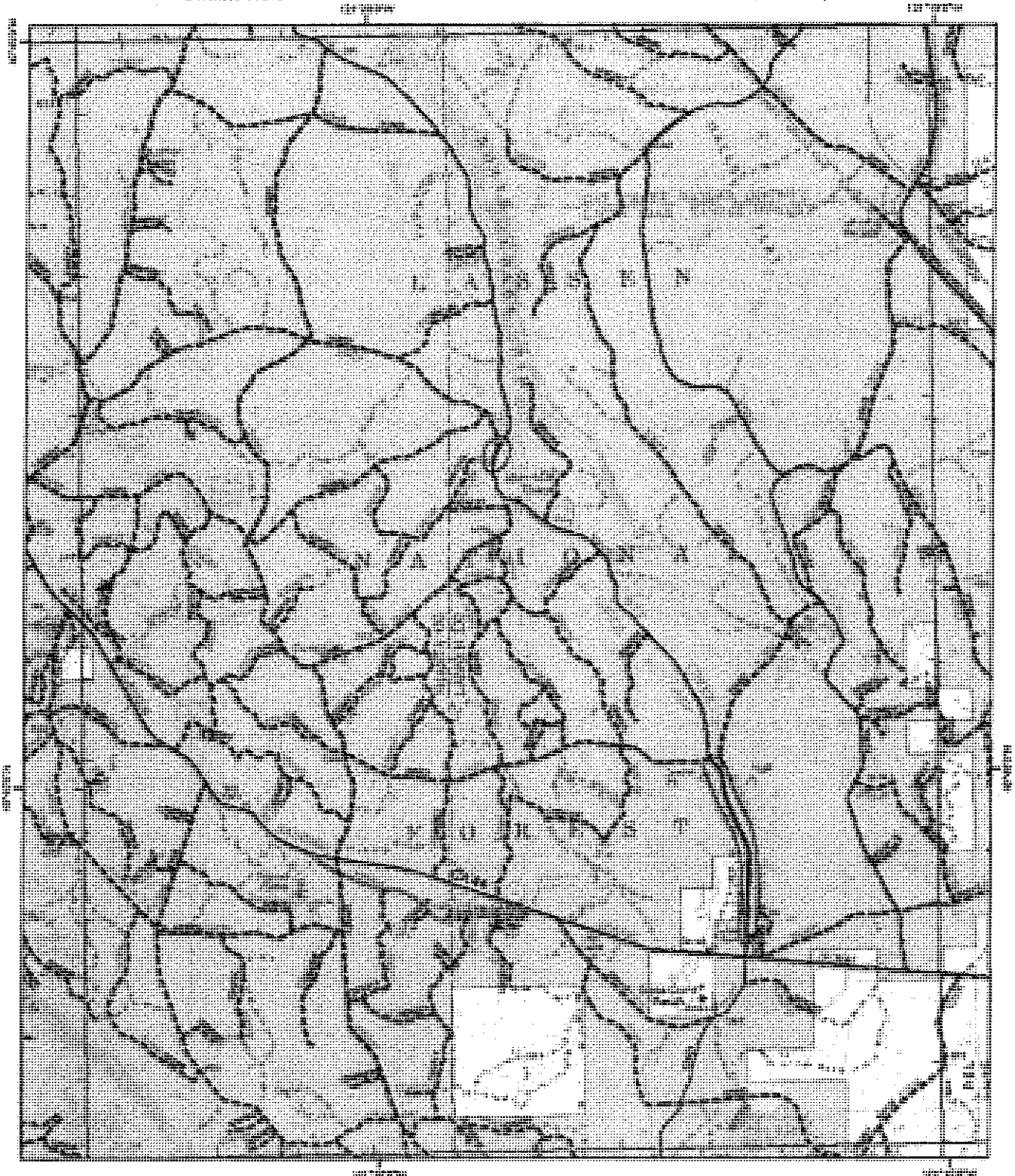
Restrict Season of Use to Summer/Fall (Winter Rec Trail)

Motor Vehicles Prohibited

Lassen National Forest

Private Land

Areas Open to Motorized Vehicle Use



May 2008 DRAFT

Alternative 5
(Motorized Emphasis)
Travel Management
Lassen National Forest

0 0.5 1 Miles

NFS Surfaced Roads or Non-NFS Jurisdiction Roads Open to Highway Legal Vehicles Only (Includes NFS Maintenance Level 3-5 Roads, State and County Roads, etc.)

Mixed Use Analysis Pending

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

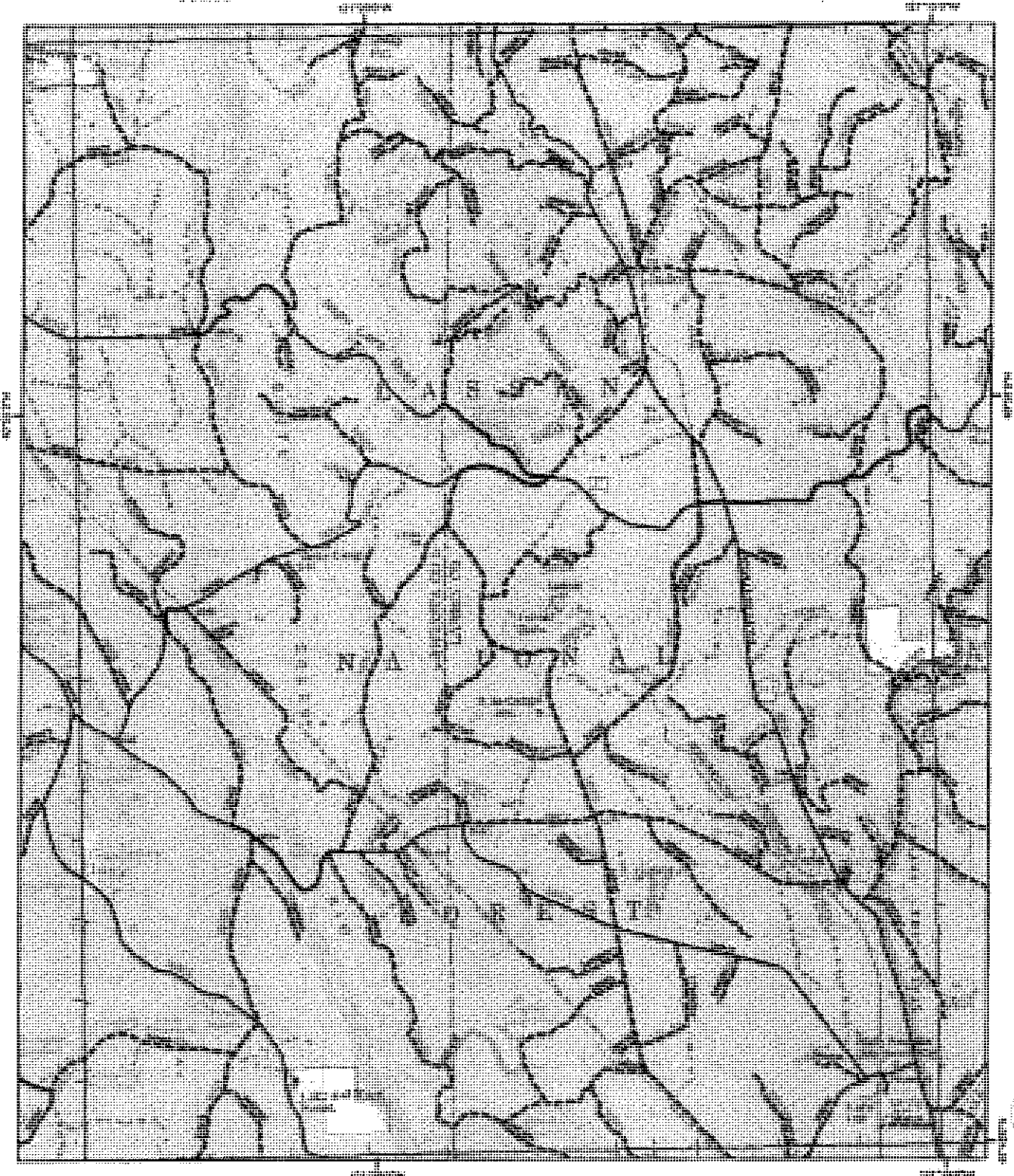
Unauthorized Routes to be Added to the National Forest Transportation System

Restrict Season of Use to Summer/Fall (Winter Rec Trail)

Motor Vehicles Prohibited

Lassen National Forest

Private Land



May 2008 DRAFT

Alternative 5
(Motorized Emphasis)
Travel Management
Lassen National Forest

0 0.5 1 Miles

Murken Bench

NFS Surfaced Roads or Non-NFS Jurisdiction Roads Open to Highway Legal Vehicles Only (includes NFS Maintenance Level 3-5 Roads, State and County Roads, etc.)

Mixed Use Analysis Pending

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

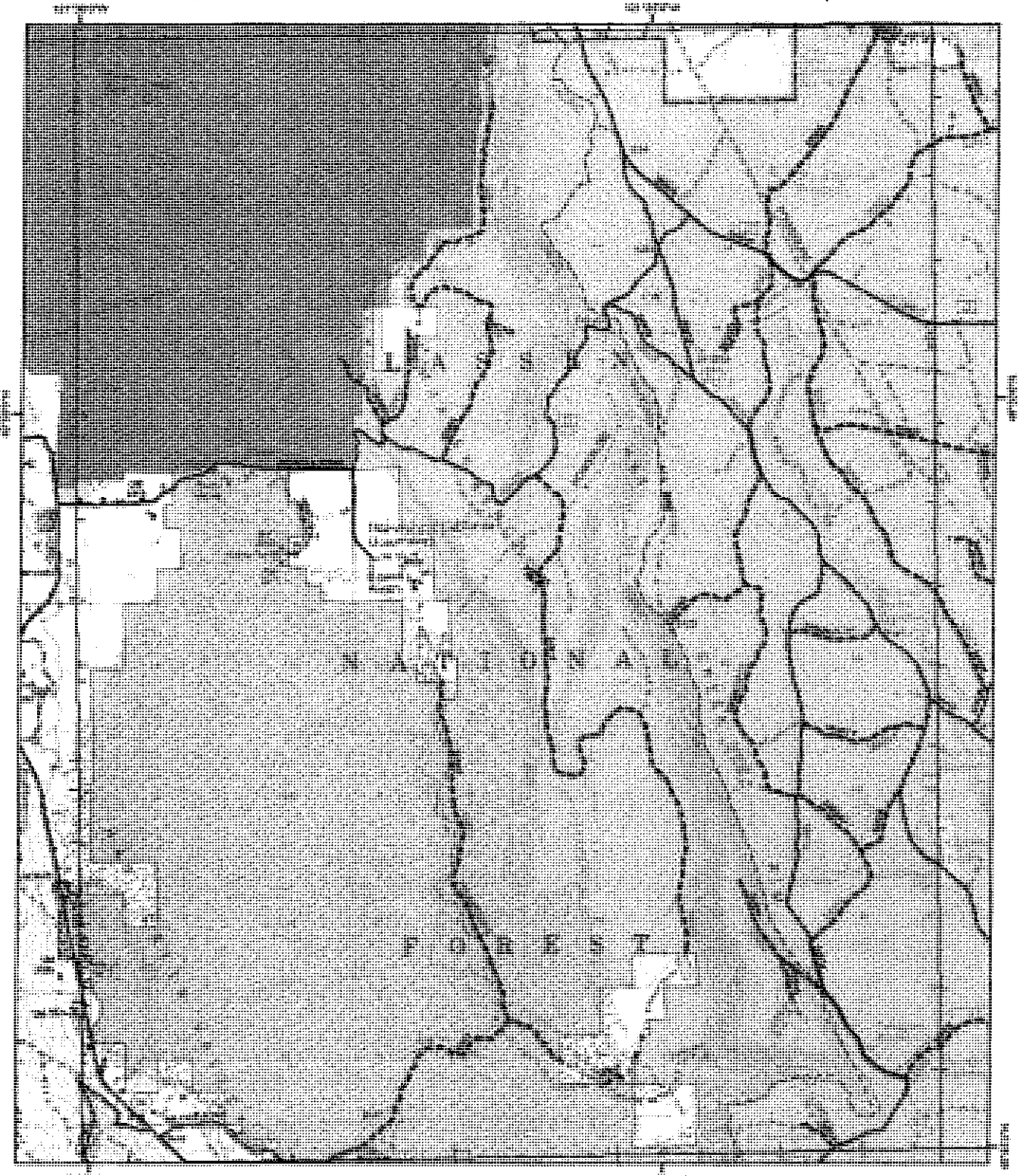
Restrict Season of Use to Summer/Fall (Winter Rec Trail)

Motor Vehicles Prohibited

Lassen National Forest

Private Land

Areas Open to Motorized Vehicle Use



May 2008 DRAFT

Alternative 5
(Motorized Emphasis)
Travel Management
Lassen National Forest

0 0.5 1 Miles

Hogback Ridge

NFS Surfaced Roads or Non-NFS Jurisdiction Roads Open to Highway Legal Vehicles Only (Includes NFS Maintenance Level 3-5 Roads, State and County Roads, etc.)

Mixed Use Analysis Pending

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

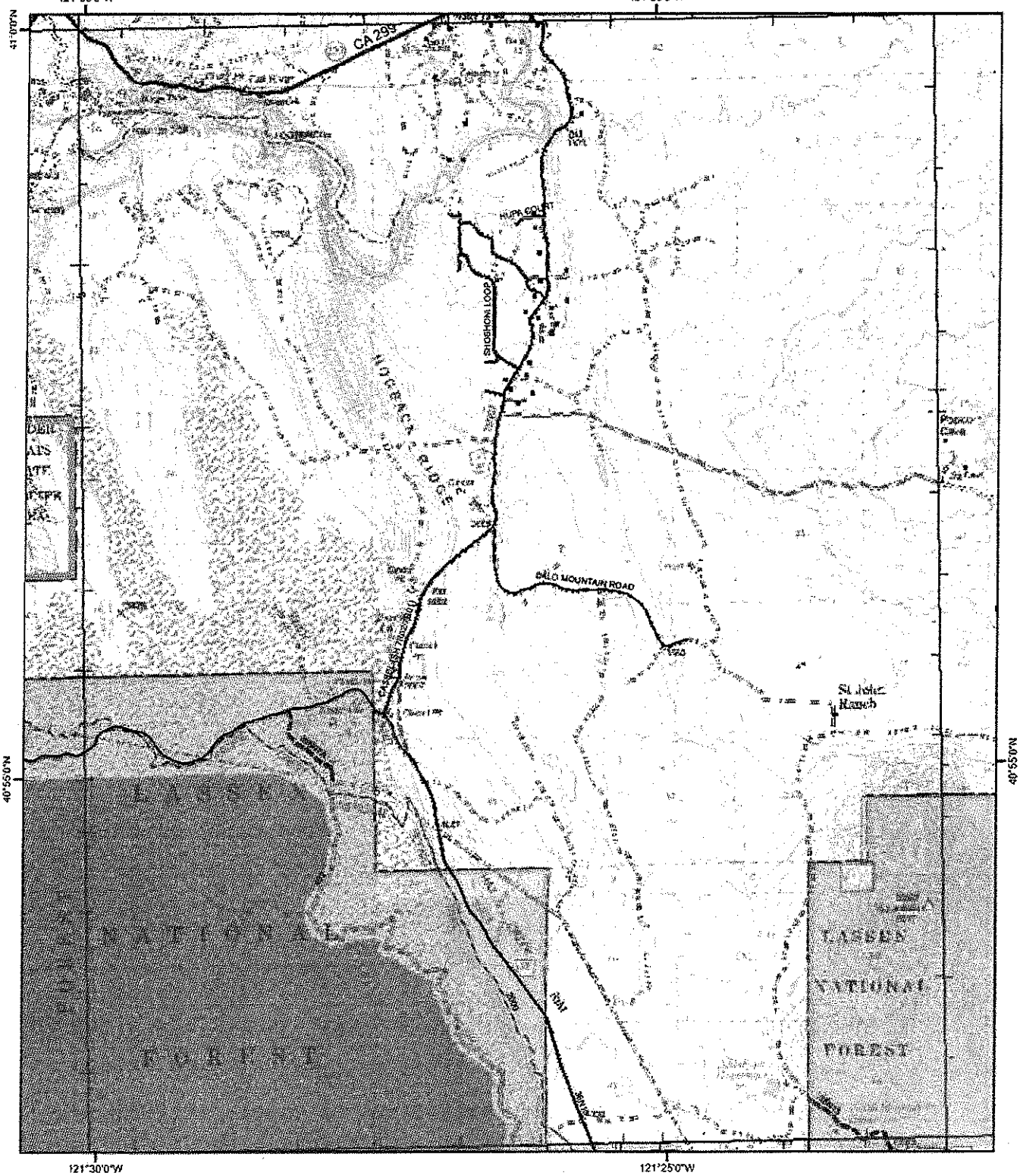
Restrict Season of Use to Summer/Fall (Winter Rec Trail)

Motor Vehicles Prohibited

Lassen National Forest

Private Land

Areas Open to Motorized Vehicle Use



Prepared by
Tim Dedrick

Forest Transportation Planner/Civil Engineer
Lassen National Forest

Date 9/29/08

Reviewed by
George Kulick

Date

Region 5 Qualified Engineer
Region 5 Office of Engineering

Engineering Report:

Lassen National Forest

Hat Creek Ranger District

Analysis of

National Forest System Road (NFSR)

32N12

for Motorized Mixed Use Designation

Forest: **Lassen** District: **Hat Creek**

Road Number: **32N12** Road Name: **West Prospect Lookout**

Introduction: The 32N12 Road segments studied are located on the west side of Lassen National Forest (LNF) in the West Prospect Peak quadrangle. NFSR 32N12 ML3 begins at the intersection of State Highway 89/44 in Section 13 of the West Prospect Peak quadrangle and trends south and east to the northern flank of Badger Mountain, then trends southeast along the eastern base of said mountain, thence continuing east and then due north up the western flank of West Prospect Peak to a terminus at the West Prospect Peak Lookout Tower/Fire Detection Tower. The road length is approximately 9 miles.

The two road segments studied are both in the West Prospect Peak quadrangle. The first segment starts at approximate road mile 0.5 at the intersection with 32N19Y, intersects in succession with 32N49, 32N13, 32N42Y, and 33N22 for a distance of approximately 0.5 miles to road mile post 1.0

The second segment starts at approximate road mile 4.0 and an intersection with 32N50 and continues to an intersection with 32N38 for a distance of approximately 0.5 miles to road mile 4.5.

This 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 32N12 / 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: **0.50** Ending Mile Post: **1.00**

32N19Y to 32N42Y

Traffic Service Level: ☐ A ☐ B ☒ C ☐ D

Objective Maintenance Level: ☐ 1 ☐ 2 ☒ 3 ☐ 4 ☐ 5

Operational Maintenance Level: ☐ 1 ☐ 2 ☒ 3 ☐ 4 ☐ 5

Segment 2: Beginning Mile Post: **4.00** Ending Mile Post: **4.50**

32N50 to 32N38

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 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 possession of a valid driver's license.

Based on the Forest Service Directives and Travel Management purpose and need, to allow all motor vehicles on this segment with a designation of motorized mixed use for a segment or segments with a cumulative distance of 3 miles or less could be consistent with state and federal laws and directives with appropriate mitigation for safety concerns.

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

Road 32N12 / ML3 currently encourages use as an objective ML3 and operational ML3 collector road and functions as a forest highway connecting the State Highway 89/44 to the Hat Creek Ranger District and a dedicated fire facility the West Prospect Peak Fire Detection Lookout.

This forest highway connects to all weather asphalt surfaced State highway and provides ingress and egress to a myriad of Defensible Fuel Profile Zones – DFPZ's, forest plan units for timber harvesting, grazing allotments and livestock and wildlife watering holes.

32N12 is utilized by forest personnel for ingress and egress to Defensible Fuel Profile Zones – DFPZ's and their associated vegetation management and fire suppression functions, for range allotment management, for wildlife management along Hat Creek, and for fire detection / prevention patrol for a very large area that joins the Lassen Volcanic National Park's northern boundary.

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 accordance with the Highway Safety Act.

The proposed use for these two segments of 32N12 / 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 mitigation measures, especially improved road / safety signing and comprehensive public education / outreach, will reduce crash probability.

Road mitigation should include implementing a comprehensive communication, management, and enforcement plan. Associated implementation costs will depend on the designated allowed use for the road.

NFSR road 32N12 is an observed 1+ lane operational maintenance level 3 standard throughout its extent.

The road is maintained to a standard allowing efficient passenger car through traffic at speeds up to 40 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. Crash severity is determined by the dynamics of a vehicles speed or combined speeds, mass, and configurations.

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.
- 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 32N12 appears to be consistent with state law and forest policy for operational maintenance level 3 roads.

2. Crash history:

There are no reported motor 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)

3 civilian motor vehicles were observed along the 32N12 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: 40 mph.

5. Road surface type:

The road has a combination of native crushed rock aggregate and red volcanic cinder surfacing. The majority of the traveled way is constructed upon a raised roadbed and the road has drainage ditches, singular culverts, and ditch-relief culverts. The road is approximately 16'-20' wide. The road traveled way is very dry and contains many fine aggregate components and produces prodigious quantities of dust when driven over. Road shoulders are soft and unconsolidated.

32N12

6. Intersections with other roads and trails:

Road segment 1 intersects with the following forest roads.

- 32N19Y
- 32N32N49
- 32N13
- 33N22
- 32N42Y

Road segment 2 intersects with the following forest roads.

- 32N50
- 32N38

The maintenance level 2 roads have historically provided forest management access, fire suppression access, commodity haul, forest grazing access, and hunting and firewood gathering access. The proposed MMU intersections of 32N12 /ML3 may result in higher traffic merging speeds.

7. Other roadway factors:

- Roadway alignment was adequate for the assigned maintenance level. Alignment provides for vehicle closing speeds of approximately 80 mph.
- The road was maintained with a traveled way width of 16'-20".
- Raised roadbed creates soft unconsolidated shoulders. Emergency vehicle run-out among numerous lava rocks, Juniper trees, Pine trees, and brush may lead to loss of control for vehicle operators and/or collisions with immobile objects.
- The road provides administrative access for commodity haul, fire prevention patrol access, fire suppression access, wildlife management.

Summer and fall seasons will experience peak use, winter and spring can bring snowy and icy conditions.

8. Roadside conditions:

- The segment runs through high elevation, 5,000 ft., open Pine forest, open Juniper, brush, native grass and lava rock forest land.
- Cross slope is 0-5%.
- Grade is 0-6%.
- Pine and Juniper trees are ≤18" and numerous lava ejecta rocks.
- 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.).
- Improved route identification and safety 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 road-parallel 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", 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:

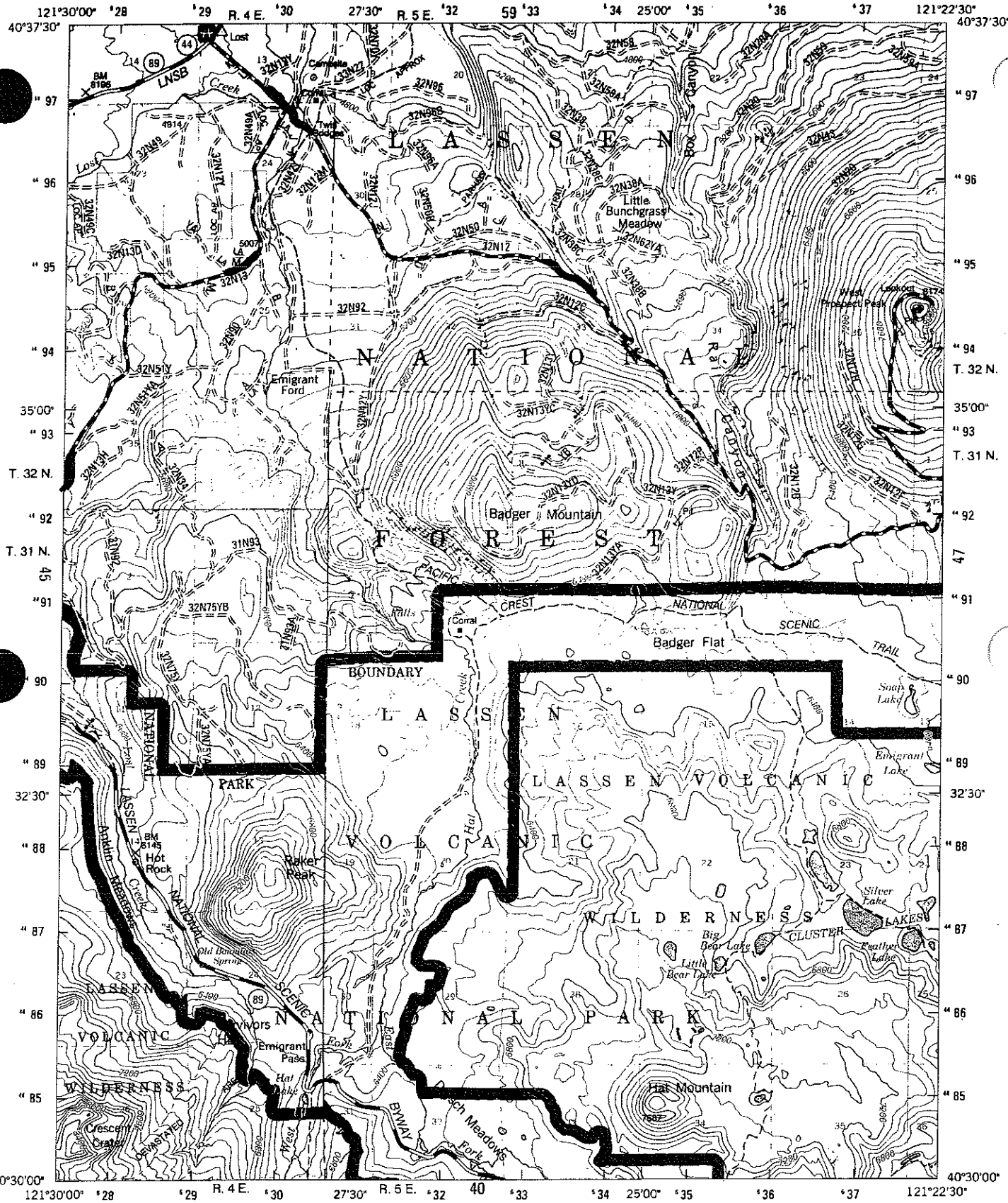
Tim Dedrick Sept. 15, 2009

Prepared by Tim Dedrick
Lassen NF Civil Engineer

Date

George Kulick
Region 5 Qualified Engineer

Date



Produced by the U.S. Geological Survey
Revised by the U.S. Forest Service

Areas outside the National Forest System lands may not have been revised.

Control by USGS and NOS/NOAA

Compiled from aerial photographs taken 1980. Revised from aerial photographs taken 1993. Partial field check by U.S. Forest Service 1995.

North American Datum of 1927 (NAD 27). Projection: California coordinate system, zone 1 (Lambert Conformal Conic).

National Forest System lands. Revised 1997.

This map is not a legal land line or ownership document. Public lands are subject to change and leasing, and may have access restrictions; check with local offices. Obtain permission before entering private lands.

Engineering Report:

Lassen National Forest

Hat Creek Ranger District

Analysis of

National Forest System Road (NFSR)

32N13

for Motorized Mixed Use Designation

Forest: **Lassen** District: **Hat Creek**

Road Number: **32N13** Road Name: **Emigrant Road**

Introduction: The 32N13 Road segments studied are located on the west side of Lassen National Forest (LNF) in the West Prospect Peak quadrangle. NFSR 32N13 ML3 begins at the intersection with State Highway 89/44 in Section 12 of the Old Station quadrangle and trends south and west to the northern boundary of the Lassen Volcanic National Park and Lost Creek, then trends northwest along the Lost Creek to an intersection with State Highway 89/44/Ashpan Snowmobile Park. The portion of road length studied is approximately 7.5 miles. The two road segments studied are both in the West Prospect Peak quadrangle.

The first segment starts at approximate road mile 2.5 at the intersection with 32N90B and intersects with 32N12Y for a distance of approximately 0.25 miles to road mile post 2.75.

The second segment starts at approximate road mile 4.5 and an intersection with 32N51YA and continues to a succession of intersections with 31N92Y, 32N10Y, and 32N13A for a distance of approximately 0.5 miles to road mile 5.0.

This 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 32N13 / 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: **2.50** Ending Mile Post: **2.75**

32N90B to 32N12Y

Traffic Service Level: ☐ A ☐ B ☒ C ☐ D

Objective Maintenance Level: ☐ 1 ☐ 2 ☒ 3 ☐ 4 ☐ 5

Operational Maintenance Level: ☐ 1 ☐ 2 ☒ 3 ☐ 4 ☐ 5

Segment 2: Beginning Mile Post: **4.50** Ending Mile Post: **5.00**

32N51YA to 32N13A

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
f

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 possession of a valid driver's license.

Based on the Forest Service Directives and Travel Management purpose and need, to allow all motor vehicles on this segment with a designation of motorized mixed use for a segment or segments with a cumulative distance of 3 miles or less could be consistent with state and federal laws and directives with appropriate mitigation for safety concerns.

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

Road 32N13 / ML3 currently encourages use as an objective ML3 and operational ML3 collector road and functions as a forest highway connecting the State Highway 89/44 to the Hat Creek Ranger District, tree seed plantations, and defensible fuel profile zones.

This forest highway connects to all weather asphalt surfaced State highway and provides ingress and egress to a myriad of defensible fuel profile zones – DFPZ's, forest plan units for timber harvesting, and wildlife management areas.

32N13 is utilized by forest personnel for ingress and egress to Defensible Fuel Profile Zones – DFPZ's and their associated vegetation management and fire suppression functions, for wildlife management along Lost Creek, and for fire detection / prevention patrol for a very large area that joins the Lassen Volcanic National Park's northern boundary.

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 accordance with the Highway Safety Act.

The proposed use for these two segments of 32N13 / 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 mitigation measures, especially improved road / safety signing and comprehensive public education / outreach, will reduce crash probability.

Road mitigation should include implementing a comprehensive communication, management, and enforcement plan. Associated implementation costs will depend on the designated allowed use for the road.

NFSR road 32N13 is an observed 1+ lane operational maintenance level 3 standard throughout its extent.

The road is maintained to a standard allowing efficient passenger car through traffic at speeds up to 40 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. Crash severity is determined by the dynamics of a vehicles speed or combined speeds, mass, and configurations.

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.
- 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 32N13 appears to be consistent with state law and forest policy for operational maintenance level 3 roads.

2. Crash history:

There are no reported motor 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)

3 civilian motor vehicles were observed along the 32N13 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: 40 mph.

5. Road surface type:

The road has a combination of native crushed rock aggregate and red volcanic cinder surfacing. The majority of the traveled way is constructed upon a raised roadbed and the road has drainage ditches, singular culverts, and ditch-relief culverts. The road is approximately 16'-20' wide. The road traveled way is very dry and contains many fine aggregate components and produces prodigious quantities of dust when driven over. Road shoulders are soft and unconsolidated.

32N13

6. Intersections with other roads and trails:

Road segment 1 intersects with the following forest roads.

- 32N90B
- 32N12Y

Road segment 2 intersects with the following forest roads.

- 32N51YA
- 31N92Y
- 32N10Y
- 32N13A

The maintenance level 2 roads have historically provided forest management access, fire suppression access, commodity haul, forest grazing access, and hunting and firewood gathering access. The proposed MMU intersections of 32N13 /ML3 may result in higher traffic merging speeds.

7. Other roadway factors:

- Roadway alignment was adequate for the assigned maintenance level. Alignment provides for vehicle closing speeds of approximately 80 mph.
- The road was maintained with a traveled way width of 16'-20".
- Raised roadbed creates soft unconsolidated shoulders. Emergency vehicle run-out among numerous lava rocks, Juniper trees, Pine trees, and brush may lead to loss of control for vehicle operators and/or collisions with immobile objects.
- The road provides administrative access for commodity haul, fire prevention patrol access, fire suppression access, wildlife management. Summer and fall seasons will experience peak use, winter and spring can bring snowy and icy conditions.

8. Roadside conditions:

- The segment runs through high elevation, 5,000 ft., open Pine forest, open Juniper, brush, native grass and lava rock forest land.
- Cross slope is 0-2%.
- Grade is 0-2%.

- Pine and Juniper trees are ≤18" and numerous lava ejecta rocks.
- 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.).
- Improved route identification and safety 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 road-parallel 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", 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:

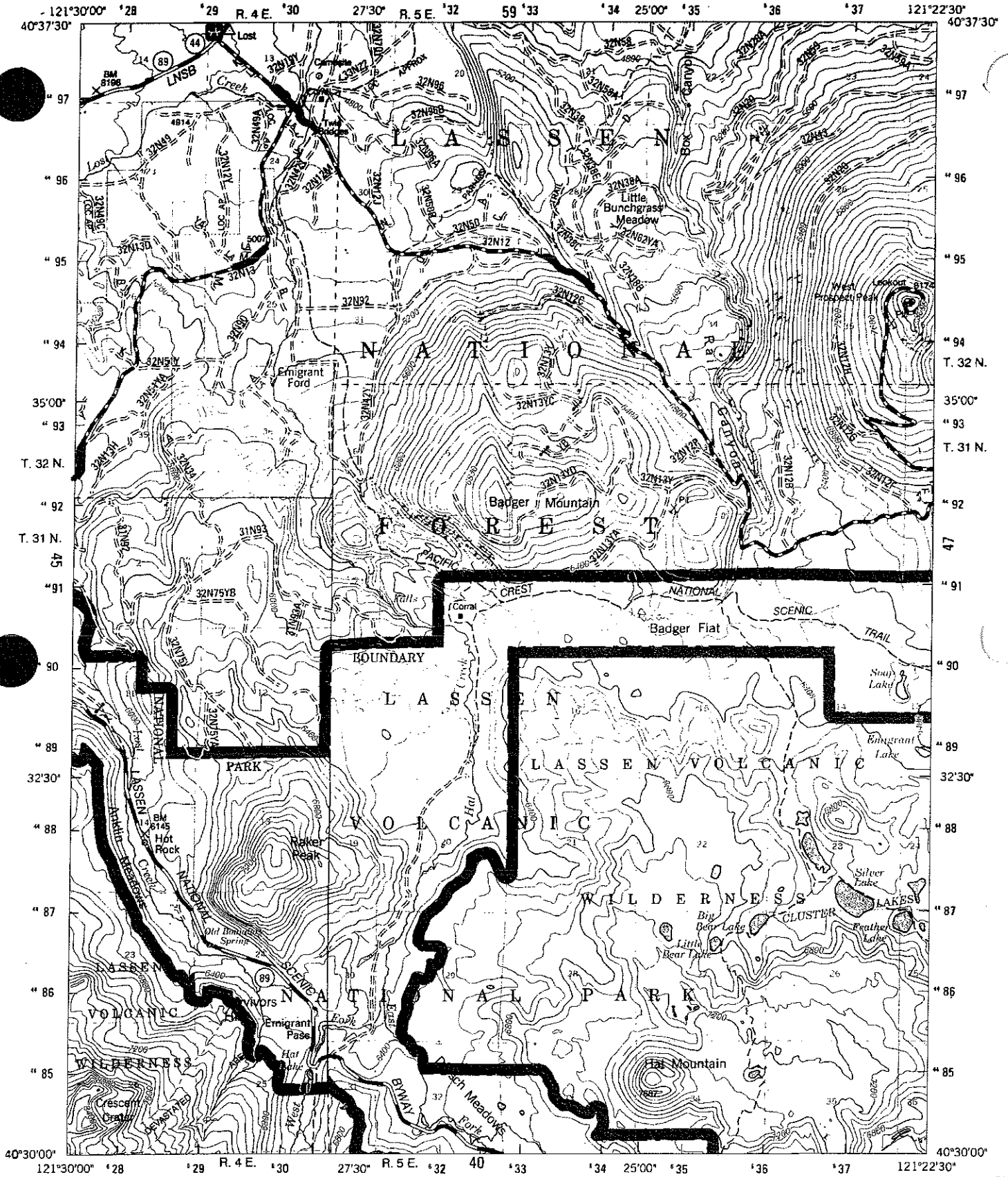
Tim Dedrick Sept. 8, 2009

Prepared by Tim Dedrick
Lassen NF Civil Engineer

Date

George Kulick
Region 5 Qualified Engineer

Date



Produced by the U.S. Geological Survey
Revised by the U.S. Forest Service

Areas outside the National Forest System lands may not have been revised.

Control by USGS and NOS/NOAA

Compiled from aerial photographs taken 1980. Revised from aerial photographs taken 1993. Partial field check by U.S. Forest Service 1995.

North American Datum of 1927 (NAD 27). Projection: California coordinate system, zone 1 (Lambert Conformal Conic).

National Forest System lands. Revised 1997.

This map is not a legal land line or ownership document. Public lands are subject to change and leasing, and may have access restrictions; check with local offices. Obtain permission before entering private lands.

Engineering Report:

Lassen National Forest

Hat Creek Ranger District

Analysis of

National Forest System Road (NFSR)

32N21

for Motorized Mixed Use Designation

Forest: **Lassen** District: **Hat Creek**

Road Number: **32N21** Road Name: **Butte Lake**

Introduction: The 32N21 Road segment studied is located on the west side of Lassen National Forest (LNF) in the Prospect Peak quadrangle.

NFSR 32N21 ML3 functions as the boundary between the Hat Creek Ranger District and the Eagle Lake Ranger District and begins at the intersection with State Highway 44 in Section 11 of the Swains Hole quadrangle. It then trends south to its terminus at the Butte Lake Campground within the Lassen Volcanic National Park. The length of the road is approximately 6.0 miles.

The segment starts at approximate road mile 2.50 at the intersection with 32N92Y in said quadrangle and intersects with 32N61 for a distance of approximately 0.25 miles to road mile post 2.75.

This first 4.5 miles of road is currently managed by LNF as open only to highway-legal vehicles. The road segment analyzed wasrecommended 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 32N21 / 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: **2.50** Ending Mile Post: **2.75**

32N92Y to 32N61

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 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 possession of a valid driver's license.

Based on the Forest Service Directives and Travel Management purpose and need, to allow all motor vehicles on this segment with a designation of motorized mixed use for a segment with a cumulative distance of 3 miles or less could be consistent with state and federal laws and directives with appropriate mitigation for safety concerns.

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

Road 32N21 / ML3 currently encourages use as an objective ML3 and operational ML3 arterial road and functions as a forest highway connecting the State Highway 44 to the Hat Creek and Eagle Lake Ranger Districts, Butte Lake Campground, defensible fuel profile zones, and timber commodity units.

This forest highway connects to an all weather asphalt surfaced State highway and provides ingress and egress to a myriad of defensible fuel profile zones – DFPZ's, forest plan units for timber harvesting, and wildlife management areas.

32N21 is utilized by forest personnel for ingress and egress to Defensible Fuel Profile Zones – DFPZ's and their associated vegetation management and fire suppression functions, for wildlife management along Butte Creek, and for fire detection / prevention patrol for a very large area that joins the Lassen Volcanic National Park's northern boundary.

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 accordance with the Highway Safety Act.

The proposed use for these two segments of 32N21 / 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 mitigation measures, especially improved road / safety signing and comprehensive public education / outreach, will reduce crash probability.

Road mitigation should include implementing a comprehensive communication, management, and enforcement plan. Associated implementation costs will depend on the designated allowed use for the road.

NFSR road 32N21 is an observed 1+ lane operational maintenance level 3 standard throughout its extent.

The road is maintained to a standard allowing efficient passenger car through traffic at speeds up to 40 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. Crash severity is determined by the dynamics of a vehicles speed or combined speeds, mass, and configurations.

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.
- 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 32N21 appears to be consistent with state law and forest policy for operational maintenance level 3 roads.

2. Crash history:

There are no reported motor 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)

5 civilian motor vehicles were encountered in this field visit.

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 combination of native crushed rock aggregate and volcanic cinder surfacing. The majority of the traveled way is constructed upon a raised roadbed and the road has drainage ditches, singular culverts, and ditch-relief culverts. The road is approximately 16'-20' wide. The road traveled way is very dry and contains many fine aggregate components and produces prodigious quantities of dust when driven over. Road shoulders are soft and unconsolidated.

6. Intersections with other roads and trails:

Road segment 1 intersects with the following forest roads.

- 34N62
- 34N04
- 34N68

The maintenance level 2 roads have historically provided forest management access, fire suppression access, commodity haul, forest grazing access, and hunting and firewood gathering access. The proposed MMU intersections of 32N21 /ML3 may result in higher traffic merging speeds.

7. Other roadway factors:

- Roadway alignment was adequate for the assigned maintenance level. Alignment provides for vehicle closing speeds of approximately 80 mph.
- The road was maintained with a traveled way width of 16'-20".
- Raised roadbed creates soft unconsolidated shoulders. Emergency vehicle run-out among numerous lava rocks, Juniper trees, Pine trees, and brush may lead to loss of control for vehicle operators and/or collisions with immobile objects.
- The road provides administrative access for commodity haul, fire prevention patrol access, fire suppression access, wildlife management. Summer and fall seasons will experience peak use, winter and spring can bring snowy and icy conditions.

8. Roadside conditions:

- The segment runs through high elevation, 5,000 ft., open Pine forest, open Juniper, brush, native grass and lava rock forest land.
- Cross slope is 0-2%.

- Grade is 0-2%.
- Pine and Juniper trees are ≤18" and numerous lava ejecta rocks.
- 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.).
- Improved route identification and safety 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 road-parallel 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", 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:

Tim Dedrick Sept. 21, 2009

Prepared by Tim Dedrick
Lassen NF Civil Engineer

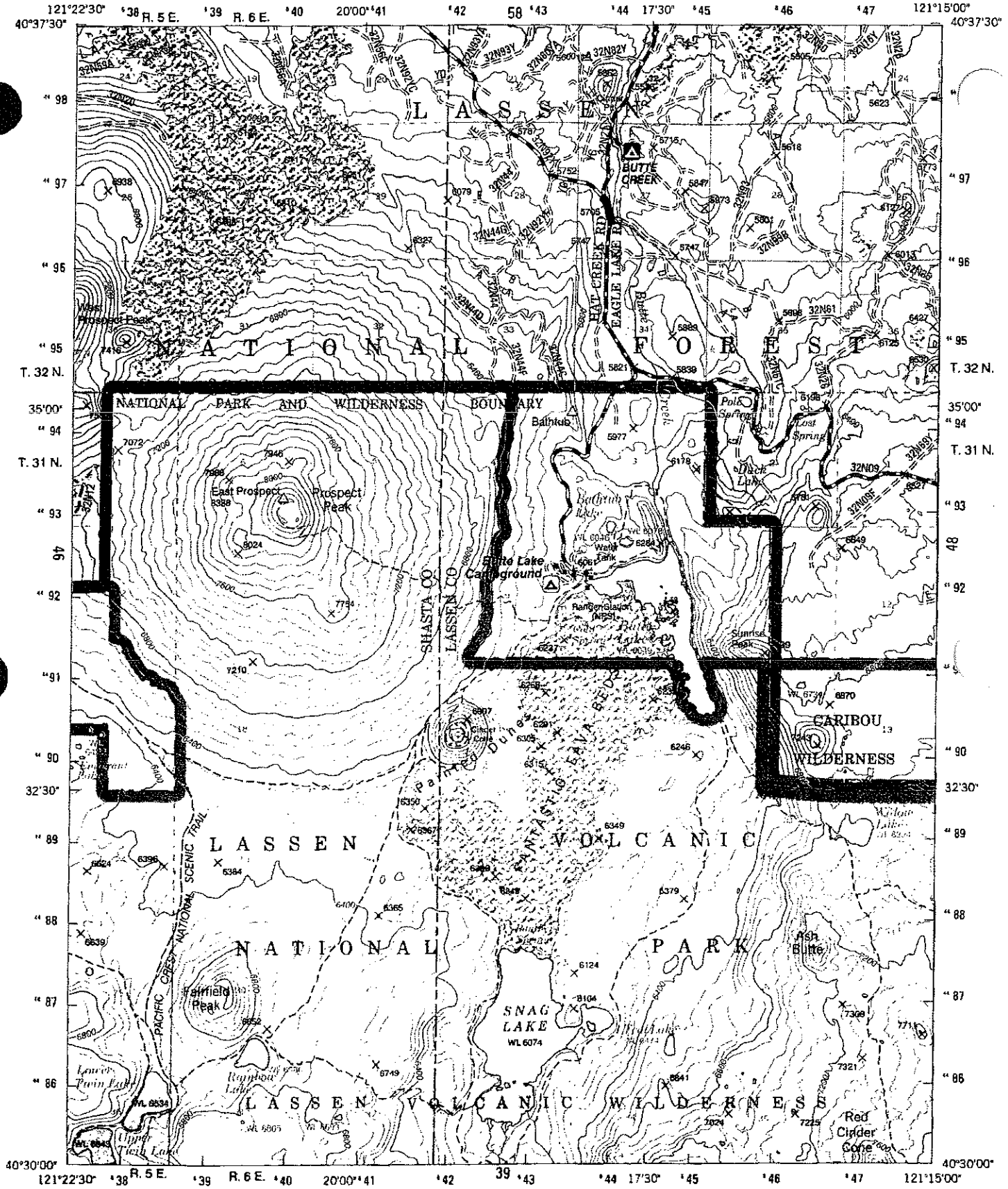
Date

George Kulick
Region 5 Qualified Engineer

Date

GEOLOGICAL SURVEY

FOREST SERVICE



Scale 1 : 63,360 (1 inch to the mile)

1 .5 0 1 Miles

1000 0 5000 10 000 Feet

Contour Interval 80 Feet

Produced by the U.S. Geological Survey
Revised by the U.S. Forest Service

Areas outside the National Forest System lands may not have been revised.

Control by USGS and NOS/NOAA

Compiled from aerial photographs taken 1980. Revised from aerial photographs taken 1993. Partial field check by U.S. Forest Service 1995.

North American Datum of 1927 (NAD 27). Projection: California coordinate system, zone 1 (Lambert Conformal Conic).

National Forest System lands. Revised 1997.

This map is not a legal land line or ownership document. Public lands are subject to change and leasing, and may have access restrictions; check with local offices. Obtain permission before entering private lands.

MN GN

1°05' 19MILS 16' 293 MILS

UTM GRID AND 1997 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

1 Old Station
2 Swains Hole
3 Poison Lake
4 West Prospect Peak
5 Bogard Buttes
6 Reading Peak
7 Mount Harkness
8 Red Cinder

ADJOINING 7.5' QUADRANGLES

HIGHWAYS AND ROADS

395 U.S.
139 State
11 County
30 National Forest
Gate

Primary Highway
Secondary Highway
Improved Road, Paved
Improved Road, Gravel
Improved Road, Dirt
Composition Unspecified
Unimproved Road
4WD 4 Wheel Drive Road
National Recreation Trail
Trail

Engineering Report:

Lassen National Forest

Hat Creek Ranger District

Analysis of

National Forest System Road (NFSR)

33N13

for Motorized Mixed Use Designation

Forest: **Lassen** District: **Eagle lake/Hat Creek**

Road Number: **33N13** Road Name: **Swains Hole Road**

Introduction: The 33N13 Road segments studied are located on the east side of Lassen National Forest (LNF) in the Swains Hole quadrangle, on the eastern/western boundary of the Hat Creek/Eagle Lake Ranger Districts respectively.

NFSR 33N13/ML3 begins at the intersection of State Highway 44 in Section 12 of the Swains Hole quadrangle on the Eagle Lake Ranger District and trends due north and west to the Swains Hole, then trends north along the eastern upper extents of the Butte Creek Rim, continuing north through Halls Flat rangeland, and turns towards the northeast at Bufflehead Reservoir and continues northeast a short distance to Halls Flat Well and it's terminus at the intersection of Lassen County Road 111. The road length is approximately 10 miles.

Segment one starts on the Eagle Lake Ranger District at the intersections of 33N52/ML2 to 33N18Y/ML2 for approximately 0.25 miles.

Segment two starts on the Hat Creek Ranger District at the intersections of 33N27/ML2 to Unauthorized Route UNC401 for approximately 0.33 miles, respectively.

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 33N13. 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: **3.00** Ending Mile Post: **3.25**

33N52 to 33N18Y

Traffic Service Level: ☐ A ☐ B ☒ C ☐ D

Objective Maintenance Level: ☐ 1 ☐ 2 ☒ 3 ☐ 4 ☐ 5

Operational Maintenance Level: ☐ 1 ☐ 2 ☒ 3 ☐ 4 ☐ 5

Segment 1: Beginning Mile Post: **7.00** Ending Mile Post: **7.33**

33N27 to UNC401

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 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 possession of a valid driver's license.

Based on the Forest Service Directives and Travel Management purpose and need, to allow all motor vehicles on this segment with a designation of motorized mixed use for a segment or segments with a cumulative distance of 3 miles or less could be consistent with state and federal laws and directives with appropriate mitigation for safety concerns.

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

The road currently encourages use as an objective and operational ML3 collector road and functions as ingress/egress access for the Swains Hole, Bufflehead Reservoir, and Halls Flat grazing allotment areas.

Road 33N13 provides access from State Highway 44, a two lane all weather asphalt surfaced highway, to the Swains Hole reservoir in a northwesterly alignment along the east upper elevations of the Butte Creek Rim, through the Halls Flat grazing allotments, to the Bufflehead Reservoir, and then in a northeasterly direction to Halls Flat Well and the terminus of the road with an intersection of Lassen County Road 111. 33N13 is utilized by forest personnel for access to/from the Halls Flat grazing allotments, wildlife management, fire detection and suppression. The road is a transportation corridor for livestock commodity management that runs 10 miles between a State Highway and County forest highway.

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 33N13/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 33N13 is an observed 1+ lane operational maintenance level 3 standard throughout its extent.

The road is maintained to a standard allowing efficient passenger car through traffic at speeds up to 40 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 livestock grazing area access 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.
- Although the road rests upon the top of the fault block of the Butte Creek Rim, topologically the unit is dry and flat and contains the Halls Flat meadows. The operational level of this road is classified as a 3. The road has a management objective and maintenance level of 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 livestock grazing, wildlife management, emergency fire detection and suppression response.
- 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 33N13 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.

1 Forest Service Fire Patrol vehicle was observed along the road.

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 combination of native crushed rock aggregate and red volcanic cinder surfacing. Portions of the traveled way are raised and the road has culverts. The road is approximately 16' wide. The road traveled way is very dry and contains many fine aggregate components and produces prodigious quantities of dust when driven over. Road shoulders are soft and unconsolidated.

6. Intersections with other roads and trails:

Road segment 1 intersects with the following forest roads.

- 33N52/ML2
- 33N18Y/ML2

Road segment 2 intersects with the following forest roads.

- 33N27/ML2
- UNC401/Unauthorized Route

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 intersections of 33N13/ML3 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 16', approximately.
- Raised roadbed creates soft unconsolidated shoulders and emergency run-out among numerous lava rocks and brush, all of which may lead to loss of control for vehicle operators.
- The road provides administrative access for the Hall Flat meadows, fire suppression access, 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 high elevation native grass with brush meadows.
- Cross slope is 0-1%.
- Grade is 0-2%.
- Pine trees are ≤18" and numerous lava ejecta rocks.
- 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.).
- 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:

Tim Dedrick Sept. 14, 2009

Prepared by
Tim Dedrick Civil Engineer

Date

George Kulick
Region 5 Qualified Engineer

Date

May 2008 DRAFT

Alternative 5
(Motorized Emphasis)
Travel Management
Lassen National Forest

0 0.5 1 Miles

Swains Hole

NFS Surfaced Roads or Non-NFS Jurisdiction Roads Open to Highway Legal Vehicles Only (Includes NFS Maintenance Level 3-5 Roads, State and County Roads, etc.)

Mixed Use Analysis Pending

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

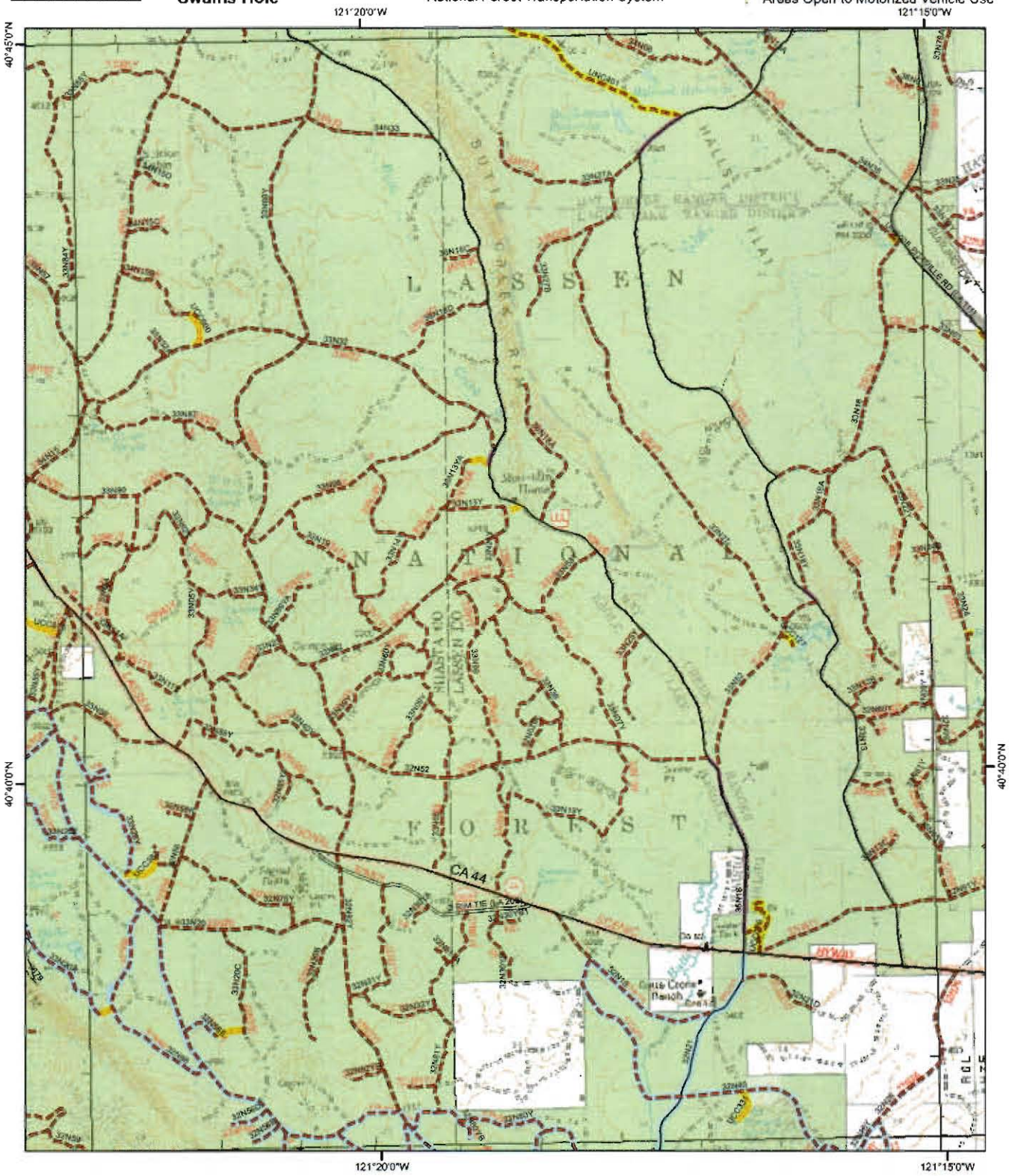
Restrict Season of Use to Summer/Fall (Winter Rec Trail)

Motor Vehicles Prohibited

Lassen National Forest

Private Land

Areas Open to Motorized Vehicle Use



Engineering Report:

Lassen National Forest

Hat Creek Ranger District

Analysis of

National Forest System Road (NFSR)

34N13

for Motorized Mixed Use Designation

Forest: **Lassen** District: **Hat Creek**

Road Number: **34N13** Road Name: **Jelly Camp**

Introduction: The 34N13 Road segment studied is located on the west side of Lassen National Forest (LNF) in the Jellico quadrangle.

NFSR 34N13 ML3 begins at the intersection with 36N18 DR18 in Section 13 of the Murken Bench quadrangle. It then trends southeast between Proctor Reservoir and Bainbridge Reservoir, ascends the Butte Creek Rim where it terminates into and becomes 34N43. The length of the road is approximately 2.25 miles.

The first segment starts at approximate road mile 1.25 at the intersection with 34N62 in the Jellico quadrangle and intersects with 34N68 for a distance of approximately 0.25 miles to road mile post 1.50.

This 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 34N13 / 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: **1.50**

34N62 to 34N68

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 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 possession of a valid driver's license.

Based on the Forest Service Directives and Travel Management purpose and need, to allow all motor vehicles on this segment with a designation of motorized mixed use for a segment with a cumulative distance of 3 miles or less could be consistent with state and federal laws and directives with appropriate mitigation for safety concerns.

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

Road 34N13 / ML3 currently encourages use as an objective ML3 and operational ML3 arterial road and functions as a forest highway connecting the 36N18 DR22 road to the Hat Creek Ranger District, tree seed plantations, defensible fuel profile zones, and timber commodity units.

This forest highway connects via 36N18 to all weather asphalt surfaced State highway and provides ingress and egress to a myriad of defensible fuel profile zones – DFPZ's, forest plan units for timber harvesting, and wildlife management areas.

34N13 is utilized by forest personnel for ingress and egress to Defensible Fuel Profile Zones – DFPZ's and their associated vegetation management and fire suppression functions, for wildlife management along Lost Creek, and for fire detection / prevention patrol for a very large area that joins the Lassen Volcanic National Park's northern boundary.

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 accordance with the Highway Safety Act.

The proposed use for these two segments of 34N13 / 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 mitigation measures, especially improved road / safety signing and comprehensive public education / outreach, will reduce crash probability.

Road mitigation should include implementing a comprehensive communication, management, and enforcement plan. Associated implementation costs will depend on the designated allowed use for the road.

NFSR road 34N13 is an observed 1+ lane operational maintenance level 4 standard throughout its extent.

The road is maintained to a standard allowing efficient passenger car through traffic at speeds up to 40 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. Crash severity is determined by the dynamics of a vehicles speed or combined speeds, mass, and configurations.

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.
- 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 34N13 appears to be consistent with state law and forest policy for operational maintenance level 3 roads.

2. Crash history:

There are no reported motor 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)

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 combination of native crushed rock aggregate and volcanic cinder surfacing. The majority of the traveled way is constructed upon a raised roadbed and the road has drainage ditches, singular culverts, and ditch-relief culverts. The road is approximately 16'-20' wide. The road traveled way is very dry and contains many fine aggregate components and produces prodigious quantities of dust when driven over. Road shoulders are soft and unconsolidated.

6. Intersections with other roads and trails:

Road segment 1 intersects with the following forest roads.

- 34N62
- 34N04
- 34N68

The maintenance level 2 roads have historically provided forest management access, fire suppression access, commodity haul, forest grazing access, and hunting and firewood gathering access. The proposed MMU intersections of 34N13 /ML3 may result in higher traffic merging speeds.

7. Other roadway factors:

- Roadway alignment was adequate for the assigned maintenance level. Alignment provides for vehicle closing speeds of approximately 80 mph.
- The road was maintained with a traveled way width of 16'-20".
- Raised roadbed creates soft unconsolidated shoulders. Emergency vehicle run-out among numerous lava rocks, Juniper trees, Pine trees, and brush may lead to loss of control for vehicle operators and/or collisions with immobile objects.
- The road provides administrative access for commodity haul, fire prevention patrol access, fire suppression access, wildlife management. Summer and fall seasons will experience peak use, winter and spring can bring snowy and icy conditions.

8. Roadside conditions:

- The segment runs through high elevation, 5,000 ft., open Pine forest, open Juniper, brush, native grass and lava rock forest land.
- Cross slope is 0-2%.

- Grade is 0-2%.
- Pine and Juniper trees are ≤18" and numerous lava ejecta rocks.
- 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.).
- Improved route identification and safety 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 road-parallel 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", 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:

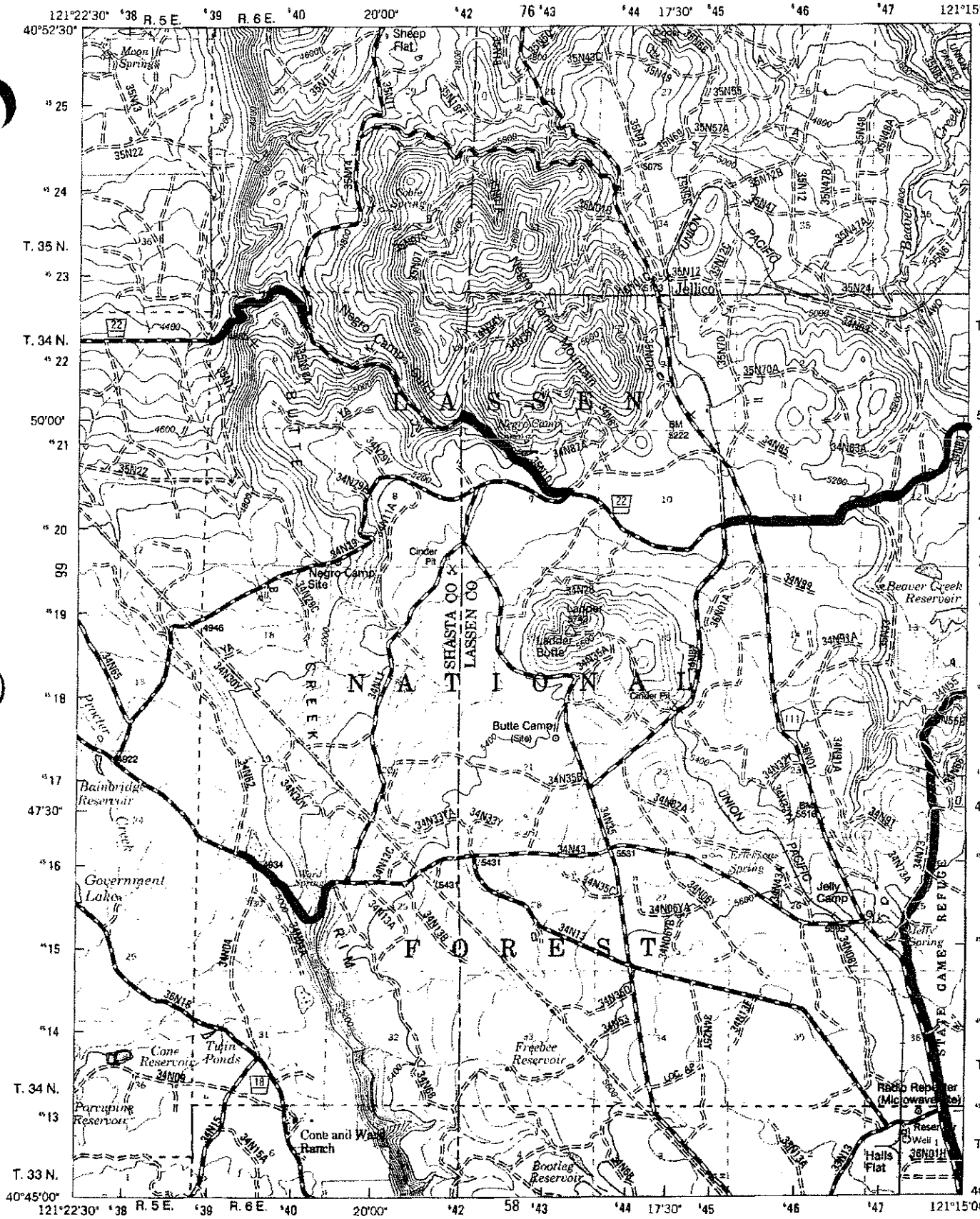
Tim Dedrick Sept. 10, 2009

Prepared by Tim Dedrick
Lassen NF Civil Engineer

Date

George Kulick
Region 5 Qualified Engineer

Date



Scale 1: 63,360 (1 inch to the mile)

Miles

Feet

Contour Interval 40 Feet

Produced by the U.S. Geological Survey
Revised by the U.S. Forest Service
Areas outside the National Forest System lands may not have been revised.
Control by USGS and NOS/NOAA
Compiled from aerial photographs taken 1984. Revised from aerial photographs taken 1993. Partial field check by U.S. Forest Service 1995.
North American Datum of 1927 (NAD 27). Projection: California coordinate system, zone 1 (Lambert Conformal Conic).
National Forest System lands. Revised 1997.
This map is not a legal land line or ownership document. Public lands are subject to change and leasing, and may have access restrictions; check with local offices. Obtain permission before entering private lands.

GN
MN
1°06'
20 MILS
16°
293 MILS

UTM GRID AND 1997 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

1 Hogback Ridge
2 Cobie Mountain
3 Little Valley
4 Murken Bench
5 Cordera Reservoir
6 Old Station
7 Swains Hole
8 Poison Lake

ADJOINING 7.5' QUADRANGLES

HIGHWAYS AND ROADS

395 U.S.
139 State
11 County
30 National Forest
Gate

Primary Highway
Secondary Highway
Improved Road, Fa
Improved Road, Gr
Improved Road, Di
Composition Unspe
Unimproved Road
4 Wheel Drive Road
National Recreatio
Trail

Engineering Report:

Lassen National Forest

Hat Creek Ranger District

Analysis of

National Forest System Road (NFSR)

35N10

for Motorized Mixed Use Designation

Forest: **Lassen** District: **Hat Creek**

Road Number: **35N10 – DR22** Road Name: **Hat Creek/Little Valley Tie Road**

Introduction: The 35N10 Road segments studied are located on the west side of Lassen National Forest (LNF) in the Jellico and Murken Bench quadrangles. NFSR 35N10 ML4 begins at the intersection with County Road 6R2 00/01 and State Highway 89 in Sections 3, 10, 15 (split intersection) of the Burney Mountain East quadrangle and trends east past the University of California Observatory and northeast up the Murken Bench grade, continuing northeast to an intersection with 35N72, thence south and east to an intersection with 36N05 and the start of segment one.

The first segment starts at approximate road mile 6.0 at the intersection with 35N72 in the Murken Bench quadrangle and intersects with 35N22 for a distance of approximately 0.25 miles to road mile post 6.25.

The second segment starts at approximate road mile 7.5 and an intersection with 35N13 in the Jellico quadrangle and continues to an intersection with 35N10A for a distance of approximately 0.5 miles to road mile 8.0.

The third segment starts at road mile 9.0 at an intersection with 34N34 in said quadrangle and continues to an intersection with 34N29 for a distance of 0.75 mile to road mile 9.75.

The fourth segment starts at road mile 11.00 at an intersection with 34N82 in said quadrangle and continues to an intersection with 34N88 for a distance of two miles to road mile 13.00

This 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 35N10 / ML4. 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: **6.00** Ending Mile Post: **6.25**

35N72 to 35N22

Traffic Service Level: ☐ A ☐ B ☒ C ☐ D

Objective Maintenance Level: ☐ 1 ☐ 2 ☒ 3 ☐ 4 ☐ 5

Operational Maintenance Level: ☐ 1 ☐ 2 ☒ 3 ☐ 4 ☐ 5

Segment 2: Beginning Mile Post: **7.50** Ending Mile Post: **8.00**

35N13 to 35N10A

Traffic Service Level: ☐ A ☐ B ☒ C ☐ D

Objective Maintenance Level: ☐ 1 ☐ 2 ☒ 3 ☐ 4 ☐ 5

Operational Maintenance Level: ☐ 1 ☐ 2 ☒ 3 ☐ 4 ☐ 5

Segment 3: Beginning Mile Post: **9.00** Ending Mile Post: **9.75**

34N34 to 34N29

Traffic Service Level: ☐ A ☐ B ☒ C ☐ D

Objective Maintenance Level: ☐ 1 ☐ 2 ☒ 3 ☐ 4 ☐ 5

Operational Maintenance Level: ☐ 1 ☐ 2 ☒ 3 ☐ 4 ☐ 5

Segment 4: Beginning Mile Post: **11.00** Ending Mile Post: **13.00**

34N82 to 34N88

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
f
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 possession of a valid driver's license.

Based on the Forest Service Directives and Travel Management purpose and need, to allow all motor vehicles on this segment with a designation of motorized mixed use for a segment or segments with a cumulative distance of 3 miles or less could be consistent with state and federal laws and directives with appropriate mitigation for safety concerns. This particular configuration of segments totals with an estimated mileage of 3.5 miles.

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

Road 35N10 / ML4 currently encourages use as an objective ML4 and operational ML4 arterial road and functions as a forest highway connecting the State Highway 89 to the Hat Creek Ranger District, tree seed plantations, defensible fuel profile zones, and timber commodity units.

This forest highway connects to all weather asphalt surfaced State highway and provides ingress and egress to a myriad of defensible fuel profile zones –

DFPZ's, forest plan units for timber harvesting, and wildlife management areas.

35N10 is utilized by forest personnel for ingress and egress to Defensible Fuel Profile Zones – DFPZ's and their associated vegetation management and fire suppression functions, for wildlife management along Lost Creek, and for fire detection / prevention patrol for a very large area that joins the Lassen Volcanic National Park's northern boundary.

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 accordance with the Highway Safety Act.

The proposed use for these two segments of 35N10 / ML4 identified in this analysis is to authorize motorized mixed vehicle class use. The proposal is to utilize the ML4 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 mitigation measures, especially improved road / safety signing and comprehensive public education / outreach, will reduce crash probability.

Road mitigation should include implementing a comprehensive communication, management, and enforcement plan. Associated implementation costs will depend on the designated allowed use for the road.

NFSR road 35N10 is an observed 1+ lane operational maintenance level 4 standard throughout its extent.

The road is maintained to a standard allowing efficient passenger car through traffic at speeds up to 40 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. Crash severity is determined by the dynamics of a vehicles speed or combined speeds, mass, and configurations.

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 4, and the operational level is a ML4. 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.
- 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 35N10 appears to be consistent with state law and forest policy for operational maintenance level 3 roads.

2. Crash history:

There are no reported motor 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)

2 agency motor vehicles were observed during the field visit.

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 combination of native crushed rock aggregate and volcanic cinder surfacing. The majority of the traveled way is constructed upon a raised roadbed and the road has drainage ditches, singular culverts, and ditch-relief culverts. The road is approximately 16'-20' wide. The road traveled way is very dry and contains many fine aggregate components and produces prodigious quantities of dust when driven over. Road shoulders are soft and unconsolidated.

6. Intersections with other roads and trails:

Road segment 1 intersects with the following forest roads.

- 36N05
- 35N22

Road segment 2 intersects with the following forest roads.

- 35N13
- 35N10A

Road segment 3 intersects with the following forest roads.

- 34N34
- 34N29

Road segment 4 intersects with the following forest roads.

- 34N82
- 35N33
- 34N88

The maintenance level 2 roads have historically provided forest management access, fire suppression access, commodity haul, forest grazing access, and hunting and firewood gathering access. The proposed MMU intersections of 35N10 /ML4 may result in higher traffic merging speeds.

7. Other roadway factors:

- Roadway alignment was adequate for the assigned maintenance level. Alignment provides for vehicle closing speeds of approximately 80 mph.
- The road was maintained with a traveled way width of 16'-20".
- Raised roadbed creates soft unconsolidated shoulders. Emergency vehicle run-out among numerous lava rocks, Juniper trees, Pine trees, and brush may lead to loss of control for vehicle operators and/or collisions with immobile objects.
- The road provides administrative access for commodity haul, fire prevention patrol access, fire suppression access, wildlife management. Summer and fall seasons will experience peak use, winter and spring can bring snowy and icy conditions.

8. Roadside conditions:

- The segment runs through high elevation, 5,000 ft., open Pine forest, open Juniper, brush, native grass and lava rock forest land.
- Cross slope is 052%.
- Grade is 0-5%.
- Pine and Juniper trees are ≤18" and numerous lava ejecta rocks.
- 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.).
- Improved route identification and safety 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 road-parallel 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", 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:

Tim Dedrick July 17, 2009

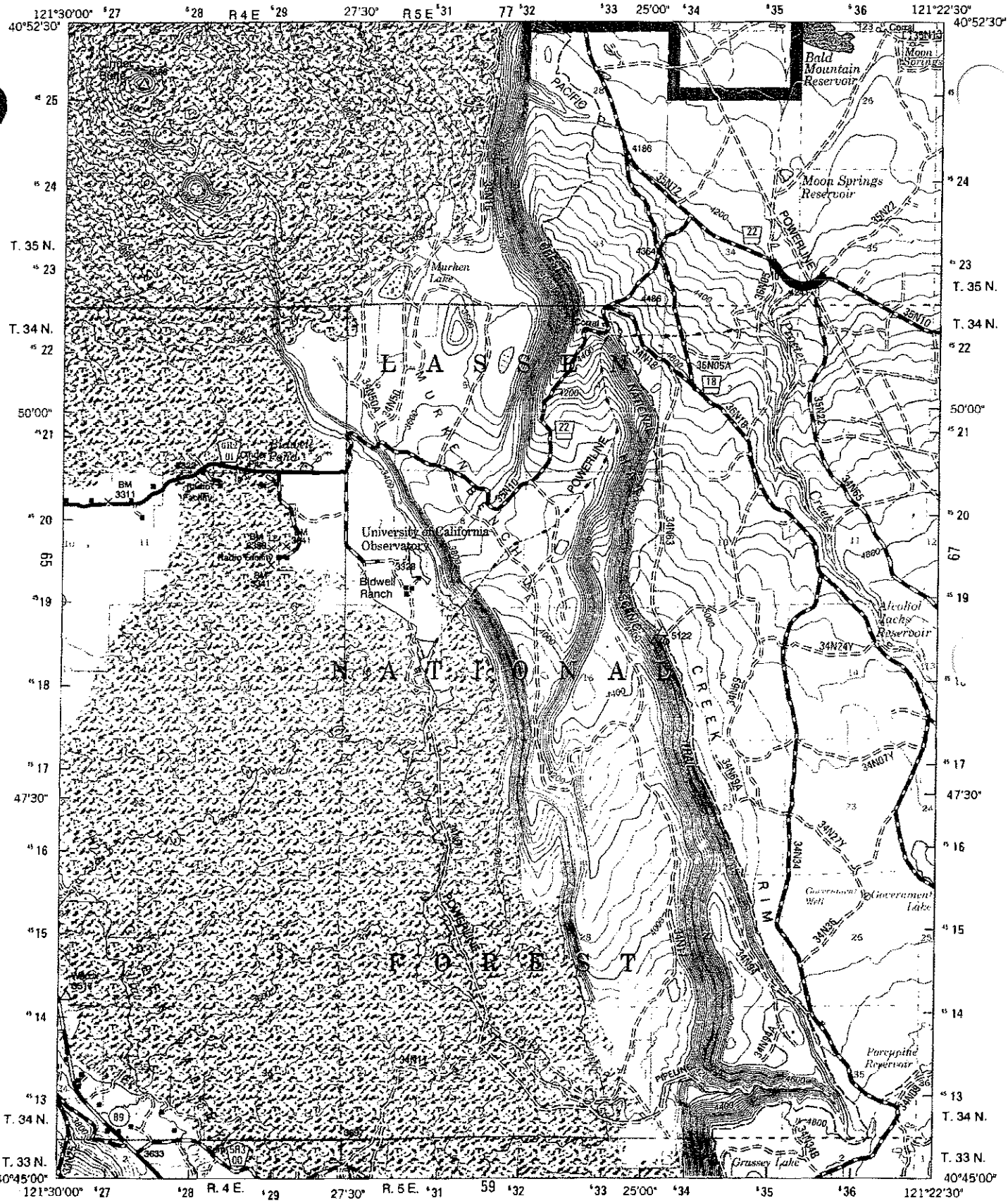
Prepared by Tim Dedrick Date
Lassen NF Civil Engineer

George Kulick Date
Region 5 Qualified Engineer

DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

DEPARTMENT OF AGRICULTURE
FOREST SERVICE

24 40121-G4 1999



Produced by the U.S. Geological Survey
Revised by the U.S. Forest Service

Areas outside the National Forest System lands may not have been revised.

Control by USGS and NOS/NOAA

Compiled from aerial photographs taken 1984. Revised from aerial photographs taken 1993. Partial field check by U.S. Forest Service 1995.

North American Datum of 1927 (NAD 27). Projection: California coordinate system, zone 1 (Lambert Conformal Conic).

U.S. National Forest System lands. Revised 1997.

This map is not a legal land line or ownership document. Public lands are subject to change and leasing, and may have access restrictions; check with local offices. Obtain permission before entering private lands.

Scale 1 : 63,360 (1 inch to the mile)

1 Miles

10 000 Feet

Contour Interval 40 Feet

GN MN 1°50' 33MILS 16° 284 MILS

UTM GRID AND 1994 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

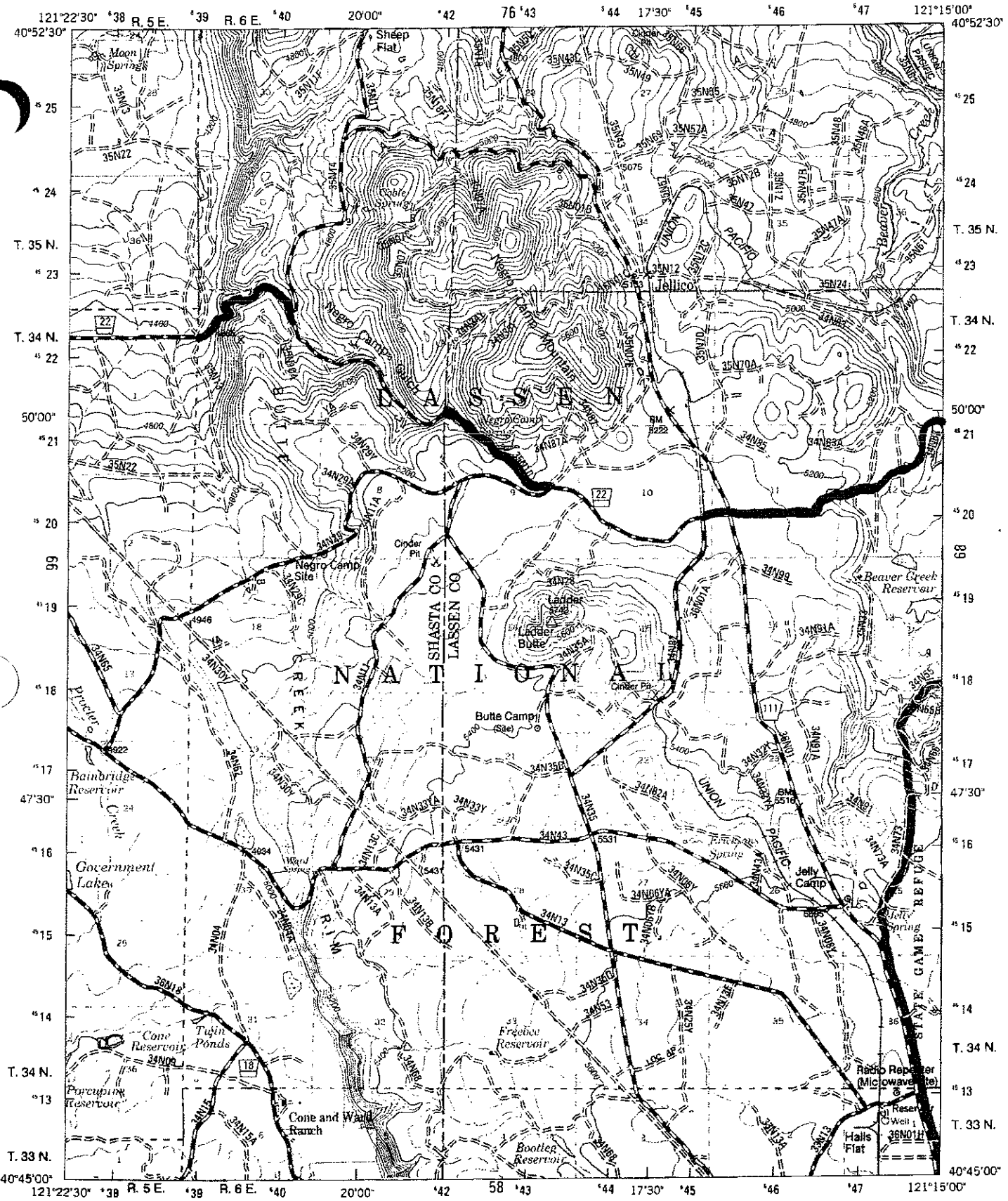
1 Cassel
2 Hogback Ridge
3 Cable Mountain
4 Barney Mountain East
5 Jellico
6 Thousand Lakes Valley
7 Old Station
8 Swains Hole

ADJOINING 7 5' QUADRANGLES

HIGHWAYS AND ROA

395 U.S.
139 State
11 County
30 National Forest
Gate

Primary
Secondary
Improved Road, Paved
Improved Road, Grave
Improved Road, Dirt
Composition Unspecifi
Unimproved Road
4WD 4 Wheel Drive Road
National Recreation Tr
Trail



Produced by the U.S. Geological Survey
Revised by the U.S. Forest Service
Areas outside the National Forest System lands may not have been revised.
Control by USGS and NOS/NOAA
Compiled from aerial photographs taken 1984. Revised from aerial photographs taken 1993. Partial field check by U.S. Forest Service 1995.
North American Datum of 1927 (NAD 27). Projection: California coordinate system, zone 1 (Lambert Conformal Conic).
National Forest System lands. Revised 1997.
This map is not a legal land line or ownership document. Public lands are subject to change and leasing, and may have access restrictions; check with local offices. Obtain permission before entering private lands.

Engineering Report:

Lassen National Forest

Hat Creek Ranger District

Analysis of

National Forest System Road (NFSR)

36N18

for Motorized Mixed Use Designation

Forest: **Lassen** District: **Eagle lake/Hat Creek**

Road Number: **36N18** Road Name: **DR 18 Road**

Introduction: The 36N18 Road segments studied are located on the east side of Lassen National Forest (LNF) in the Swains Hole quadrangle, on the eastern/western boundary of the Hat Creek/Eagle Lake Ranger Districts respectively.

NFSR 36N18/ML4 begins at the intersection of State Highway 44 in Section 11 of the Swains Hole quadrangle and trends due north and east to the Swains Hole, then trends northwest along the western base of the Butte Creek Rim to Mountain Home, continuing north along the western base of the fault block of Butte Creek Rim, past the Cone and Ward Ranch, continuing past Twin Ponds , Bainbridge, and Alcohol Jack Reservoirs in the Jellico quadrangle. 36N18/ML3 continues northwest into the Murken Bench quadrangle approaching the upper elevations and eastern extents of the Hat Creek Rim, where it parallels the Rim and the Pacific Crest National Scenic Trail until it's terminus in the Hogback Ridge quadrangle at the intersection with County Road 7RO2. The road length is approximately 23 miles.

The two road segments studied are both in the Swain's Hole quadrangle and start at the intersections of UCC706 an Unauthorized Route to 32N52/ML2 for approximately 1.25 miles and the intersections of 33N13YA/ML2 to 33N32/ML2 for approximately 0.25 miles respectively.

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 36N18/ML4. 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: **0.25** Ending Mile Post: **1.50**

UCC076 to 32N52

Traffic Service Level: ☐ A ☐ B ☒ C ☐ D

Objective Maintenance Level: ☐ 1 ☐ 2 ☒ 3 ☐ 4 ☐ 5

Operational Maintenance Level: ☐ 1 ☐ 2 ☒ 3 ☐ 4 ☐ 5

Segment 2: Beginning Mile Post: **3.50** Ending Mile Post: **3.75**

33N13YA to 33N32

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 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 possession of a valid driver's license.

Based on the Forest Service Directives and Travel Management purpose and need, to allow all motor vehicles on this segment with a designation of motorized mixed use for a segment or segments with a cumulative distance of 3 miles or less could be consistent with state and federal laws and directives with appropriate mitigation for safety concerns.

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

Road DR18 36N18/ML4 currently encourages use as an objective ML4 and operational ML4 collector/arterial road and functions as a forest throughway connecting the Hat Creek Ranger District and nearby State Highway 299 and County Road 7RO2 to the Eagle Lake Ranger District and nearby State Highway 44. This forest highway connects on each end to all weather asphalt surfaced State highways and provides ingress and egress to a myriad of Defensible Fuel Profile Zones – DFPZ's, forest plan units for timber harvesting, grazing allotments and livestock and wildlife watering holes.

36N18 is utilized by forest personnel for ingress and egress to Defensible Fuel Profile Zones – DFPZ's and their associated vegetation management and fire suppression functions, for range allotment management, for wildlife management at Buffelhead Reservoir, and for fire prevention patrol to a very large area that bisects two Ranger District's and two County boundaries.

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 these two segments of 36N18/ML4 identified in this analysis is to authorize motorized mixed vehicle class use. The proposal is to utilize the ML4 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 36N18 is an observed 1+ lane operational maintenance level 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 ML4 and an operational ML4. It provides forest commodity haul, livestock grazing area access 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.
- Although the road rests upon the top of the fault block of the Hat Creek Rim, topologically the unit is dry and flat. The objective level of this road is classified as a 4, and the operational level is a ML4. 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, livestock grazing, wildlife management, emergency fire detection and suppression response.
- 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 36N18 appears to be consistent with state law and forest policy for operational maintenance level 4 roads.

2. Crash history:

In April 2005 there was a single vehicle crash/collision with a roadside boulder. Vehicle was a passenger car traveling at 35-45 mph as estimated by the California Highway Patrol. Approximate location was on 36N18 about 4.4 miles east of Cassell California. The crash location was the approximate intersection with DR 22, forest highway 35N72/ML4.

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.

3 Forest Service Timber Sale Administration vehicles were observed along the 36N18 road.

An additional 3 log trucks were observed on road 36N18.

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

The speed greatly varies, depending on the roadway conditions. The 85th percentile would be estimated at: 45 mph.

5. Road surface type:

The road has a combination of native crushed rock aggregate and red volcanic cinder surfacing. The majority of the traveled way is constructed upon a raised roadbed and the road has drainage ditches, singular culverts, and ditch-relief culverts. The road is approximately 16'-20' wide. The road traveled way is very dry and contains many fine aggregate components and produces prodigious quantities of dust when driven over. Road shoulders are soft and unconsolidated.

6. Intersections with other roads and trails:

Road segment 1 intersects with the following forest roads.

- UCC076/Unauthorized Route
- 32N52/ML2

Road segment 2 intersects with the following forest roads.

- 33N13YA/ML2
- 33N32

The maintenance level 2 roads have historically provided forest management access, fire suppression access, commodity haul, forest grazing access, and hunting and firewood gathering access. The proposed MMU intersections of 36N18/ML4 may result in higher traffic merging speeds.

7. Other roadway factors:

- Roadway alignment was adequate for the assigned maintenance level. Alignment provides for vehicle closing speeds of approximately 80-100 mph.
- The road was maintained with a traveled way width of 16'-20".
- Raised roadbed creates soft unconsolidated shoulders. Emergency vehicle run-out among numerous lava rocks, Juniper trees, Pine trees, and brush may lead to loss of control for vehicle operators and/or collisions with immobile objects.
- The road provides administrative access for meadows/grazing, fire prevention patrol access, fire suppression access, wildlife management, 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 high elevation, 5,000 ft., open Pine forest, open Juniper, brush, native grass and lava rock forest land.
- Cross slope is 0-5%.
- Grade is 0-3%.
- Pine and Juniper trees are ≤18" and numerous lava ejecta rocks.
- 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.).
- 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 segments 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:

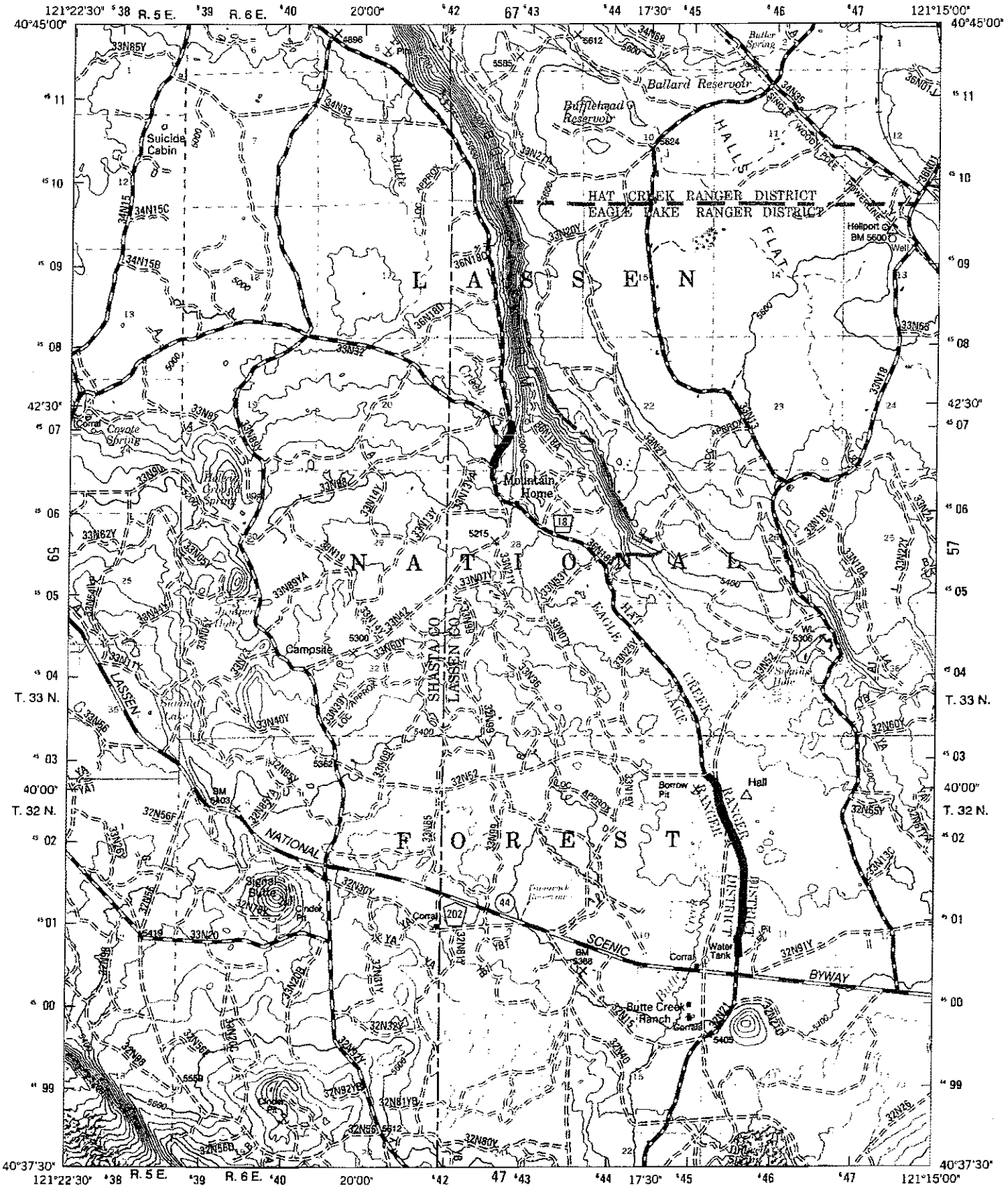
Tim Dedrick July 17, 2009

Prepared by
Tim Dedrick Civil Engineer

Date

George Kulick
Region 5 Qualified Engineer

Date



Produced by the U.S. Geological Survey
Revised by the U.S. Forest Service
Areas outside the National Forest System lands may not have been revised
Control by USGS and NOS/NOAA
Compiled from aerial photographs taken 1980. Revised from aerial photographs taken 1991 and 1993. Partial field check by U.S. Forest Service 1995
North American Datum of 1927 (NAD 27). Projection: California coordinate system, zone 1 (Lambert Conformal Conic).
National Forest lands. Revised 1997.
This map is not a legal land line or ownership document. Public lands are subject to change and turning, and may have access restrictions; check with local offices. Obtain permission before entering private lands.

Scale 1 63,360 (1 inch to the mile)
1 .5 0 1 Miles
1000 0 5000 10 000 Feet
Contour Interval 40 Feet

MN
GN
1°06'
19MILS
16°
292 MILS
UTM GRID AND 1997 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

1 Murken Bench
2 Jelico
3 Corders Reservoir
4 Old Station
5 Poison Lake
6 West Prospect Peak
7 Prospect Peak
8 Bogard Buttes

ADJOINING 7.5' QUADRANGLES

HIGHWAYS AND ROADS

395 U.S.
139 State
11 County
30 National Forest
Gate

Primary Highway
Secondary Highwa
Improved Road, P
Improved Road, G
Improved Road, D
Composition Unsp
Unimproved Road
4WD 4 Wheel Drive Road
National Recreatio
Trail

Shasta County

January 22, 2010

Kathleen Morse, Forest Supervisor
Lassen National Forest
2551 Riverside Drive
Susanville, CA 96130

Subject: Forest FEIS for Motorized Travel Management

Dear Supervisor Morse:

This letter is in reference to the Final Environmental Impact Statement (FEIS) for motorized travel on the Lassen National Forest. The Lassen National Forest has invested considerable time and money into the Travel Management Plan. And yet, the product is wanting. There has been a notable lack of coordination with Shasta County, and collaboration with the public. On August 25, 2009 we provided comments on the Draft EIS. Our comments have not been adequately addressed; our concerns largely remain.

The new Preferred Alternative (Modified Alternative 5) does not provide sufficient mixed use and recreational opportunities. Cross-country travel is prohibited, which perhaps we can live with. But motor vehicle travel within all open riding areas is prohibited. Motorized mixed use is prohibited on over 98 percent of unpaved ML 3 and 4 roads and on 95 percent of unauthorized routes. These restrictions are far too severe. The essence of the motorized recreational experience will be lost. We seek a reasonable balance between motor vehicle access and environmental stewardship.

The California Highway Patrol (CHP) enforces laws on public highways. They are the experts. That is their job. They say that maintenance level (ML) 3 roads do not meet the definition of a "highway" in the California Vehicle Code, Section 38001. The CHP Commissioner signed a letter to this effect (Farrow, 12/19/2007). So by the best available authority, OHV travel on ML 3 roads is legal under State law. The Region's mixed use policy should reflect this.

We are concerned about the lack of integration between our respective road systems. These road systems are intertwined and should operate as a seamless network for our citizens. And yet, road engineering analyses and mixed use conclusions stand in stark contrast. OHV use on many unpaved County roads is a legal and long-standing practice. Shasta, Butte, Lassen, Siskiyou and

Tehama Counties allow mixed use on unpaved county roads. Plumas County is following suit, as is the adjacent Modoc NF. But the Lassen National Forest is not. The Preferred Alternative (Modified Alternative 5) would create significant disparities between our respective systems. This road management inconsistency will hinder mobility, confuse the public and create enforcement challenges for the Forest Service.

The FEIS fails to comply with the 2005 Travel Management Rule, Forest Service directives, and the National Environmental Policy Act (NEPA) regarding county coordination. FEIS maps fail to indicate County roads where mixed use is currently allowed. This oversight denies context and thereby hinders public understanding of the FEIS. If displayed on the maps, the public would clearly see the conflict between our two road management strategies and question the Lassen NF's proposed mixed use prohibitions.

In evaluating environmental consequences, the FEIS is required to include a discussion of possible conflicts between the proposed action and the objectives of federal, regional, State, local and tribal plans and policies (40 CFR 1502.16(c)). Where an inconsistency exists, the EIS must describe the extent to which the agency would reconcile its proposed action with the plan or policies (40 CFR 1506.2(d)). The FEIS does not include this discussion.

Due to the above mentioned concerns, shortcomings and errors in the FEIS, we request that the Lassen National Forest reconsider the Preferred Alternative. We support modifying the FEIS to designate Alternative 1 as the Preferred Alternative with minor modifications listed below:

Prohibit cross country travel, except for the allowed permitted uses.

Keep all unpaved NFTS roads and unauthorized routes open for mixed use, except for justified seasonal closures.

We are concerned that a Record of Decision may be issued, based upon the faulty FEIS. We would not support this action. Should you do so, a supplemental FEIS should follow. Shortcomings in the current document need to be cleaned up. This will also afford an opportunity to provide a better balance between motor vehicle access and environmental stewardship. The supplemental FEIS should reflect a renewed commitment to public engagement and County coordination towards development of expanded alternatives.

We have heard that this FEIS is just the first step in travel management planning. "The Lassen National Forest looks forward to working with users and user groups to continuously refine the National Forest Transportation System (NFTS) to better meet the needs of the public while protecting resources"[1]. The Record of Decision may perpetuate this assertion, that the next round of planning will "continue to refine the NFTS." Please spare us. Such assertions afford

1 Lassen NF Travel Management Update, January 2010.

no guarantees. This has been a five year process. There may or may not be future refinements. A better balance of motorized recreation opportunities that has not been delivered today, cannot be ensured tomorrow. We would prefer to have it done right, up front and at this time.

Thank you for the opportunity to comment on the FEIS. We pray that you will consider and address our concerns before issuing a Record of Decision.

Sincerely,

LES BAUGH, SUPERVISOR DISTRICT 5
Board of Supervisors

LB/PJM/mlc

FRD 010005

bc: Sylvia Milligan, Chair
Recreation Outdoor Coalition
4000 Beacon Drive
Anderson, CA 96007-2962

Daphne Greene, Deputy Director
California Dept. of Parks & Recreation
P.O. Box 942896
Sacramento, CA 94296-0001

F n: Sylvia Milligan [smilligan4732@sbcglobal.net]
Sent: Sunday, October 19, 2008 10:49 PM
To: Liz Norton; Bobs
Subject: Fw: county roads
FYI on Shasta County Roads.

----- Original Message -----
From: Pat Minturn — Shasta Co. Public Works Director
To: smilligan4732@sbcglobal.net
Sent: Sunday, October 19, 2008 10:21 PM
Subject: Re: county roads

Sylvia,
No resolution is necessary. CHP has said OHV's are legal on dirt roads. Period. That's what we will rely on. We don't have a resolution for bicycles, or pedestrians, or motorcycles. No need for one for OHV's.

Thanks, Pat

-----Original Message-----
From: Sylvia Milligan <smilligan4732@sbcglobal.net>
To: Pat Minturn
Sent: Sun Oct 19 21:52:58 2008
Subject: county roads

Pat,
How is Shasta County going to handle their unpaved roads? Will the county make up an ordinance? Resolution? How will you let the public and FS know of your decision of roads being OPEN?

I attaching a draft that Ric Costales is working on and ROC's sugggested changes.

We suggested they add:
3rd WHEREAS: On the end of the second line after 'that the land would be ..... (add) managed for multiple use and would be..... open for"

Then add another WHEREAS after the 10th one that states:

WHEREAS, all unpaved roads on National Forest system lands, regardless of maintenance level, are exempt from the definition of a "highway" under Section 38001 of the California Vehicle Code per letter from the California Highway Patrol, dated December 19, 2007.

I meet with Tehama Co. Mon am.

Thank you.

Sylvia

RESOLUTION NO. 09- 043

LASSEN COUNTY BOARD OF SUPERVISORS
RESOLUTION DESIGNATING CERTAIN COUNTY ROADS FOR COMBINED USE OF REGULAR VEHICULAR TRAFFIC AND OFF-HIGHWAY MOTOR VEHICLES

WHEREAS, the Board of Supervisors of the County of Lassen, in cooperation with the United States Forest Service and off-highway vehicle (OHV) enthusiasts, seeks to accommodate the use of off-highway motor vehicles (OHV's) on certain un-paved County Maintained Roads; and

WHEREAS, Vehicle Code Section 38026 authorizes the Board of Supervisors to designate highways under its jurisdiction for combined use of regular vehicle traffic and OHV's under certain circumstances; and

WHEREAS, the Board of Supervisors of the County of Lassen finds that the following roads, or portions of roads, will provide a link in the off-highway motor vehicle trail system by providing a connection between off-highway motor vehicle trail segments:

Road District 1 (Westwood):

CR 101 Mc Coy Road: (entire 9.44 miles, Mooney Road (A-21) to SH 44)
CR 104 Norvel Road: (entire 9.57 miles, McCoy Road (CR101) to Mooney Road (A-21))
CR 105 Champs Flat Road: (16.05 mile portion, FS Road 21 to FS Road 22)
CR 110 Silver Lake Road: (entire 5.18 miles, Mooney Road (A-21) to Road 8224)
CR 111 Pittville Road: (25.6 mile portion, SH 44 to Cinder Cone Road)
CR 112 Bridge Creek Spring Road: (entire 12.15 miles, SH44 to Champs Flat Rd.(CR 105))
CR 113 Indian Ole Road: (entire 11.55 miles, Mooney Road (A-21) to end)

7 Roads – 79.54 miles

Road District 2 (Susanville):

CR 204 Gold Run Road: (4.70 mile portion, end of pavement to Plumas County Line)
CR 216 Karlo Road: (entire 6.30 miles, SH395 to Rd. 8293)
CR 249 Signal Butte Road: (entire 0.21 miles, Eagle Lake Road (A-1) to end)

3 Roads – 11.21 miles

Road District 3 (Standish):

CR 327 Fort Sage Road: (entire 10.5 miles, Hackstaff Road (CR 322) to Nevada State Line)
CR 338 Smoke Creek Ranch Road: (entire 19.02 miles, SH 395 to Nevada State Line)
CR 341 Stoney Creek Road: (entire 1.78 miles, SH 395 to end)
CR 344 Summers Road: (entire 3.80 miles, Hackstaff Road (CR 322) to end)

4 Roads – 35.10 miles

Road District 4 (Bieber):

CR 417 Punkin Center Road: (3.70 mile portion, end of pavement to Rd 8016)

1 Road – 3.70 miles

Road District 5 (Ravendale):

CR 503 Horn Road: (entire 9.90 miles, Mail Route Road (CR 502) to end)
CR 506 Tuledad Road: (entire 24.06 miles, Mail Route Rd. (CR 502) to Nevada State Line)
CR 509 Blue Lake Road: (entire 10.20 mile, Clarks Valley Rd. (CR 510) to end)

RESOLUTION 09-043

CR 510 Clarks Valley Road: (entire 23.35 miles, SH 395 to Tuledad Rd. (CR 506))
CR 515 Cold Spring Road: (entire 6.00 miles, Mail Route Rd. (CR 502) to end)
CR 519 Dow Butte Road: (entire 6.59 miles, Champs Flat Rd. (CR 105) to Cleghorn Rd. (CR 521))
CR 521 Cleghorn Road: (entire 9.00 miles, SH 139 to Road 8090)
CR 524 Spooner Road: (entire 6.76 miles, Ash Valley Road (CR527) to end)
CR 527 Ash Valley Road: (entire 28.10 miles, SH395 to Modoc County Line)

9 Roads – 123.96 miles

WHEREAS, the Board of Supervisors of the County of Lassen further finds that the above aforementioned roads, or portion of roads, equaling a total of 253.51 miles are designed and constructed so as to safely permit the use of regular vehicular traffic and also the driving of off-highway motor vehicles, and

WHEREAS, there is community and Lassen National Forest staff support for the year-round use of the OHV's identified in Vehicle Code section 30812, subdivisions (a)(1) Motorcycles, (a)(2) snowmobiles, and (a)(3) all-terrain vehicles, as appropriate for the conditions, on the aforementioned roads or portions of roads.

NOW, THEREFORE, BE IT RESOLVED, that the Lassen County Board of Supervisors designate the aforementioned un-paved County Maintained roads, or portions of roads, as routes for combined use of regular vehicular traffic and off-highway motor vehicles.

The foregoing resolution was adopted at a regular meeting of the Board of Supervisors of the County of Lassen, State of California, held on the 18th day of August, 2009 by the following vote:

AYES: Supervisors Keefer, Pyle, Chapman, Dahle and Hanson

NOES: None

ABSENT: None

Chairman of the Board of Supervisors
County of Lassen, State of California

ATTEST

Julie Bustamante
Clerk of the Board

BY: Susan Osgood
Susan Osgood, Deputy Clerk of the Board

I, SUSAN OSGOOD, Deputy Clerk of the Board of Supervisors, County of Lassen, do hereby certify that the foregoing resolution was adopted by said Board of Supervisors at a regular meeting thereof held on the 18th day of August, 2009.

Susan Osgood
Deputy Clerk of the County of Lassen
Board of Supervisors

S:\PWK\Roads\2009 ROADS\B-1 Board Letters\Designation of Unpaved County Roads for Mixed or Shared Use-resolution approving.doc

Department of Public Works
County of Butte

J. Michael Crump, *Director*
Shawn H. O'Brien, *Assistant Director*

7 County Center Drive
Oroville, CA 95965-3397
(530) 538-7681
(FAX) 538-7171

January 13, 2010

Lassen National Forest
Attn: Travel Management
2550 Riverside Drive
Susanville, CA 96130

Re: Butte County Comments on Lassen National Forest Motorized Travel Management Final EIS

Lassen National Forest Travel Management Team;

Butte County has three major concerns with the Final Environmental Impact Statement (FEIS) for the Lassen National Forest Motorized Travel Management Plan and requests that appropriate actions be taken to address them.

First, the FEIS Modified Alternate 5 will have a negative economic impact to Butte County and the surrounding areas. Specifically, Modified Alternate 5 fails to designate many of the National Forest Service (NFS) level 3 and 4 roads for mix use. This reduction in mix use roads will reduce the areas attraction for recreation thus significantly decreasing the purchase of food, fuel and overnight accommodations from visitors. The reduction of this economic activity will be detrimental to rural communities that depend on seasonal recreation activities for their income.

Second, the FEIS Modified Alternative 5 will significant reduce outdoor recreation opportunities in Butte County. The failure to include the numerous level 3 & 4 roads that cross over between Humboldt Road and Humbug Road and elsewhere throughout the Lassen National Forest will prevent reasonable half day or even full day loops for family OHV recreation and accompanying activities in the Forest.

Third, by not including the NFS level 3 and 4 roads in the FEIS Modified Alternative 5 for mixed use, the Plan will have a significant negative impact on the area's transportation and circulation system. Many routes will require recreational users to either back track or travel much longer distances to make a loop. In other cases, the Plan would require the OHV user to trailer his vehicle to traverse a non mixed use designated section of road.

Butte County requests that appropriate actions be taken to mitigate these negative impacts.

Sincerely,

Mike Crump, Director

cc: Butte County Board of Supervisors
Butte County Interim CAO

Elizabeth Norton

From: Sylvia Milligan [smilligan4732@sbcglobal.net]
Sent: Wednesday, January 13, 2010 3:34 PM
To: Tyler Hamman - Herger - WDC; Les Baugh - Sh B/S; Bob Perreault; David Kehoe - Shasta B/S; Liz Norton; Bobs; Steve Uhles; Dave Meurer - Herger; Lloyd Keefer - home
Subject: Fw: Butte County comments-LNF Travel Management
Attachments: CHP Farrow to Randy Moore USFS 12-19-2007.pdf; BOS Mixed Use Support.pdf

FYI

We also learned yesterday that Kathleen Morse will be leaving the LNF in February to work for Yosemite NP.

It is our hope that all the counties will ban together and show a united front when tackling this issue.

Sylvia

----- Original Message -----
From: Crump, Mike
To: Kathleen Morse ; Chris J Obrien
Cc: Yamaguchi, Kim ; Connelly, Bill ; Sylvia Milligan
Sent: Wednesday, January 13, 2010 12:40 PM
Subject: RE: Butte County comments-LNF Travel Management

Kathleen;
Thank you for clarifying that LNF had received our comments regarding your proposed Travel Management Plan.
The Butte County Board of Supervisors has not adopted a resolution regarding mixed use on County roads. However the Board did approve the November 18,2008 letter which was included in our comments submittal and is also attached for your reference. The letter states "The public has safely used non-paved county roads for decades to access NFS roads with off-highway vehicles."

I have also attached the December 19, 2007 letter to Mr. Randy Moore from CHP Deputy Commissioner J.A.Farrow that states that roads that are gravel, dirt or otherwise unpaved that have been operating as mixed use roadways for years are not **highways** as defined by the California Vehicle Code and would fall under "roughly graded trails and roads upon which vehicular travel by the public is permitted." and are therefore eligible for mixed use. The California Highway Patrol (CHP) is the designated law enforcement agency regulating and enforcing the California vehicle Code on public county roadways.

Based on the November 18, 2008 Board letter (above), and the December 19, 200& letter from the CHP, it is very clear that both Butte County and the CHP recognize and will allow the mixed use on unpaved county roads leading to and through the National Forest. Butte County is also strongly recommending the LNF do the same for it's Level 3 and 4 designated roads.

Please let me know if you have any questions or need anything additional from Butte County to allow you to make the determination to allow mixed us on your Forests Level 3&4 designated roads.

Thanks
Mike Crump

From: Kathleen Morse [mailto:kmorse@fs.fed.us]
Sent: Monday, January 11, 2010 2:47 PM
To: Crump, Mike; Chris J Obrien
Subject: Re: Butte County comments-LNF Travel Management

Department of Public Works
County of Butte

J. Michael Crump, *Director*
Shawn H. O'Brien, *Assistant Director*

7 County Center Drive
Oroville, CA 95965-3397
(530) 538-7681
(FAX) 538-7171

July 13, 2009

Kathleen S. Morse, Forest Supervisor
c/o Lassen National Forest Travel Management Team
Supervisor's Office
2550 Riverside Drive
Susanville, CA 96130

Re: Butte County Comments to the DEIS Lassen National Forest Public Motorized Travel Management Plan

Dear Ms. Morse:

On November 18, 2008, the Butte County Board of Supervisors sent Mr. Randy Moore, Regional Forester of the Southwest Region, a letter requesting the USFS to maintain and provide public access to non-paved Forest Service Level 3 and 4 roads within the Lassen National Forest. I have attached a copy of this letter which I would like to be included in the public record of the DEIS for the Lassen National Forest Public Motorized Travel Management Plan.

In addition, the letter also states the Board supports the mixed use on County maintained non-paved roads leading and connecting to the National Forest System roads. Attached please find a list of non-paved County maintained roads leading to and connecting with the Lassen National Forest. Also attached for your reference and consideration is a map showing the same roads highlighted in purple and their relationship to the Lassen National Forest Lands.

During your consideration of the alternatives contacted in the referenced DEIS, please consider these non-paved County maintained roads as being mixed use. There mixed use County roads should be considered as loop access connectors to any of your designated National Forest Transportation System roads, trails and/or areas open to the public for motor vehicle use, including OHV.

Should you have any questions regarding these comments please direct them to Mike Crump, Director of Public Works.

Sincerely,

Mike Crump
Director of Public Works

BOARD OF SUPERVISORS

ADMINISTRATION CENTER
25 COUNTY CENTER DRIVE - OROVILLE, CALIFORNIA 95965
TELEPHONE: (530) 538-7224

November 18, 2008

Randy Moore
Regional Forester, Pacific Southwest Region
USDA Forest Service
1323 Club Drive
Vallejo, California 94592

Dear Regional Forester Moore,

We are writing on behalf of Recreation Outdoor Coalition (ROC), Paradise Ridge Riders, Par-O-Dice 4x4 and other individual OHV enthusiasts who utilize county maintained non-paved roads to access the National Forest System roads within Butte County. The public has safely used non-paved county roads for decades to access NFS roads with off-highway vehicles. Maintaining a consistent policy direction as to what types of vehicles may utilize these roads is in the best interest of both agencies

As you know, Northern California is an area with large portions of public lands devoted to recreation and tourism. Access to these lands for hunting, fishing, camping, and OHV use is vital to the local economy. Therefore, we would like the USFS to maintain and provide public access to non-paved Forest Service Level 3 and 4 roads within the Lassen and Plumas National Forests. OHV riders have safely used these roads for years, and the potential loss of the vast majority of these roads has understandably alarmed the outdoor recreation community. We understand there may be a few spurs and environmentally sensitive sites that need to be protected and preserved off these roads. That said, we want to make sure any road closures are based on rational, sound scientific procedures

We join with Congressman Herger, the counties of Lassen, Plumas, and Shasta in support of mixed use on county maintained non-paved roads leading and connecting to the National Forest System (NFS) roads. We also support OHV access to NFS level 3 and 4 designated roads within the Lassen and Plumas National Forests.

Sincerely,

Curt Josiassen, Chairman
Butte County Board of Supervisors

STREETNAME	JURISDICT	ROAD_NO	FR_MILE	TO_MILE	LENGTH_MI	Class	Surface
Humbug Summit Rd	CO	91513	1.12	3.56	2.43	09	G
Humbug Summit Rd	CO	91513	0.14	1.08	1.12	09	G
Philbrook Rd	CO	92523	2.14	5.15	2.53	09	G
Hupp Coutolenc Rd	CO	72445-A	0.51	1.85	1.32	09	G
Concow Rd	CO	52515A2	7.07	8.72	1.66	09	G
Concow Rd	CO	52515A2	8.72	10.37	1.67	09	G
Concow Rd	CO	52513	2.23	2.48	0.24	09	G
Doon Grade	CO	68465-B	0.00	3.22	3.27	09	G
Dixie Rd	CO	66553	0.00	0.02	3.06	09	G
Concow Rd	CO	52513	0.00	2.00	1.97	09	G
Dixie Rd	CO	66553	0.70	6.96	4.40	09	G
Camp Creek Rd	CO	76555-F	0.00	3.49	3.45	09	G
Concow Rd	CO	52513	2.48	4.55	2.11	09	G
Concow Rd	CO	52513	7.85	15.83	6.07	09	G
Skyway	CO	51262-2	10.35	16.04	5.71	08	G
Humboldt Rd	CO	91422	13.35	15.37	1.75	09	G
Humboldt Rd	CO	91422	11.78	12.41	0.70	09	G
Bardees Bar Rd	CO	54545-A	1.39	7.66	5.03	09	G
Concow Rd	CO	52513	20.37	24.74	4.14	09	G

This instrument is a correct copy of the original on file in this office.
ATTEST:
COLLEEN SETZER
County Clerk
of the State of California
In and for the County of Siskiyou.
By Wendy Ruiz
Deputy

RESOLUTION OF THE SISKIYOU COUNTY BOARD OF SUPERVISORS REGARDING MOTORIZED ACCESS AND/OR TRAVEL ON FEDERAL LANDS IN SISKIYOU COUNTY

WHEREAS nearly two-thirds of Siskiyou County is federal land; and

WHEREAS the ability to use and recreate on the federal lands in Siskiyou County is enjoyed by all citizens of the United States as well as the citizens of Siskiyou County; and

WHEREAS when the land in Siskiyou County was reserved by the federal government and became part of the National Forest system it was done with the understanding that the land would be open for the access, use and enjoyment of all citizens; and

WHEREAS, similar understanding exists relative to federal lands managed by the Bureau of Land Management; and

WHEREAS it is through access, use and enjoyment that people are able to develop the appreciation for the value of federal lands that leads to the popular public support necessary to fund and manage the federal lands; and

WHEREAS the ease, simplicity and economy of motorized transportation make the federal lands accessible, useable and enjoyable to people who might not otherwise have the time, physical ability or finances to enjoy the benefits of the National Forests; and

WHEREAS virtually all uses of and access to the National Forests rely to some degree on motorized transportation; and

WHEREAS fishing, hunting, camping, nature-viewing, mining, wood-cutting, cattle-management and recreational Off Highway Vehicle (OHV) riding are among the uses that depend on motorized access; and

WHEREAS Reserve Statute 2477 has established certain rights of way on federal lands; and

WHEREAS all of these uses are important components of the custom, culture and economy of Siskiyou County; and

WHEREAS it is imperative to the continued enjoyment of federal lands by all user-groups that considerate, tolerant, environmentally reasonable management be applied to motorized access; and

WHEREAS, Siskiyou County can play a major role in helping shape a sound, workable approach to motorized access to federal lands within its boundaries,

NOW, THEREFORE, BE IT RESOLVED that the Siskiyou County Board of Supervisors declares it to be the policy of Siskiyou County that all roads, trails and areas on federal land that were available to motorized access and/or travel as of the date of adoption of this Resolution should remain open to all forms of motorized travel, including snowmobiles and OHVs, unless sufficient environmental or other scientific justification exists for the closure of the road, trail or area; and

SISKIYOU COUNTY
RESOLUTION
No. 08-186

BE IT FURTHER RESOLVED that Siskiyou County recognizes compatibility issues between motorized access and/or travel and other uses of the federal lands and understands and supports reasonable, prudent efforts by federal agencies and the public to find workable compromises satisfactory to all user groups; and

BE IT FURTHER RESOLVED that before any road, trail or area on federal land is closed to motorized access and/or travel, all reasonable mitigations and alternatives should be explored in order to prevent closure; and

BE IT FURTHER RESOLVED that all federal agencies are required to coordinate with Siskiyou County at the earliest stage and throughout the development of any road, trail or area closure proposal.

Passed and adopted this November 18, 2008, by the following vote:

AYES: Supervisors Overman, Armstrong, Kobseff and Cook
NOES: NONE
ABSENT: Supervisor Erickson
ABSTAIN: NONE

W.R. Overman, Chair
Siskiyou County Board of Supervisors

ATTEST:
Colleen Setzer, County Clerk

Deputy

Appendix A – Glossary

Accident History – The Forest has no records of any accidents on the roads in the study. See Appendix B for Forestwide 2005 accident history.

Alignment and Stopping Sight Distance – Two vehicles traveled all of the roads together to determine the distance that one vehicle could see the other on sharper curves. A minimum distance for a given speed was used per FS Handbook. Each tight curve was checked by actual measurement. Most curves had full or nearly full turnout widths constructed in the travel way.

Average Daily Traffic (ADT) – Fundamentals of Traffic Engineering, 6th Edition, University of California and Traffic Surveillance, USFS R5, FSH 7709.41, Aug. 1969 were used to establish the best time to observe and record recreation vehicles. The ADT calculations utilized the process presented in "Guide for Traffic Volume Counting Manual", 2nd edition Feb. 1965 US Dept. of Commerce (old Bureau of Public Roads–now Federal Highways.)

Average Travel Speed – This was arrived at by prudent drivers using two methods. During the first and second trips along the roads, travel speeds were recorded between stops. On the final pass, to check data at a couple of spots, a GPS, with external antenna, was used to accumulate the average speed along each road. Existing roadway conditions, in summer, 2005, controlled the speed traveled.

California Vehicle Code (CVC)—Following are brief excerpts from the August 2005 on-line code:

<u>Operator License</u>

CVC 12500. (a) A person may not drive a motor vehicle upon a highway, unless the person then holds a valid driver's license under this code.

CVC 12501. The following persons <u>are not</u> required to obtain a driver's license: (c) Any person driving or operating an off-highway motor vehicle subject to identification, as defined in Section 38012, while driving or operating such motor vehicle as provided in Section 38025.

38012 – Motorcycle or motor driven cycle, snowmobile, sand buggy, dune buggy, all-terrain vehicle or Jeep. (green or red sticker)

38025 – to cross a two-lane highway.

CVC 12512. Except as provided in Sections 12513 12514 and 12814.6, no license to drive shall be issued to a person under the age of 18 years.

12513 – Junior permit for 14-18 when for school purposes or public transportation more than one mile away.

12514 – Junior permit duration

12814.6 – Provisional license for minor-under direct supervision of 25 year old licensed driver or parent.

Class M1 Licenses. To operate any 2-wheel motorcycle or motor driven cycle.

NOTE– The DMV will not issue a license to operate a 2-wheel motorized vehicle to anyone under 21 years of age unless that person has completed a CHP approved motorcycle rider training program certified on the Certificate of Completion of Motorcycle Training (DL 389).

CVC38007. The Off-Highway Motor Vehicle Recreation Division of the Department of Parks and Recreation shall adopt courses of instruction in off-highway motor vehicle safety, operation, and principles of environmental preservation by January 1, 2005. For this purpose the division shall consult with the Department of the California Highway Patrol and other public and private agencies or organizations. The division shall make this course of instruction available directly, through contractual agreement, or through volunteers authorized by the division to conduct a course of instruction.

CVC 38501. (a) An all-terrain vehicle safety training organization, commencing on January 1, 1989, shall issue an all-terrain vehicle safety certificate furnished by the department to any individual who successfully completes a course of instruction in all-terrain vehicle operation and safety as approved and certified by the Off-highway Vehicle Safety Education Committee.

CVC 38502. The department, on and after July 1, 1988, may monitor any all-terrain vehicle safety training organization or any all-terrain vehicle safety instructor without advance notice. The monitoring may include, but is not limited to, the instruction provided, business practices, and records required by Section 11108.

CVC 38503. No person under the age of 18 years, on and after January 1, 1990, shall operate an all-terrain vehicle on public lands of this state unless the person satisfies one of the following conditions:

(a) The person is taking a prescribed safety training course under the direct supervision of a certified all-terrain vehicle safety instructor.

(b) The person is under the direct supervision of an adult who has in their possession an appropriate safety certificate issued by this state, or issued under the authority of another state.

(c) The person has in possession an appropriate safety certificate issued by this state or issued under the authority of another state.

CVC *38504. No person under 14 years of age, on and after January 1, 1990, shall operate an all-terrain vehicle on public lands of this state unless the person satisfies one of the conditions set forth in Section 38503 and, in addition, is accompanied by and under the direct supervision of a parent or guardian or is accompanied by and under the direct supervision of an adult who is authorized by the parent or guardian.*

CVC 38505. No person, on and after January 1, 1989, shall operate, ride, or be otherwise propelled on an all-terrain vehicle on public lands unless the person wears a safety helmet meeting requirements established for motorcycles and motorized bicycles, pursuant to Section 27802.

CVC 38506. No operator of an all-terrain vehicle may carry a passenger when operating on public lands.

However, the operator of an all-terrain vehicle, that is designed for operation off of the highway by an operator with no more than one passenger, may carry a passenger when operating on public lands.

Vehicle License

CVC 38012. (a) As used in this division, "off-highway motor vehicle subject to identification" means a motor vehicle subject to the provisions of subdivision (a) of Section 38010.*

(b) As used in this division, "off-highway motor vehcile" includes but is not limited to, the following:

(1) Any motorcycle or motor-driven cycle, except for any motorcycle which is eligible for a special transportation identification device issued pursuant to Section 38088. (Motorcycle used in racing events)

(2) Any snowmobile or other vehicle designed to travel over snow or ice, as defined in Section 557.

(3) Any motor vehicle commonly referred to as a sand buggy, dune buggy, or all-terrain vehicle.

(4) Any motor vehicle commonly referred to as a jeep.

*Identification refers to registration with DMV and evidenced by a green or red sticker–date sensitive.

Vehicle Equipment

CVC 38335 & 38345–Headlights and taillights when operating from one-half hour after sunset to one-half hour before sunrise.

CVC 38355 – Serviceable brakes.

CVC 38365 – Muffler to meet DMV 38370.

CVC 38366 – Spark Arrester

CVC 38370 – Noise Limits

Reportable OHV Accident

CVC 16000.1. (a) *For purposes of this division, a "reportable off-highway accident" means an accident which includes all of the following: (1) Occurs off the street or highway. (2) Involves a vehicle that is subject to registration under this code. (3) Results in damages to the property of any one person in excess of seven hundred fifty dollars ($750) or in bodily injury or in the death of any person. (b) A "reportable off-highway accident" does not include any accident which occurs off-highway in which damage occurs only to the property of the driver or owner of the motor vehicle and no bodily injury or death of a person occurs.*

Downhill Side Slope – Two methods were used to obtain slope data: Abney level and USFS digital terrain (GIS) data.

Highway Safety Program – FSH 7709.59 – Transportation Systems Operations Handbook - Chapter 40, says in part:

The Highway Safety Act of 1966 (HSA) requires each Federal Agency to implement the HSA program standards to the extent that they are relevant to the activities of the agency.

Objective per 7733.02: To reduce the number and severity of accidents and decrease the potential for accidents on National Forest System (NFS) roads.

Responsibility of the Forest Supervisor:

1. *Maintain an inventory of road signs and traffic markings.*
2. *Institute procedures to gain compliance with safety standards (sec 41)*

41–Safety Standards–that pertain to NFS roads:

41.1- Standard 9–Identification and Surveillance of Accident Locations.

41.2- Standard 12–Highway Design, Construction and Maintenance.
Applicable sections are:
Section A–Design Standards
Section F–Traffic Regulation and Warning at Construction and Maintenance Sites.
Section G–Railroad Crossings
Section H–Roadway Maintenance, i.e., Maintain commensurate with annual operational maintenance level assigned to the roads.
Section I–Hazard Identification and Correction.
Section J–Highway Features for Accident Prevention and Survivability.
Section K–Post-Crash Program.
41.3- Standard 13–Traffic Engineering Services
41.4- Standard 14–Pedestrian Safety

Probability Factors* – Probability deals with forecasting the effect of factors present in any situation and the likelihood of a crash resulting from exposure to those factors. Factors that may effect the probability of crashes include:

Operator Considerations
- State Licensing
- Age
- Training
- Time of Day
- Season of Use

Crash History
Traffic Volume and Type
Speed
Surface Type
Intersections
Other Roadway Factors

Severity Factors* – Severity relates to the probable result of a crash and can range from minor property damage to critical injury or fatality. Factors that may affect the severity of crashes include:

Roadside Conditions
- Downhill Slope
- Large unyielding hazard at road's edge
- Speed
- Traffic Type

User Knowledge – There is no way to ascertain this without interviewing and/or testing each operator. The State Dept. of Motor Vehicles has laws on the books that generally cover this and this study assumes all operators fully comply with State law.

***From WO-San Dimas 8/23/05 Draft Guidelines**

Appendix B

Forest wide 2005 Accident (Crash) History

Note–none of these reported accidents on the Lassen NF contained in the Province Safety Officer's file, involve roads studied in this report. However, they are presented here to understand the type of accident that occurs:

Date	Vehicle	Driver Age	Location	Accident	Cause
4/19/05	Sedan	26	18Rd HCRD	Ran off road	Unknown
5/26/05	ATV (Quad)	88	29N46 ALRD	Ran off road	Unknown
5/29/05	ATV (Quad)	17	27N46 ALRD	Hit parked quad	Unsafe Speed
7/3/05	ATV (Quad)	14	Borrow Pit HCRD	Jumping bank	Unsafe Speed
7/13/05	Pickup	24	27N65 ALRD	Ran off road	Unsafe Turn
7/18/05	Motorcycle	44	28N06 ALRD	Ran up bank	Unsafe Turn
7/24/05	ATV (Quad)	40	Non-System Trail ELRD	Hit rock	Unsafe Speed

Only one of these accidents (5/29/05) involved another vehicle, which was part of the operator's group. And none of the accident reports noted problems with the roadway characteristics.

Appendix C

State Laws Preempted

On August 30, 2005, OGC attorney Ellen Hornstein, wrote in part *"The issue is whether the Forest Service has the authority to preempt state traffic laws in designating National Forest System roads for motor vehicle use. The answer is yes".* Later she adds "Thus, under the new rule, state traffic laws that conflict with designations of NFS roads for motor vehicle use will not apply to those roads". And, finally, she states *"Motorized mixed use may be legal or illegal under state law. Even if motorized mixed use is legal under state law and preemption of state law is not necessary to allow the use, the FS needs to assess whether the use is appropriate from an engineering and safety standpoint before designating an NFS road for that use."*

The above statements confirm what the CHP's Acting Deputy Commissioner's April 7, 2005, meant with the statement: *"In response, if these roads are open to passenger vehicle use <u>and not specifically posted authorizing OHV use</u>, they would not be legal roadways for OHVs."* However, per OGC, *"If motorized mixed use is allowed on an NFS road, state and local law enforcement officers will not be able to cite those using motor vehicles on that road in violation of state law because state law will not apply."*

Appendix D

Traffic Flow Data by Count Site with Maps and Photos

Following are the coding instructions, form and the results of the daily observations at each of the count sites. Included are location maps and site photos used to orient the observers and to record sites for future use.

Share-the-Dream Trail
Traffic Flow Data
Team Instructions
6/4/05

Why

The Share-the-Dream Trail is being dedicated in September of 2005 for use by street legal vehicles. The Recreation Outdoor Coalition (ROC) wants the trail to also be available to non-street legal vehicles.

The US Forest Service has criteria that must be followed in making a decision to allow sharing the road or mixing street legal with non-street legal vehicles. The Lassen National Forest has indicated that if a formal engineering study indicates acceptable risks of mixing the use on certain roads, then the Forest will allow that use.

ROC has embarked on performing the study for the Lassen.

Engineering Study

The study process being utilized involves four major steps"

1. Traffic Flow Data
2. Roadway Characteristics
3. Data evaluation and summarization
4. Accident Risk Analysis and Recommendations

The study assumes that all vehicles and operators are legally licensed and equipped to safely operate.

Step 1 involves observing all traffic passing a given point during a specific time frame to provide a statistical sample of what traffic is using the system.

Step 2 involves recording the surface type, travel way width, shoulder or clear area width for accident avoidance maneuvers, the average travel speed (basic speed), stopping sight distance at curves, roadside hazards and adjacent down hill slopes to assess physical conditions.

Step 3 involves calculating the average daily traffic, the percentage of traffic by vehicle class, the number of people per vehicle and a cataloging of physical conditions that fall below an acceptable minimum.

And step 4 takes the data obtained and using sound judgement, assigning a risk or potential for an accident and assessment of the severity of an accident, and recommendations.

Coding Instructions

Traffic Flow Data Form

The study team member or recorder is to note who he/she is in the "collected by" space, the date of the count and the weather conditions in the provided space.

Record weather as clear, partly cloudy, cloudy, rain and temperature as cool, warm, hot.

Vehicles are classified as follows:

Vehicle Class	Characteristics	Record
1	Street Legal** 2WD or 4WD** Motorcycles**	Passenger Car SUV, including Jeeps Pickup Motorcycle
2 OHV	Non-street Legal <50" wide 2 wheels/tires 3 or more wheels/tires 2WD or 4WD (Dirt bikes, quads or ATVs)	Dirt Bike Quad
3 OHV	Non-street Legal >50" wide 4 or more wheels/tires 2WD or 4WD ("Jeeps" or dune buggies)	

For example, a state licensed highway motorcycle with a white metal plate on the rear fender is to be coded in the Class 1 block.

Record vehicle Class 1 traffic as either passenger car, sport utility vehicle, pickup or motorcycle. See Traffic Flow Data Form.

** State licensed with metal plates for use on "highways".

Traffic Flow Data

Count Station #_____

BCDT-3B Traffic Study

Study Segment #_____ GPS Coord.: Lat_____ Lon_____ Field Data Collected by_____

Location Narrative_____ Date and Weather_____

Forest LASSEN Road No_____ Normal Season Use Period_____ to_____

Milepost	Vehicle Classification							Total Traffic Numeric
	1 Street-legal				2 OHV		3 OHV	
	Passenger Car	SUV	Pickup	Motorcycle	Dirt Bike	Quad		
7AM – 11 AM								
11 AM – 3 PM								
3 PM – 7 PM								
Total Count for Day								
% Traffic by Class								

People per Vehicle (any class)					
1	2	3	4	5	6 or more

Site Photo

Summary—Traffic Observations
June–August 2005 Station Summaries

Street Legal					Non-Street Legal		Total
Sta	Car	SUV	PU	Motorcycle	Dirt Bike	Quad	
1	6	6	10		3	28	53
3	11	35	75	2		6	129
4	11	36	63		8	15	133
5	9	27	34		2	8	80
*8	14	67	92		16	20	209
9	4	17	14			7	42
10	8	16	39	2		21	86
11	21	18	67			6	112
12	2	13	31			8	54
Totals	86	235	425	4	29	119	898
%	10%	26%	47%	0%	3%	14%	100%
%	83%				17%		100%

Station	June, July, August ADT	Average Per Road	People per Vehicle
1	5.48		1.62
3	18.00	10 (32N10) 16.14	1.85
4	19.24		1.79
5	11.19		1.54
*8	26.76	32N12 32N13 16.17	1.60
9	5.57		1.44
10	13.90		1.49
11	13.95		1.85
12	7.86		1.57
Total	110.87		14.71
Average	12.32		1.63

* See note on Station 8 ADT-2005 Form

Summary—Time of Day
Number of Vehicles

Time	Passenger car	SUV	Pickup	Motor-cycle	Dirt Bike	Quad	Total
7AM-11AM	12	54	107	0	8	35	216
11AM-3PM	42	114	206	4	12	52	430
3PM-7PM	32	67	112	0	9	32	252
Total	86	235	425	4	29	119	898

% of Total

7AM-11AM	1%	6%	12%	0%	1%	4%	24%
11AM-3PM	5%	13%	23%	0%	1%	6%	48%
3PM-7PM	4%	7%	12%	0%	1%	4%	28%
Total	10%	26%	47%	0%	3%	14%	100%

Station Labor Day Weekend (9/4/2005)

1	1	1	5			22	29
3	3	16	27	1		12	59
4	1	12	11	1	2	16	43
5	3	4	9		4	14	34
8	4	5	21		11	10	51
9	1	4	5		12	34	56
10	1	2	8				11
11	9	11	20			3	43
12			13	1		2	16
Total	23	55	119	3	29	113	342
%	7%	16%	35%	1%	8%	33%	100%

Other Travelers Recorded–Summer 2005

Count Station	FS Vehicle	Park Service	Horseback Riders	Hikers	Class C Motorhomes	Bicycle	Mule Drawn Wagons
1	2	1				1	
3	8				1		
4	24			8	1	2	
5	4					2	
8			4		4		
9	6		7				2
10	3						
11	2						
12	2	1					
Totals	51	2	11	8	6	5	2

ADT — 2005

Road Number 29N22 30N16
Count Station 1

Observed Vehicles

Date/Day	Class 1 (street legal)				Class 2 (OHV)		Class 3 OHV Other	Total
	Passenger Car	SUV	PU	Motor-cycle	Dirt Bike	Quad		
6/5 Sun						1		1
6/15 Wed			1					1
7/3 Sun	6	5	7		3	24		45
7/20 Wed		1						1
8/7 Sun			2			2		4
8/17 Wed						1		1
Total	6	6	10		3	28		53
% by class	42%				58%			100%

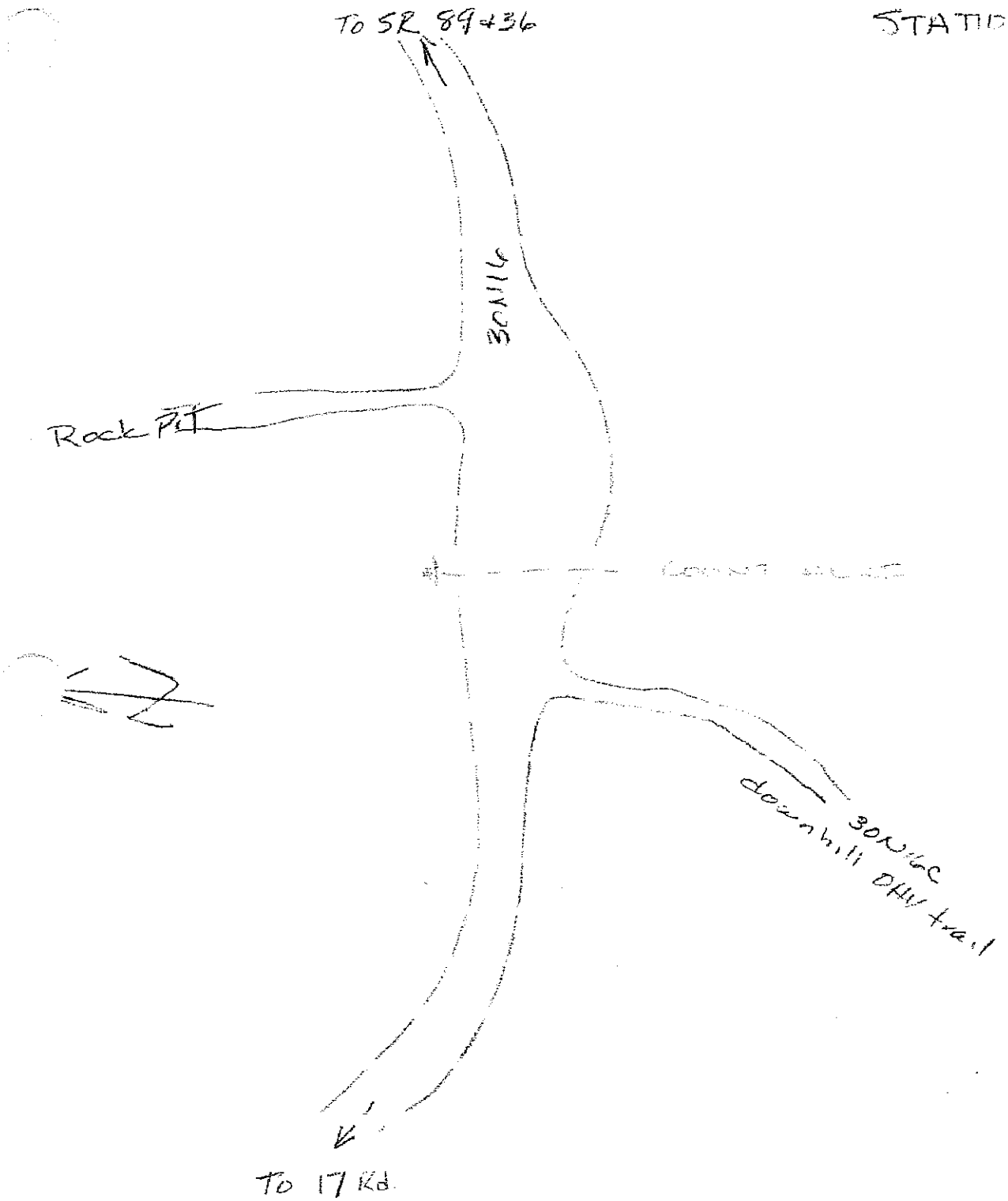
9/4 Sun	1	1	5			22		29
% by class	24%				76%			100%

Observed Vehicles	Weekday (Wed)	Weekend (Sun)	People/Vehicle
June	1	1	1.50
July	1	45 (7/3)	2.10
August	1	4	1.25
Total	3	50	4.85
Average	÷3= 1.00	÷3= 16.67	÷3= 1.62

$$ADT = \frac{5 \text{ Ave Weekdays} + 2 \text{ Ave Weekend}}{7}$$

$$ADT = \frac{5(\ 1.00\ ) + 2(\ 16.67\ )}{7} = \underline{\underline{5.48}}$$

STATION 1



STATION # 1

ADT — 2005

Road Number 10(32N10)
Count Station 3

Observed Vehicles

Date/Day	Class 1 (street legal)				Class 2 (OHV)		Class 3 OHV Other	Total
	Passenger Car	SUV	PU	Motor-cycle	Dirt Bike	Quad		
6/5 Sun		8	4					12
6/15 Wed		1	5					6
7/3 Sun	5	8	38	2		2		55
7/20 Wed	5	3	9			2		19
8/7 Sun		10	10			2		22
8/17 Wed	1	5	9					15
Total	11	35	75	2		6		129
% by class	95%				5%			100%

9/4 Sun	3	16	27	1		12		59
% by class	80%				20%			100%

Observed Vehicles	Weekday (Wed)	Weekend (Sun)	People/Vehicle
June	6	12	1.59
July	19	55 (7/3)	1.87
August	15	22	2.08
Total	40	89	5.54
Average	÷3= 13.33	÷3= 29.67	÷3= 1.85

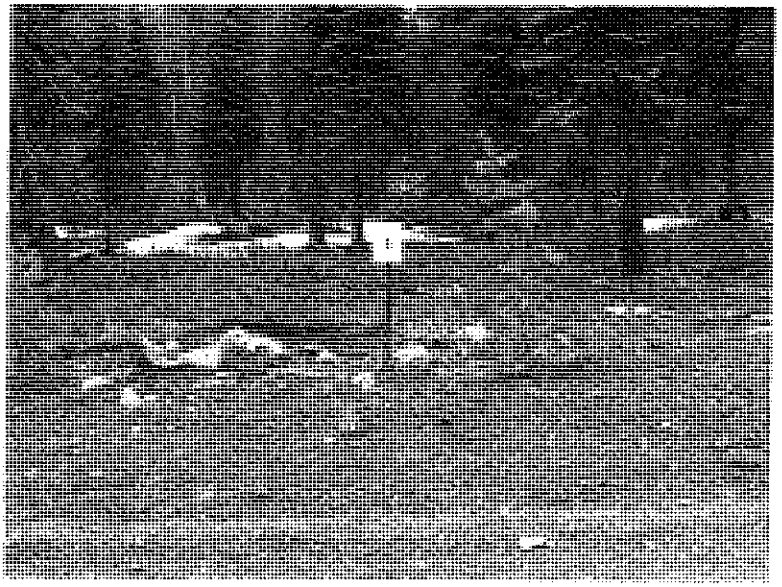
$$ADT = \frac{5 \text{ Ave Weekdays} + 2 \text{ Ave Weekend}}{7}$$

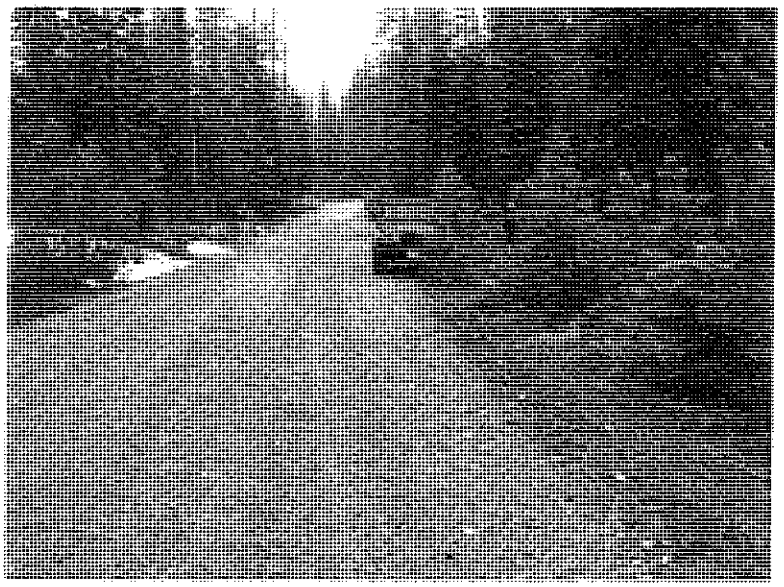
$$ADT = \frac{5(13.33) + 2(29.67)}{7} = \underline{\underline{18.00}}$$

STATION 3


N
WILLEMES
BONES
COURT HOUSE
Paved Rd ends @ intersection
10 Rd
CHESTER

STATION # 3





ADT — 2005

Road Number 10 (32 N 10)
Count Station 4

Observed Vehicles

Date/Day	Class 1 (street legal)				Class 2 (OHV)		Class 3 OHV Other	Total
	Passenger Car	SUV	PU	Motor-cycle	Dirt Bike	Quad		
6/5 Sun		1	2					3
6/15 Wed		2	3					5
7/3 Sun	5	10	26		4	4		49
7/20 Wed	2	7	20			2		31
8/7 Sun	3	12	7		4	9		35
8/17 Wed	1	4	5					10
Total	11	36	63		8	15		133
% by class	83%				17%			100%

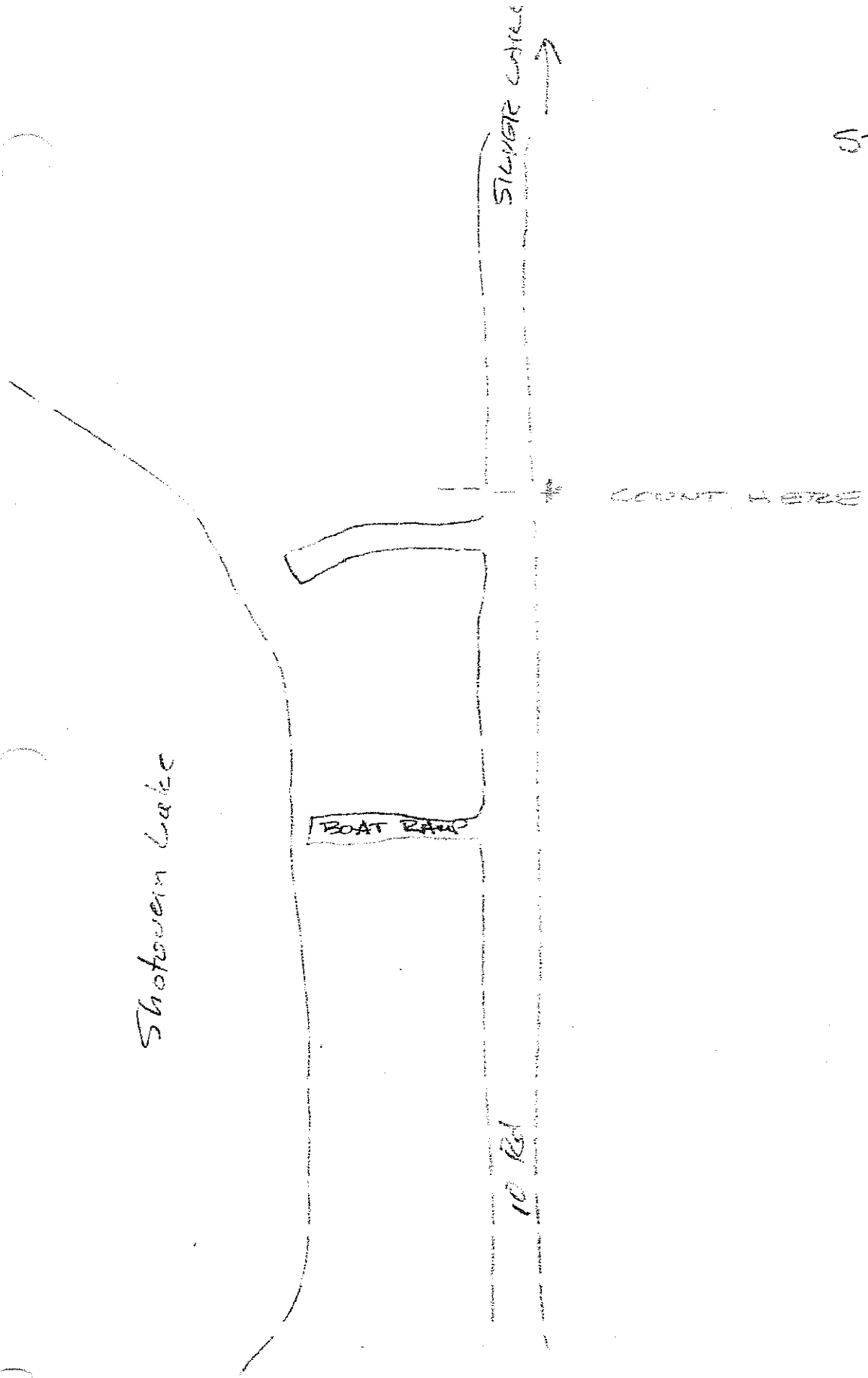
9/4 Sun	1	12	11	1	2	16		43
% by class	58%				42%			100%

Observed Vehicles	Weekday (Wed)	Weekend (Sun)	People/Vehicle
June	5	3	1.90
July	31	49 (7/3)	1.80
August	10	35	1.68
Total	46	87	5.38
Average	÷3= 15.33	÷3= 29.00	÷3= 1.79

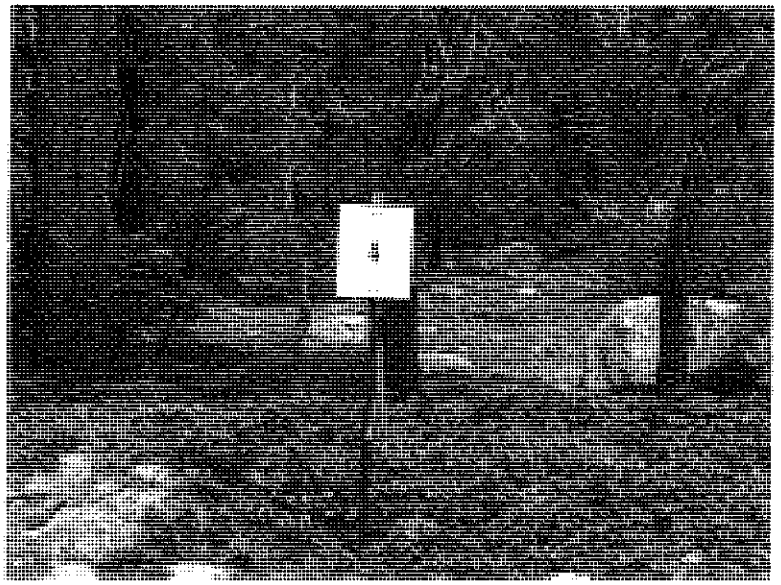
$$ADT = \frac{5 \text{ Ave Weekdays} + 2 \text{ Ave Weekend}}{7}$$

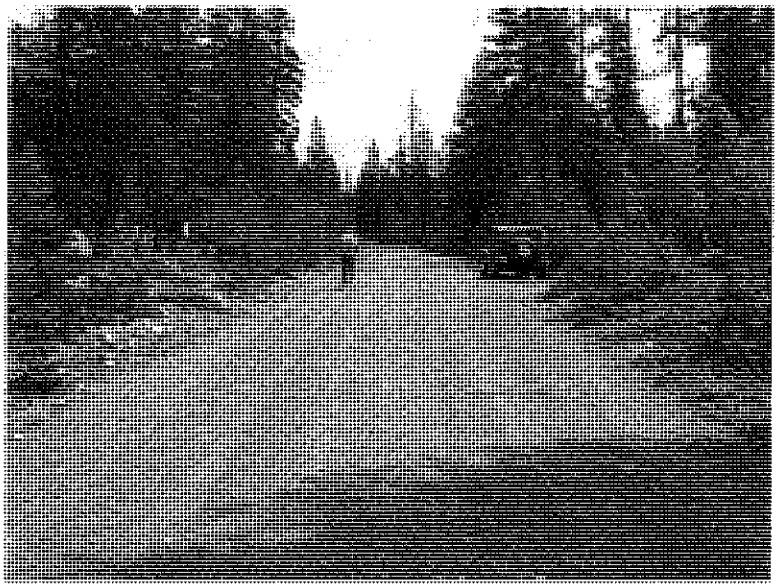
$$ADT = \frac{5(15.33) + 2(29.00)}{7} = \underline{\underline{19.24}}$$

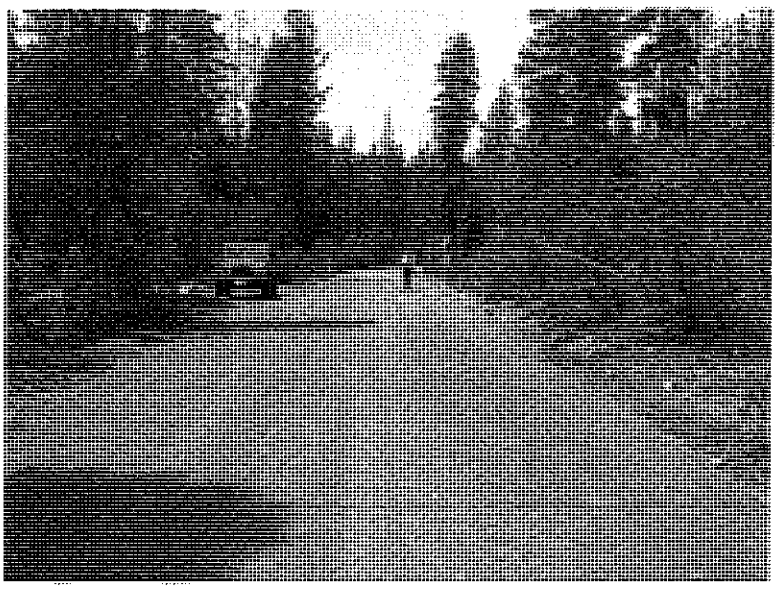
STATION 4



STATION # 4







STATION # 4

ADT — 2005

Road Number 10 (32 N 10)
Count Station 5

Observed Vehicles

Date/Day	Class 1 (street legal)				Class 2 (OHV)		Class 3 OHV Other	Total
	Passenger Car	SUV	PU	Motor-cycle	Dirt Bike	Quad		
6/5 Sun		5	8					13
6/15 Wed	1	4	3					8
7/3 Sun	3	8	12		2	4		29
7/20 Wed		4	3			4		11
8/7 Sun	5	4	4					13
8/17 Wed		2	4					6
Total	9	27	34		2	8		80
% by class	87%				13%			100%

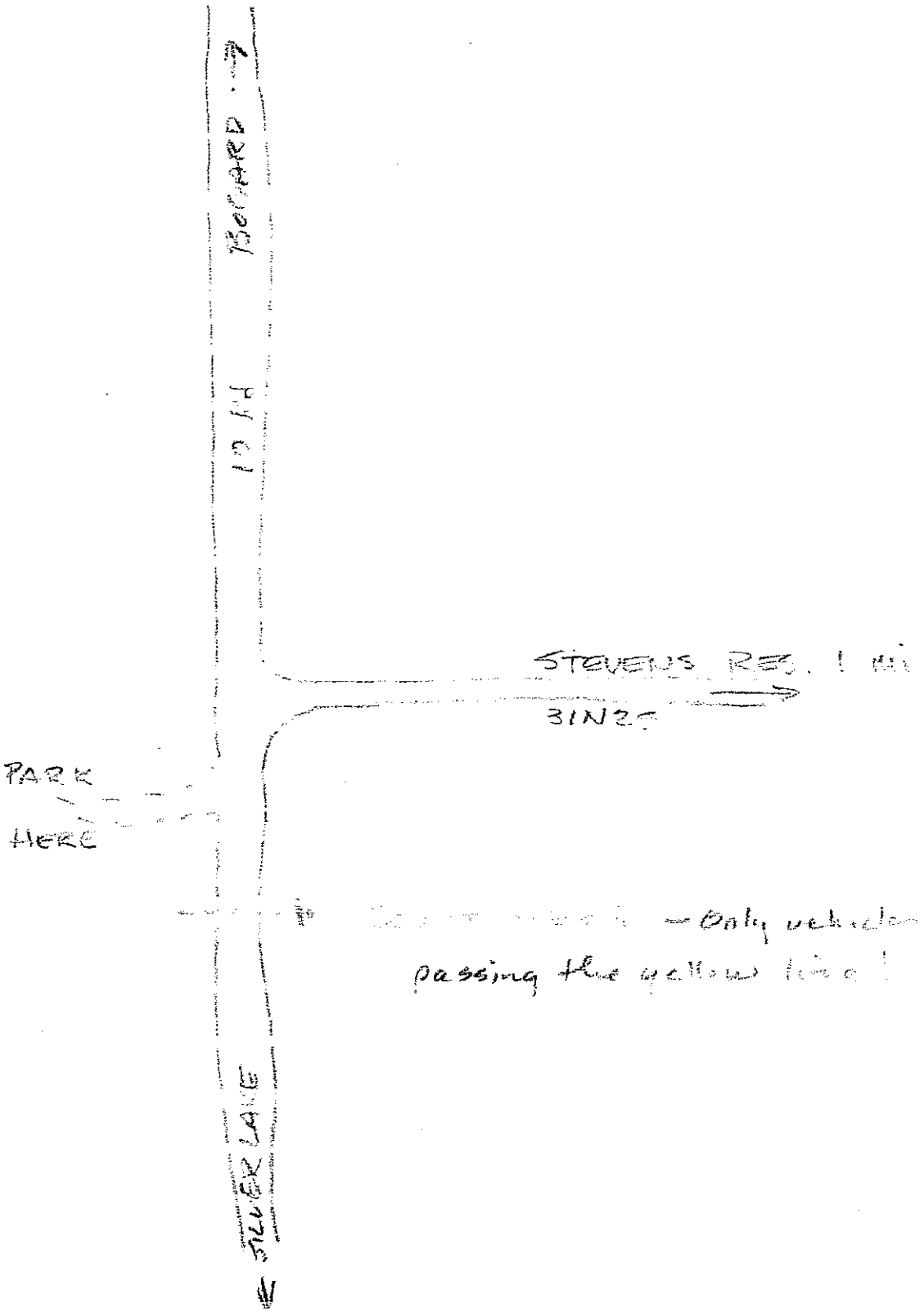
9/4 Sun	3	4	9		4	14		34
% by class	47%				53%			100%

Observed Vehicles	Weekday (Wed)	Weekend (Sun)	People/Vehicle
June	8	13	1.20
July	11	29 (7/3)	1.21
August	6	13	2.21
Total	25	55	4.62
Average	÷3= 8.33	÷3= 18.33	÷3= 1.54

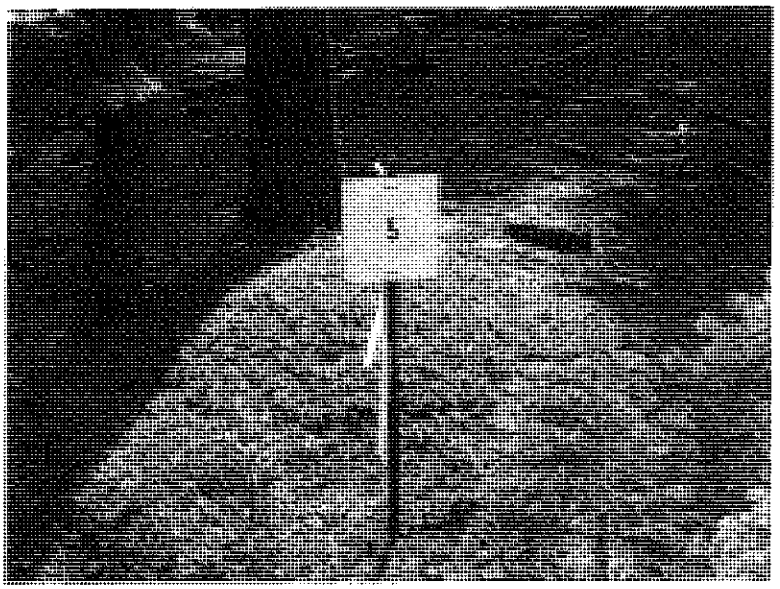
$$ADT = \frac{5 \text{ Ave Weekdays} + 2 \text{ Ave Weekend}}{7}$$

$$ADT = \frac{5(8.33) + 2(18.33)}{7} = \underline{\underline{11.19}}$$

STATION 3


BERNARD
19 Rd
STEVENS RES. 1 mi
BINGO
PARK
HERE
Only vehicles
passing the yellow line!
SILVER LAKE

STATION # 5



ADT — 2005

Road Number 32N13
Count Station 8
*

Observed Vehicles

Date/Day	Class 1 (street legal)				Class 2 (OHV)		Class 3 OHV Other	Total
	Passenger Car	SUV	PU	Motor-cycle	Dirt Bike	Quad		
6/5 Sun	2	18	11 (3) **					34
6/15 Wed		7	9			3		19
7/3 Sun	10	25	23		15	15		88
7/20 Wed	1	5	8		1			15
8/7 Sun	1	7	28 (1) **			2		39
8/17 Wed		5	9					14
Total	14	67	92		16	20		209
% by class	83%				17%			100%

9/4 Sun	4	5	21		11	10		51
% by class	59%				41%			100%

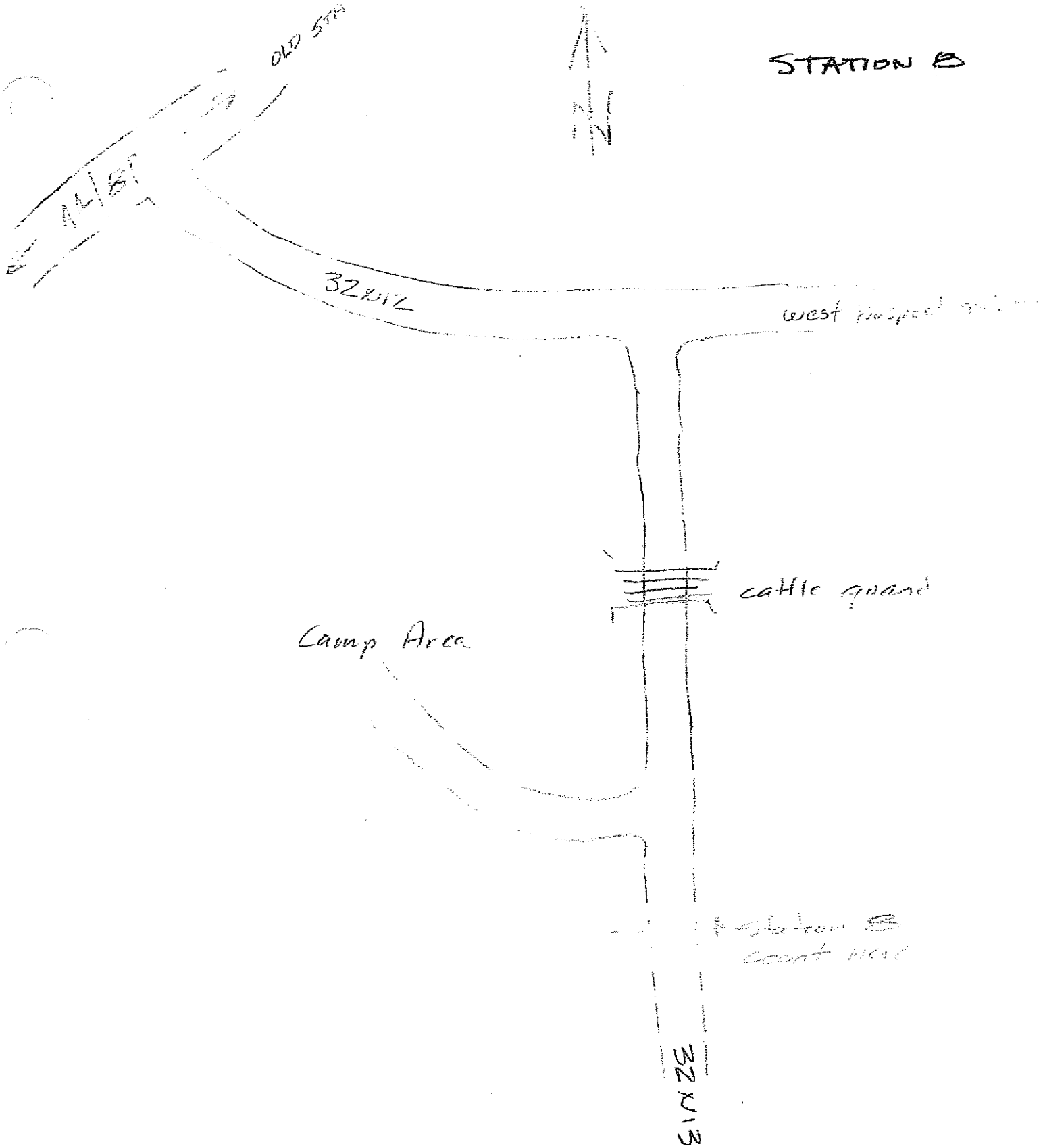
Observed Vehicles	Weekday (Wed)	Weekend (Sun)	People/Vehicle
June	19	34	1.58
July	15	88 (7/3)	1.69
August	14	39	1.54
Total	48.00	161.00	4.81
Average	÷3= 16.00	÷3= 53.67	÷3= 1.60

** Class C Motorhome

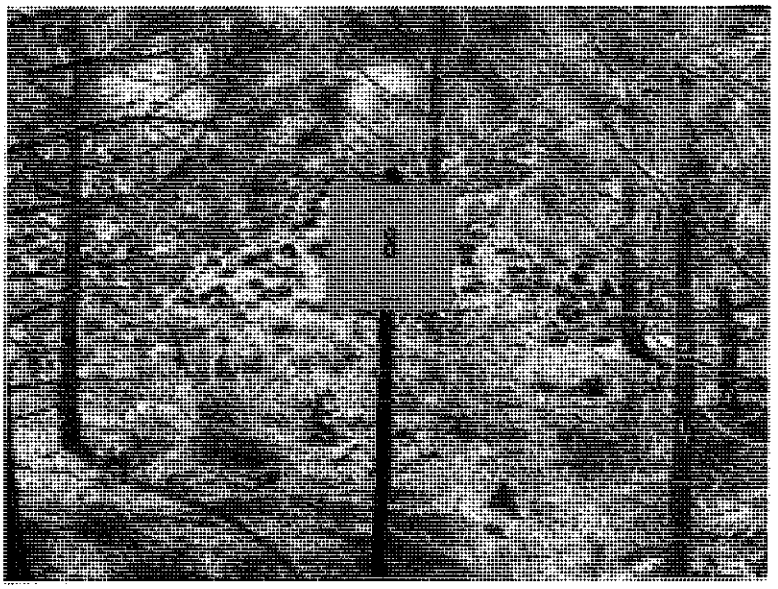
$$ADT = \frac{5 \text{ Ave Weekdays} + 2 \text{ Ave Weekend}}{7}$$

$$ADT = \frac{5(16.00) + 2(53.67)}{7} = 26.76$$

* Poor choice of site! Dispersed camping area access on each side of site. Private land camping area 1/2 mile south. Road is signed w/ Vehicle MLR route marker!


STATION B
OLD STA
N/B
32 MILE
cattle guard
Camp Area
32 MILE

STATION # 8



ADT — 2005

Road Number 32N13
Count Station 9

Observed Vehicles

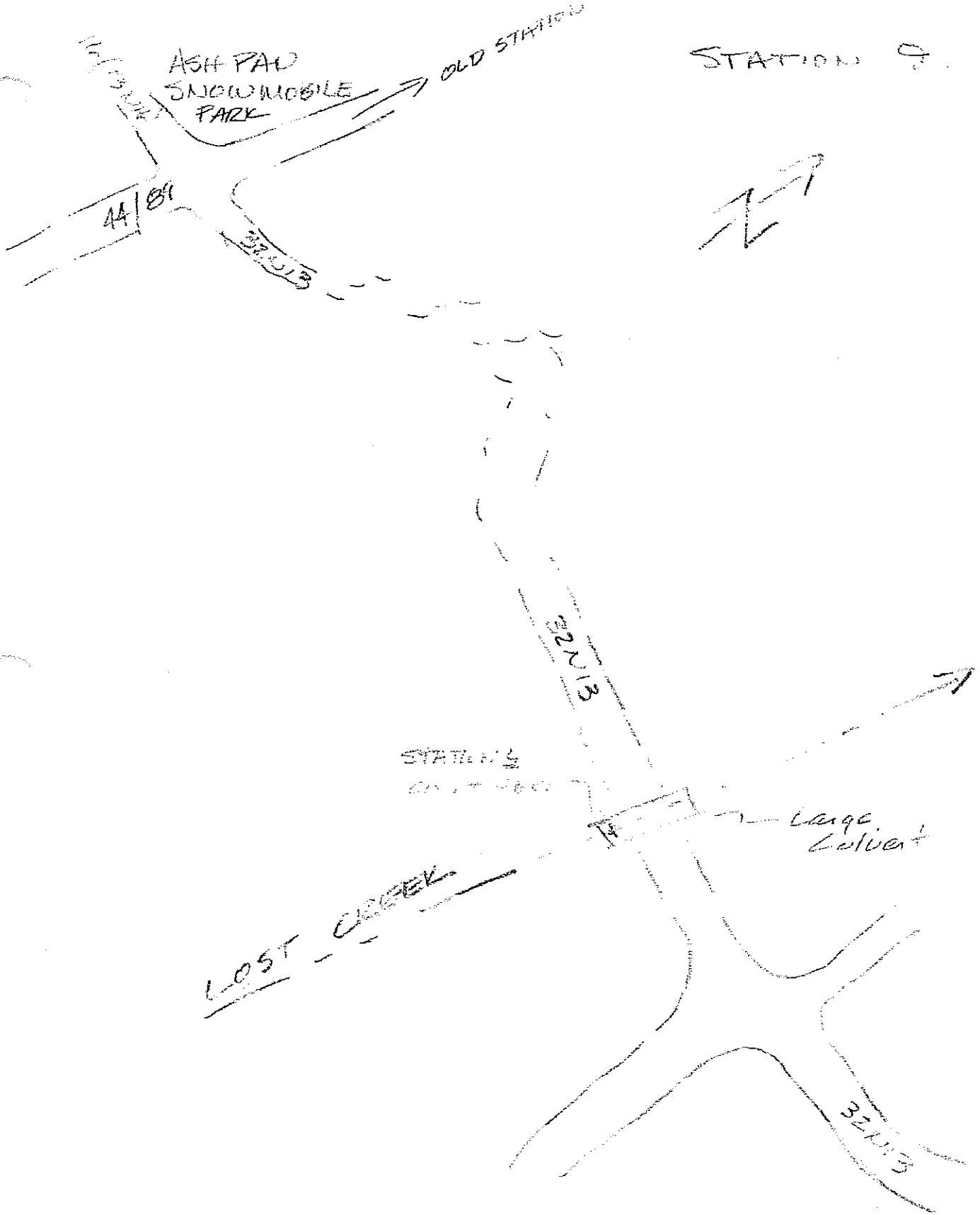
Date/Day	Class 1 (street legal)				Class 2 (OHV)		Class 3 OHV Other	Total
	Passenger Car	SUV	PU	Motor-cycle	Dirt Bike	Quad		
6/5 Sun		4	3					7
6/15 Wed	2	2	3					7
7/3 Sun	1	6	6			7		20
7/20 Wed								-0-
8/7 Sun		2	2					4
8/17 Wed	1	3						4
Total	4	17	14			7		42
% by class	83 %				17 %			100%

9/4 Sun	1	4	5		12	34		56
% by class	18%				82%			100%

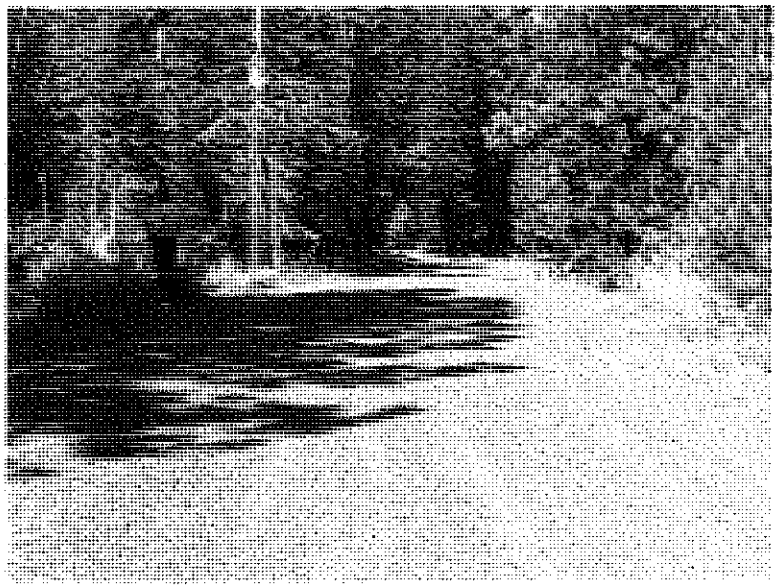
Observed Vehicles	Weekday (Wed)	Weekend (Sun)	People/Vehicle
June	7	7	2.36
July	-0-	20 (7/3)	0.83
August	4	4	1.13
Total	11	31	4.32
Average	÷3= 3.67	÷3= 10.33	÷3= 1.44

$$ADT = \frac{5 \text{ Ave Weekdays} + 2 \text{ Ave Weekend}}{7}$$

$$ADT = \frac{5(3.67) + 2(10.33)}{7} = \underline{\underline{5.57}}$$


ASH PAD
SNOWMOBILE
PARK
OLD STATION
STATION 9
44
81
STATION 5
Large
Culvert
LOST CREEK

STATION # 9



ADT — 2005

Road Number 33N16(16)
Count Station 10

Observed Vehicles

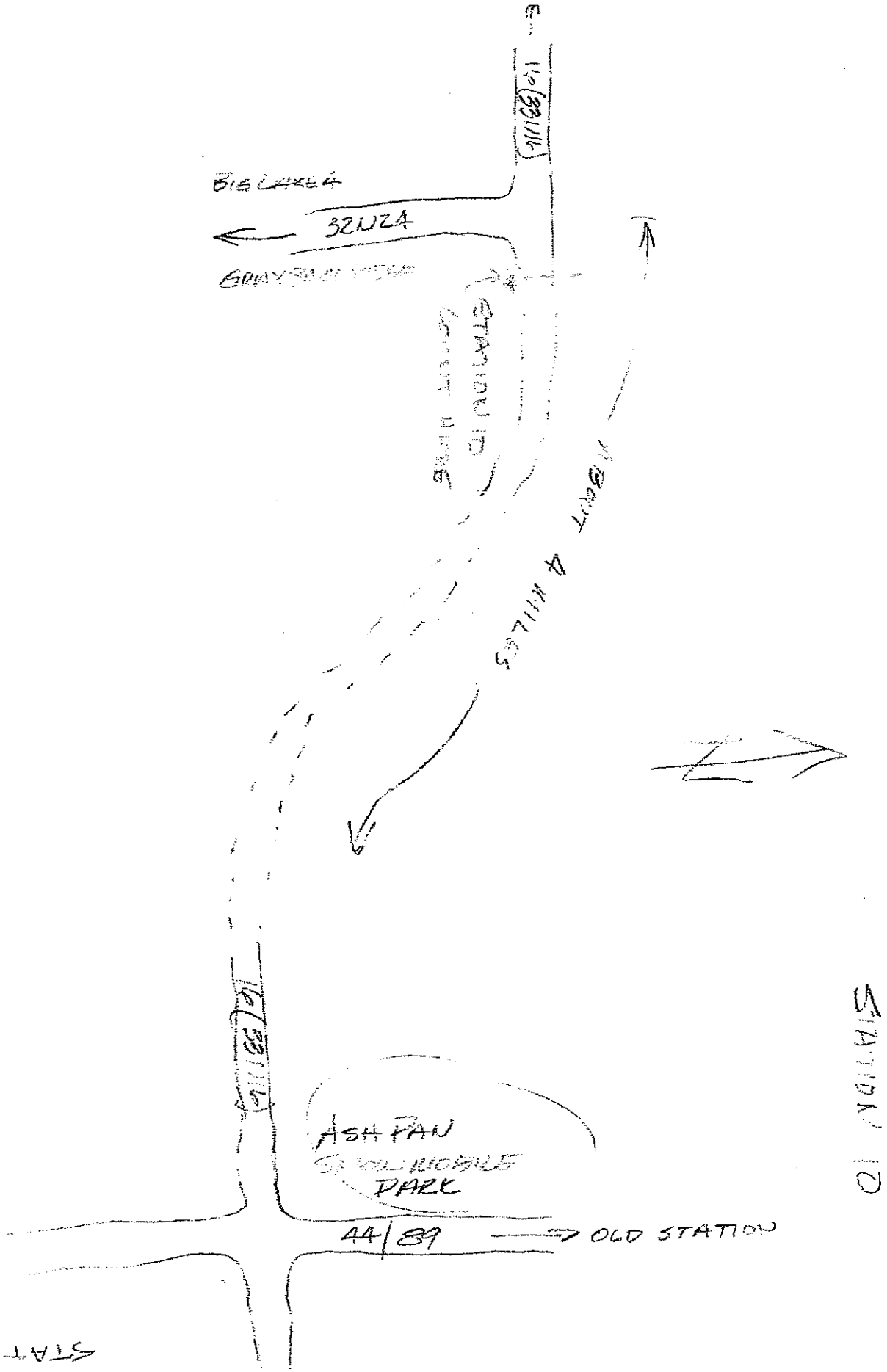
Date/Day	Class 1 (street legal)				Class 2 (OHV)		Class 3 OHV Other	Total
	Passenger Car	SUV	PU	Motor-cycle	Dirt Bike	Quad		
6/5 Sun	3	2	6			4		15
6/15 Wed	1	5	5			6		17
7/3 Sun	3	7	6	2		7		25
7/20 Wed			15					15
8/7 Sun	1	2	3					6
8/17 Wed			4			4		8
Total	8	16	39	2		21		86
% by class	76%				24%			100%

9/4 Sun	1	2	8					11
% by class	100%				0%			100%

Observed Vehicles	Weekday (Wed)	Weekend (Sun)	People/Vehicle
June	17	15	1.40
July	15	25 (7/3)	1.72
August	8	6	1.36
Total	40	46	4.48
Average	÷3= 13.33	÷3= 15.33	÷3= 1.49

ADT = $\frac{5 \text{ Ave Weekdays} + 2 \text{ Ave Weekend}}{7}$

ADT = $\frac{5(13.33) + 2(15.33)}{7}$ = 13.90


STATION 10
ASH PAN
DARK
44/89
OLD STATION
STATION 10
32N24
STATION 10

STATION # 10

ADT — 2005

Road Number 32N17
Count Station 11

Observed Vehicles

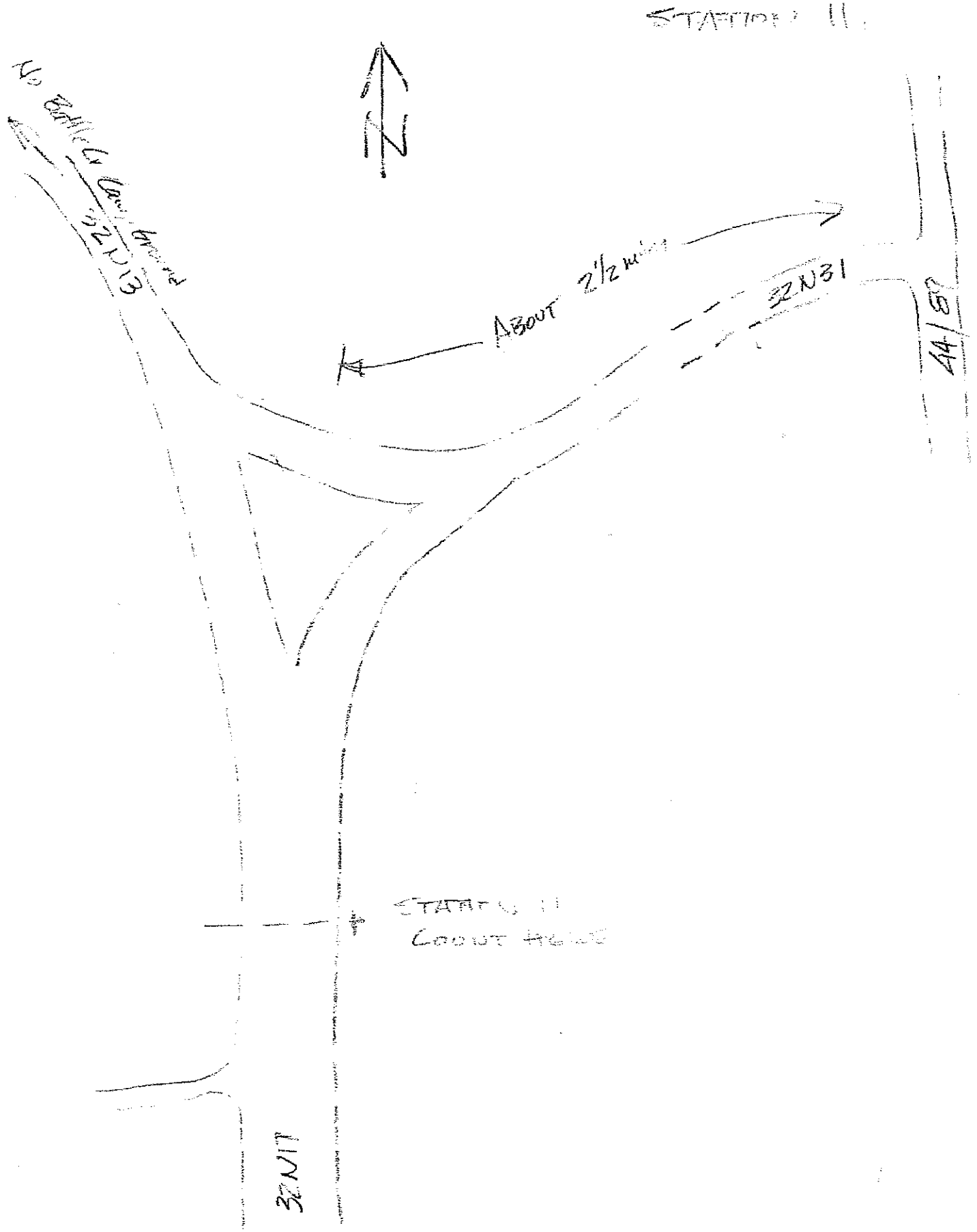
Date/Day	Class 1 (street legal)				Class 2 (OHV)		Class 3 OHV Other	Total
	Passenger Car	SUV	PU	Motor-cycle	Dirt Bike	Quad		
6/5 Sun	2		4					6
6/15 Wed			5			1		6
7/3 Sun	15	5	32			5		57
7/20 Wed		4	1					5
8/7 Sun	4	4	18					26
8/17 Wed		5	7					12
Total	21	18	67			6		112
% by class	95%				5%			100%

9/4 Sun	9	11	20			3		43
% by class	93%				7%			100%

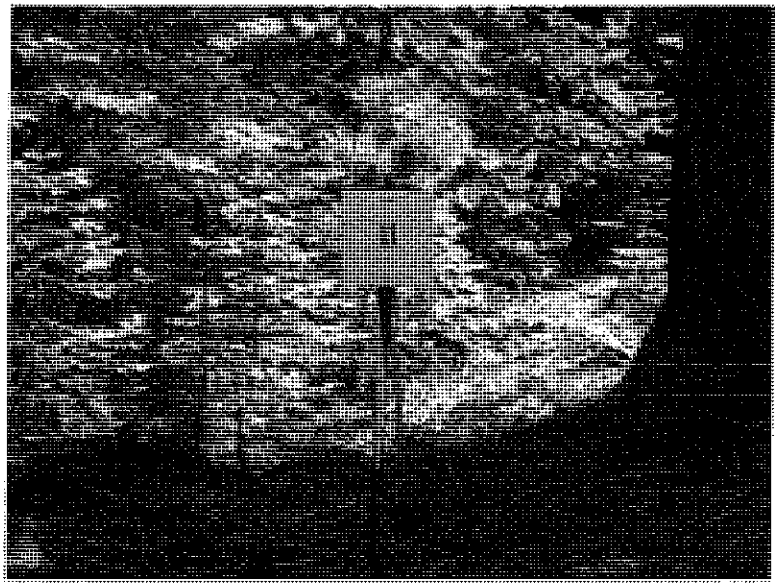
Observed Vehicles	Weekday (Wed)	Weekend (Sun)	People/Vehicle
June	6	6	1.67
July	5	57 (7/3)	1.73
August	12	26	2.16
Total	23	89	5.56
Average	÷3= 7.67	÷3= 29.67	÷3= 1.85

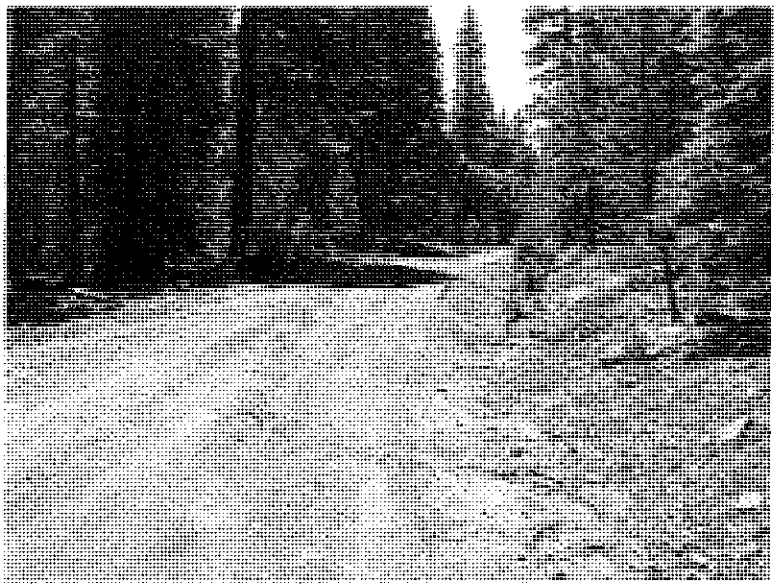
$$ADT = \frac{5 \text{ Ave Weekdays} + 2 \text{ Ave Weekend}}{7}$$

$$ADT = \frac{5(7.67) + 2(29.67)}{7} = \underline{\underline{13.95}}$$


STATION 11
N
To Bartlett Cove
32N13
About 2½ miles
32N31
44/50
STATION 11
Courthouse
32N17

STATION # 11





ADT — 2005

Road Number 17 (31N17)
Count Station 12

Observed Vehicles

Date/Day	Class 1 (street legal)				Class 2 (OHV)		Class 3 OHV Other	Total
	Passenger Car	SUV	PU	Motor-cycle	Dirt Bike	Quad		
6/5 Sun	1	3	3					7
6/15 Wed			4					4
7/3 Sun	1	3	10					14
7/20 Wed		5	2					7
8/7 Sun		2	6			6		14
8/17 Wed			6			2		8
Total	2	13	31			8		54
% by class	85%				15%			100%

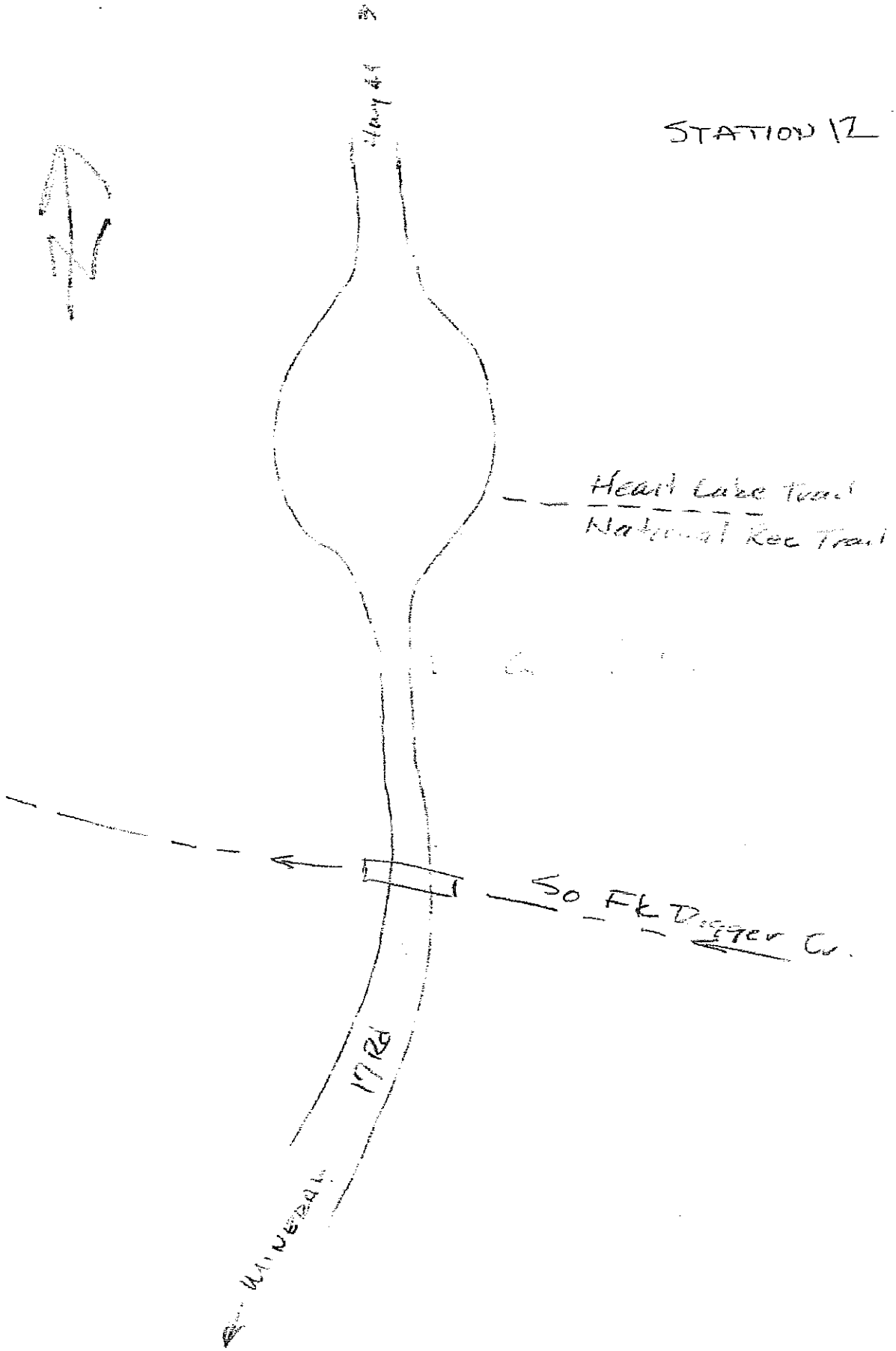
9/4 Sun			13	1		2		16
% by class	87%				13%			100%

Observed Vehicles	Weekday (Wed)	Weekend (Sun)	People/Vehicle
June	4	7	1.18
July	7	14 (7/3)	2.07
August	8	14	1.45
Total	19	35	4.70
Average	÷3= 6.33	÷3= 11.67	÷3= 1.57

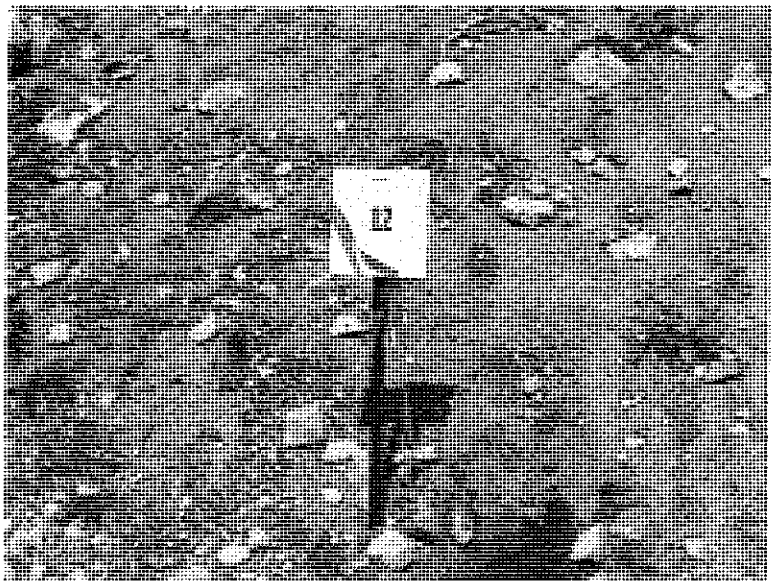
$$ADT = \frac{5 \text{ Ave Weekdays} + 2 \text{ Ave Weekend}}{7}$$

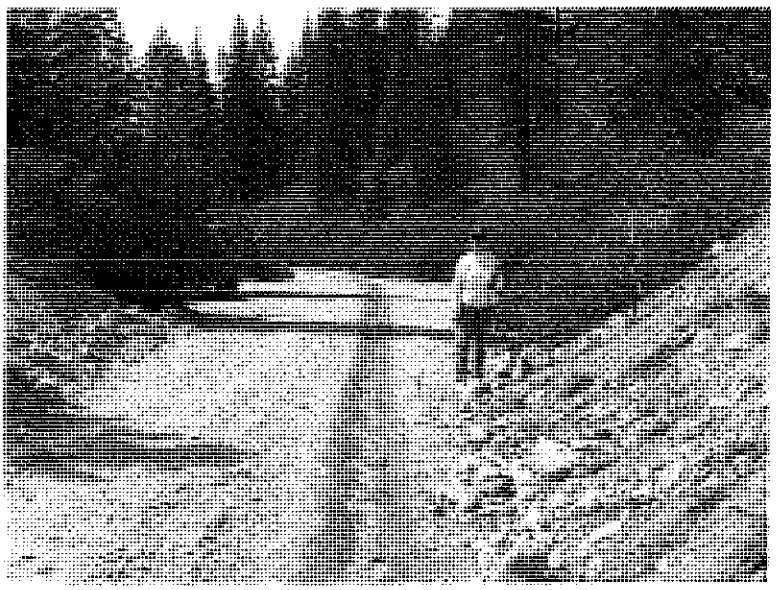
$$ADT = \frac{5(\ 6.33\ ) + 2(\ 11.67\ )}{7} = \underline{\underline{7.86}}$$

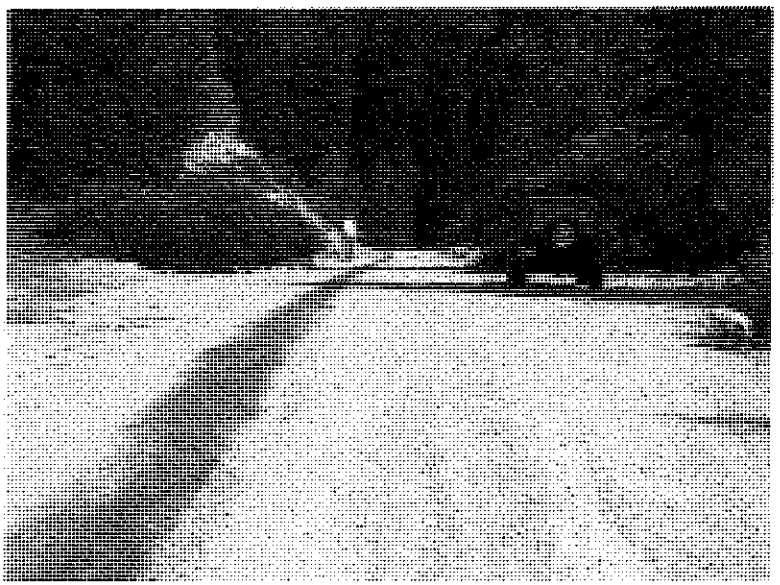
STATION 12


Hwy 44
Heart Lake Trail
National Rec Trail
So Fk Tigger Cr.
17 Rd
MINERAL

STATION # 12







Traffic Survey
USFS 17 Road
Between SR 36 and SR 44
West side of Lassen Volcanic National Park (Between Mineral and Viola or Manzanita Lake)

Background

Two separate traffic surveys were conducted during the summer of 2005. There are some differences between the survey results that we are trying to understand.

Information Request

Do you or any of your employees commute on the 17 Road? Yes No

If yes—how many days per week? _____

If yes---what time(s) of the day?_____

If yes---Is this all season?_____

Signed_____ Individual or Agency Representative

Agency_____

Date_____

Thank you

Recreation Outdoor Coalition (ROC)

Barbara Tatman

From: smilligan4732 [smilligan4732@sbcglobal.net]
Sent: Thursday, February 23, 2006 9:00 AM
To: Dick Tatman
Subject: commuter traffic

Dick,
Do you ned the forms physically filled out?

When Nancy took the forms around and talked to the people they all said they did not have ANYONE who commutted on the 17-Road. I can take them back by this week-end and have them fill them out if you feel a filled out form would be better.

She said she hit the Mineral Gas Mart (MGM), the Post Office, and the park. Did not go to the Lassen Mineral Lodge but I KNOW they have no one who commutes.

What do you think?

Thanks.

Syl

I think we need something from the Park in writing. They are the users that I believe we keep hearing about.

Appendix E

Roadway Characteristic Notes and Slope Maps by Road

Following are the coding instructions and resulting notes for each road concerning the conditions found in June 2005. Also, slope maps using LNF's digital terrain data showing a 200 foot wide corridor along each road.

Coding Instructions, Roadway Characteristics Revised 6/29/05

The study team leader will work with the recorder(s) to ensure consistency in the collection of data.

Mileposts will be by vehicle odometer and GPS Waypoints and logged to the nearest tenth of a mile (528 feet). If a specific point, such as a hazard, needs a closer measurement estimate, 264 feet or one hundredth of a mile, i.e., 3.25.

- Start the mile post log at the beginning of each individual road segment and record it as MP 0.0 and waypoint 1. Use your trip odometer if you have one, set to 0.0.

Coding

- Surface type
  - Native material — N
  - Processed aggregate — A
  - Cinders — C

- Travel-way width
  - Average usable width — Feet
  - Minimum width — Feet
  - Driveable escape shoulder width, or clear space — Feet

- Adjacent hillside slope–downhill
  - Using clinometer or abney determine average slope for sections — <40% or >60%

- Average Travel Speed
  - While driving the road to gather roadway characteristics, record your average travel speed for the section. — MPH

- Stopping Sight Distance* (measure 4 ½ feet above roadway)
  - Curve — Feet by Milepost

*Measured and recorded if less than the following stopping sight distances:

6/20/05 Notes for 30N16 (McGowan Lake)

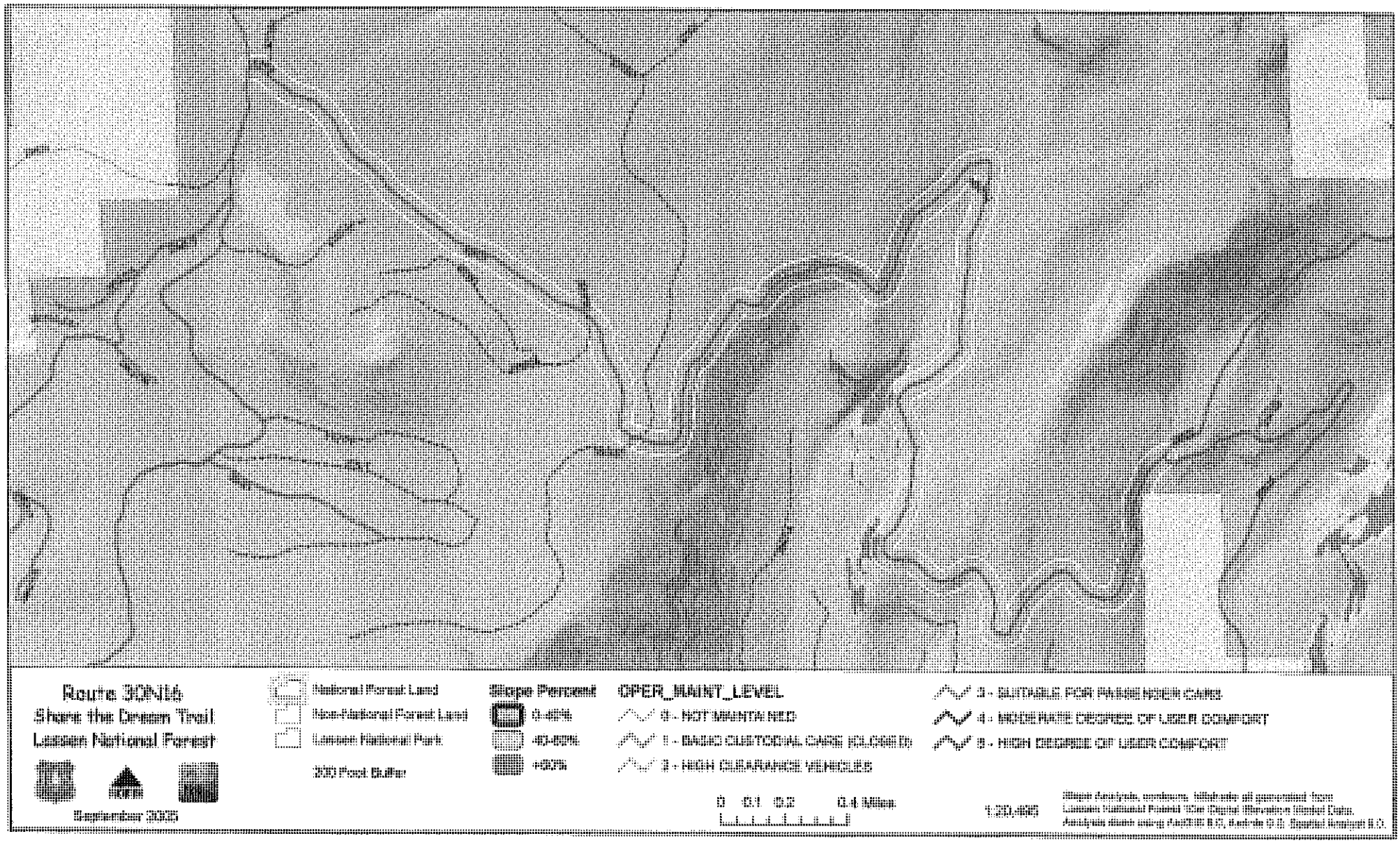
MP	WP	Surface	Average Width	Downhill* Slope %	Average Speed	Sight Distance	Lat/Lon	Comments, Hazard, Mitigation, Etc.
0.0	01	N	15	0 to10	15		N40°23.856, W121°37.211	Begin 30N16 at 17 Rd. Shoulders 2' each side,
0.59	02	N	15	0 to 10	15	100'	N40°23.517, W121°36.750	SDC
1.33	03	N	15	15	15		N40°23.154, W121°36.051	Panel each side tree OM1-IV (2), SDC
2.02	04	N	15	45	15		N40°22.829, W121°35.687	Slope
2.49	05	N	15	23	15		N40°23.175, W121°35.471	SDC
2.53	07	N	15		15		N40°23.156, W121°35.423	SDC
2.83	08	N	15		15		N40°23.265, W121°35.127	SDC
2.97	09	N	15		15	90'	N40°23.196, W121°34.998	SDC, W1-1 (R,L) W13-1 (10 MPH) (2)
3.56	10	N	15		15		N40°23.553, W121°34.589	SDC
3.72	11	N	15		15		N40°23.427, W121°34.595	RBE
4.18	12	N	15		15		N40°23.024, W121°34.686	SDC

6/20/05 notes for 30N16 continued

MP	WP	Surface	Average Width	Downhill Slope %	Average Speed	Sight Distance	Lat/Lon	Comments, Hazard, Mitigation, Etc.
4.61	13	N	15	46	15		N40°22.761, W121°34.859	SDC, Heart Lake Trailhead
4.98	14	N	15		15		N40°22.472, W121°34.978	SDC, W1-5 (east bound)
5.06	14	N	15		15		N40°22.460 W121°33.889	SDC
5.17	15	N	15		15	129	N40°22.391, W121°34.797	SC, No mitigation needed
5.42	16	N	15		15		N40°22.345, W121°34.587	SDC
5.52	17	N	15		15	100'	N40°22.264, W121°34.593	SDC
5.57	18	N	15		15		N40°22.242, W121°34.558	Count Station #1, W1-5 (west bound)
6.56	19	N	15	20 to 50	15		N40°22.727, W121°33.974	End 30N16, Start 29N22
		Overall	15	40%	15			

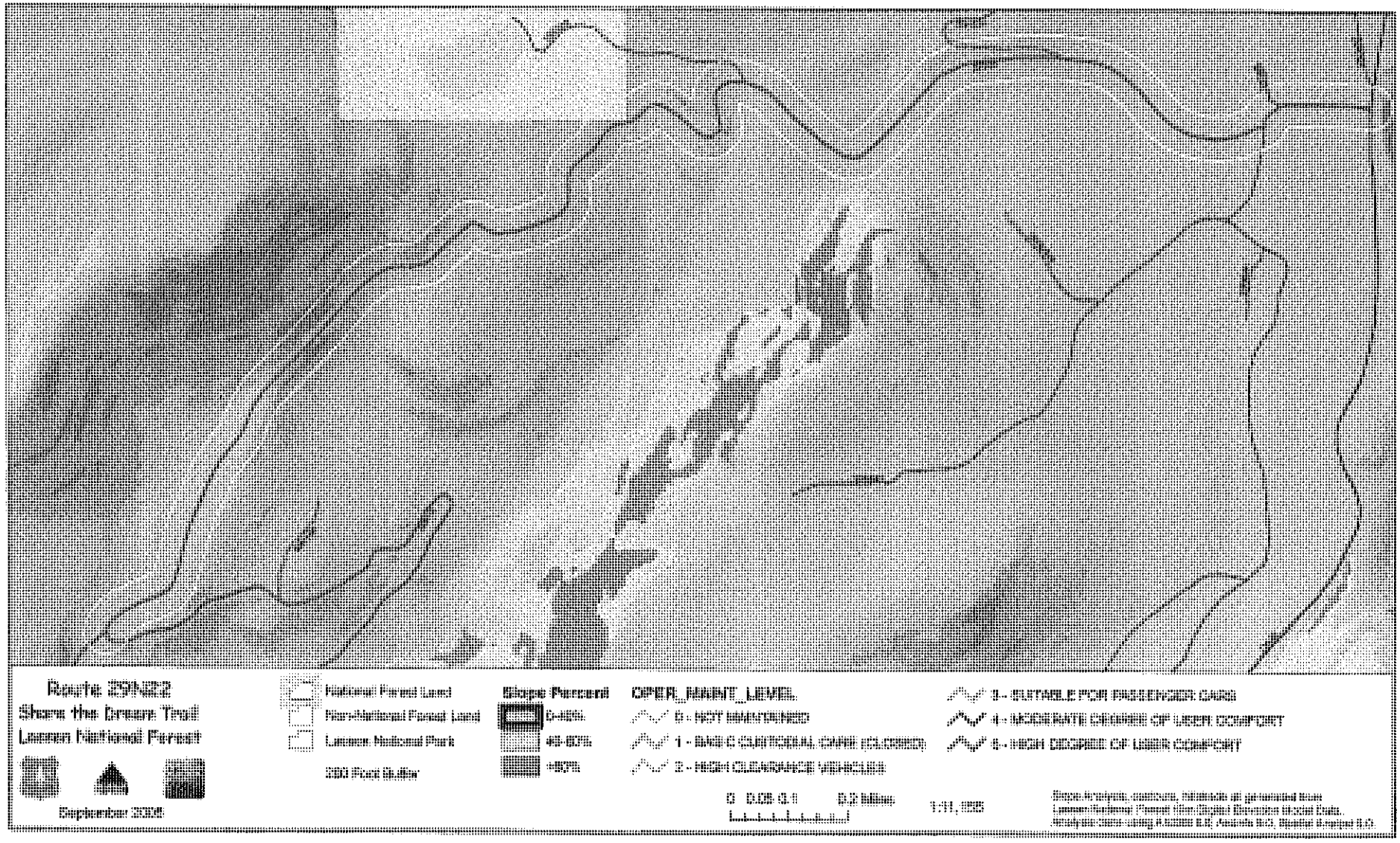
Widening exists on outside of nearly every curve.

*Downhill Slope % shown on Notes obtained with an Abney. The following slope percent map generated from LNF Data. This process used on all roads studies.


Route 30N16
Share the Dream Trail
Lassen National Forest
September 2005
National Forest Land
Non-National Forest Land
Lassen National Park
300 Foot Buffer
Slope Percent
0-40%
40-60%
+60%
OPER_MAINT_LEVEL
0 - NOT MAINTAINED
1 - BASIC CUSTODIAL CARE (CLOSED)
2 - HIGH CLEARANCE VEHICLES
3 - SUITABLE FOR PASSENGER CARS
4 - MODERATE DEGREE OF USER COMFORT
5 - HIGH DEGREE OF USER COMFORT
0 0.1 0.2 0.4 Miles
1:20,485

7/10/05 Notes, Road 29N22

MP	WP	Surface	Average Width	Downhill Slope %	Average Speed	Sight Distance	Lat/Lon	Comments, Hazard, Mitigation, Etc.
0.0	01	N	15	20 to 40	15		N40°22.726, W121°33.972	Begin 29N22, Has vertical maintenance level 2 route marker.
1.24	02	N	15	20 to 40	15		N40°23.404 W121°33.047	SDC over creek
2.46	03	N	15	20 to 40	15		N40°23.554 W121°31.981	SDC
2.76	04	N	15	0 to 10	15		N40°23.473 W121°31.697	Intersection 29N64
2.96	05	N	15	0 to 10	15		N40°23.498 W121°31.498	End 29N22 at SR 89. Stop sign exists.
		Overall	15	<40%	15			
		Widening exists on outside on nearly every curve						


Route 29N22
Share the Dream Trail
Lassen National Forest
September 2008
National Forest Land
Non-National Forest Land
Lassen National Park
300 Foot Buffer
Slope Percent
0-40%
40-60%
+60%
OPER_MAINT_LEVEL
5 - NOT MAINTAINED
1 - BASIC CARTOGRAPHIC CARE (CLOSED)
2 - HIGH CLEARANCE VEHICLE
3 - SUITABLE FOR PASSENGER CARS
4 - MODERATE DEGREE OF USER COMFORT
5 - HIGH DEGREE OF USER COMFORT
0 0.05 0.1 0.2 Miles
1:31,355

7/10/05 Notes for 32N10 (10 Road)

MP	WP	Surface	Average Width	Downhill Slope %	Average Speed	Sight Distance	Lat/Lon	Comments, Hazard, Mitigation, Etc.
0.0	01	C	16'		20		N40°25.061 W121°10.191	Begin 32N10 (10 Road) at South end Count Station #3
0.98	02	C	16'		10		N40°25.795 W121°09.846	SC, W1-1 (L&R), W13-1 (10 MPH) (2)
1.46	03	C	16'	10 to 20	15	125	N40°25.589 W121°09.378	SC
1.79	04	C	14'		20		N40°25.775 W121°09.149	Road narrows, OM 2-IV (2)
2.69	05	C	16'	50	20		N40°26.271 W121°08.690	SDC
3.24	06	C	16'		20		N40°26.650 W121°08.601	Intersection 30N07
3.87	07	C	15'		20		N40°27.064 W121°08.397	Intersection 30N81
4.46	08	C	16'	30	20		N40°27.496 W121°08.184	SCMP, OM 2-IV (2)
4.56	09	C	16'	30	20		N40°27.494 W121°08.186	SCMP, OM 2-IV (2
6.38	10	C	16'		20		N40°28.829 W121°07.399	Intersection 32N21

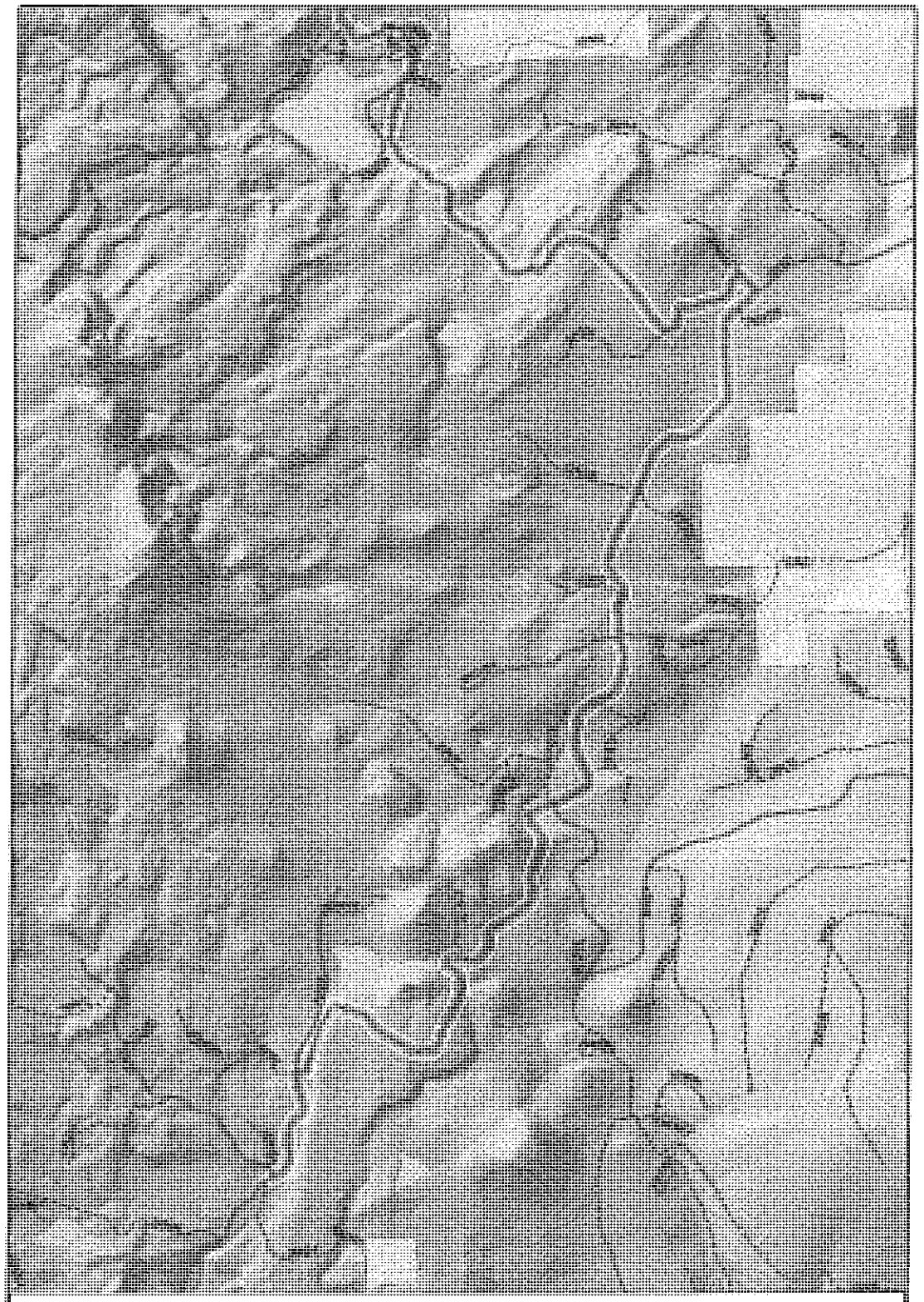
7/10/05 Notes for 32N10 (10 Road), continued

MP	WP	Surface	Average Width	Downhill Slope %	Average Speed	Sight Distance	Lat/Lon	Comments, Hazard, Mitigation, Etc.
7.96	11	C	16'		20		N40°28.974 W121°08.595	Snag, Drop! Pieces falling on road.
8.05	12	C	16'		20		N40°28.960 W121°08.663	Count Station #4
8.54	13	C	16'		20		N40°29.225 W121°09.131	SCMP OM2-IV (2)
8.66	14	C	16'		20		N40°29.326 W121°09.130	SDC
8.97	15	C	16'		20		N40°29.473 W121°09.412	SCMP, OM 2-IV (2)
9.34	16	C	16'		20		N40°29.788 W121°09.387	SC, Intersection East Shore Rd W1-1 (L&R), W13-1 (15 MPH) (2)
9.50	17	C	16'	0 to 10	15	100	N40°29.897 W121°09.333	Turn onto County Road, R1-1 Needed
9.60	18	C	16'	0 to 10	15		N40°29.942 W121°09.246	Turn onto FS Road 10, R1-1 Needed
10.0	19	C	16'		20		N40°29.982 W121°09.603	Intersection North Shore Rd W1-1 (L&R), W13-1 (15MPH)(2)
10.5	20	C	16'		20	100	N40°30.357 W121°09.733	RBE

7/17/05 Notes for 32N10 (10 Road), continued

MP	WP	Surface	Average Width	Downhill Slope %	Average Speed	Sight Distance	Lat/Lon	Comments, Hazard, Mitigation, Etc.
12.8	21	C	16'		20		N40°31.980 W121°09.571	SDC
13.0	22	C	16'		20		N40°32.102 W121°09.598	Count Station #5 Intersection 31N25
14.0	23	C	16'		20		N40°32.881 W121°09.925	Intersection 31N36
14.3	24	C	16		20		N40°33.073 W121°10.050	End of 32N10
		Overall	16'	<40%	20*			
		Widening exists on outside of nearly every curve						

*Measured at 17.5 MPH with GPS



Route 32N10
Share the Dream Trail
Lassen National Forest

September 2005

0 0.25 0.5 Miles

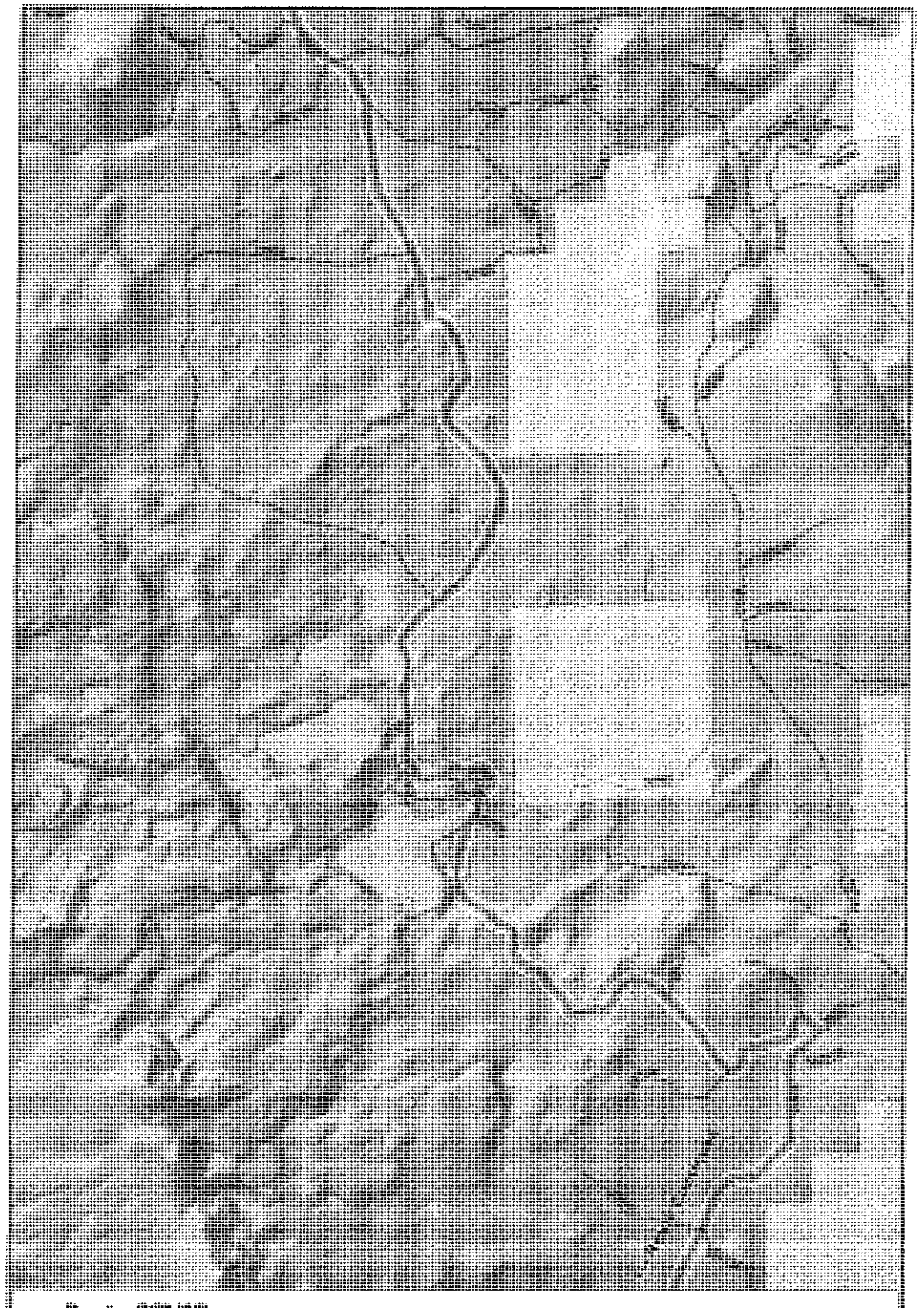
1:36,642

National Forest Land
Non-National Forest Land
Lassen National Park
300 Foot Buffer

Slope Percent
0-40%
40-60%
+60%

OPER_MAINT_LEVEL
0 - NOT MAINTAINED
1 - BASIC CUSTODIAL CARE (CLOSED)
2 - HIGH CLEARANCE VEHICLES
3 - SUITABLE FOR PASSENGER CARS
4 - MODERATE DEGREE OF USER COMFORT
5 - HIGH DEGREE OF USER COMFORT

Slope Analysis, contours, hillshade all generated from Lassen National Forest 10m Digital Elevation Model Data. Analyses done using ArcGIS 9.0, ArcInfo 9.0, Spatial Analyst 9.0.



Route 32N10

Share the Dream Trail

Lassen National Forest

September 2005

0 0.25 0.5 Miles

1:36,000

National Forest Land

Non-National Forest Land

Lassen National Park

300 Foot Buffer

Slope Percent

0-40%

40-60%

>60%

OPER_MAINT_LEVEL

0 - NOT MAINTAINED

1 - BASIC CUSTODIAL CARE (CLOSED)

2 - HIGH CLEARANCE VEHICLES

3 - SUITABLE FOR PASSENGER CARS

4 - MODERATE DEGREE OF USER COMFORT

5 - HIGH DEGREE OF USER COMFORT

Slope Analysis, contours, hillshade all generated from Lassen National Forest 10m Digital Elevation Model Data. Aerials from using ArcGIS 9.0, Arcmap 9.0, Spatial Analyst 9.0.

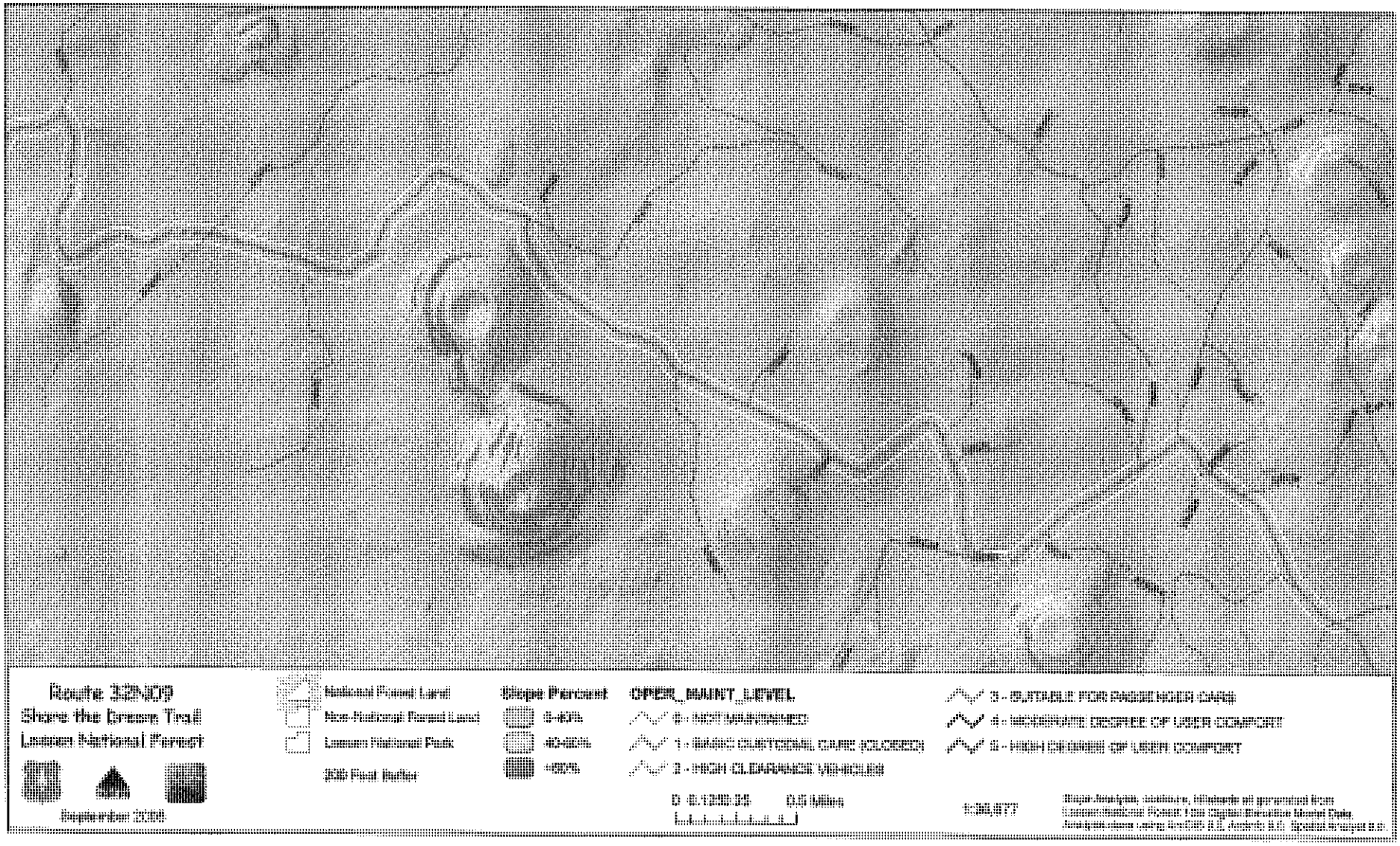
7/10/05 Notes for Road 32N09

MP	WP	Surface	Average Width	Downhill Slope %	Average Speed	Sight Distance	Lat/Lon	Comments, Hazard, Mitigation, Etc.
0.0	00	C	18		25		N40°33.085 W121°10.080	Begin 32N09
1.02	01	C	18		15		N40°33.764, W121°10.800	31N83 W1-1 (L&R), W13-1 (10 MPH) (2)
2.07	02	C	18		10		N40°33.349, W121°11.796	Intersection 32N09A W1-1 (L&R), W13-1 (10 MPH) (2)
2.57	03	C	15		15		N40°33.766 W121°11.912	Intersection 32N09D
2.64	04	C	14		15		N40°33.840 W121°11.962	SDC & start RBE
2.90	05	C	15		15		N40°33.728 W121°12.211	End RBE
3.01	06	C	15		15		N40°33.670 W121°12.314	SDC, RBE would be helpful
4.81	07	C	15		15		N40°34.582 W121°13.854	Intersection 31N10, RBE would be helpful
5.09	08	C	15		15		N40°34.714 W121°14.113	SDC
5.18	09	C	15		15		N40°34.744 W121°14.198	RBE

7/10/05 Notes for 32N09 Continued

MP	WP	Surface	Average Width	Downhill Slope %	Average Speed	Sight Distance	Lat/Lon	Comments, Hazard, Mitigation, Etc.
5.69	10	C	12		10		N40°34.470 W121°14.563	SC (in rock) W1-1 (L&R), W13-1 (10 MPH) (2)
6.05	11	C	12		15		N40°34.457 W121°14.918	RBE through narrow cut W5-1 (2)
6.39	12	C	14		15		N40°34.543 W121°15.281	RBE
6.46	13	C	14		15		N40°34.559 W121°15.362	Intersection 32N09F & 32N69Y
7.07	14	C	14		10		N40°34.480 W121°16.006	SDC, grade break W1-1 (L&R), W13-1 (10 MPH) (2)
7.73	15	C	14		15		N40°34.956 W121°16.006	End 32N09
		Overall	15	<40%	15*			
		Widening exists on outside of nearly every curve						

*Measured at 20 MPH with GPS


Route 32N09
Share the Green Trail
Lassen National Forest
September 2008
National Forest Land
Non-National Forest Land
Lassen National Park
Slope Percent
OPER_MAINT_LEVEL
1 - BASIC CUSTODIAL CARE (CLOSED)
3 - HIGH CLEARANCE VEHICLE
3 - SUITABLE FOR PASSENGER CARS
4 - INCREASING DEGREE OF USER COMFORT
5 - HIGH DEGREE OF USER COMFORT
0 0.125 0.25 0.5 Miles
1:30,577

7/10/05 Notes Road 32N21

MP	WP	Surface	Average Width	Downhill Slope %	Average Speed	Sight Distance	Lat/Lon	Comments, Hazard, Mitigation, Etc.
0.0	01	Agg	24	0 to 10	18.7		N40°36.052 W121°17.942	Begin 32N21 (Butte Lake Rd) R1-1 2 foot shoulders
0.36	02	Agg	24	0 to 10	18.7		N40°36.352 W121°17.972	End 32N21, R1-1 Intersection 32N92Y
		Overall	24	<40%	20			
		Widening exists on outside of nearly every curve.						

7/10/05 Notes Road 32N12

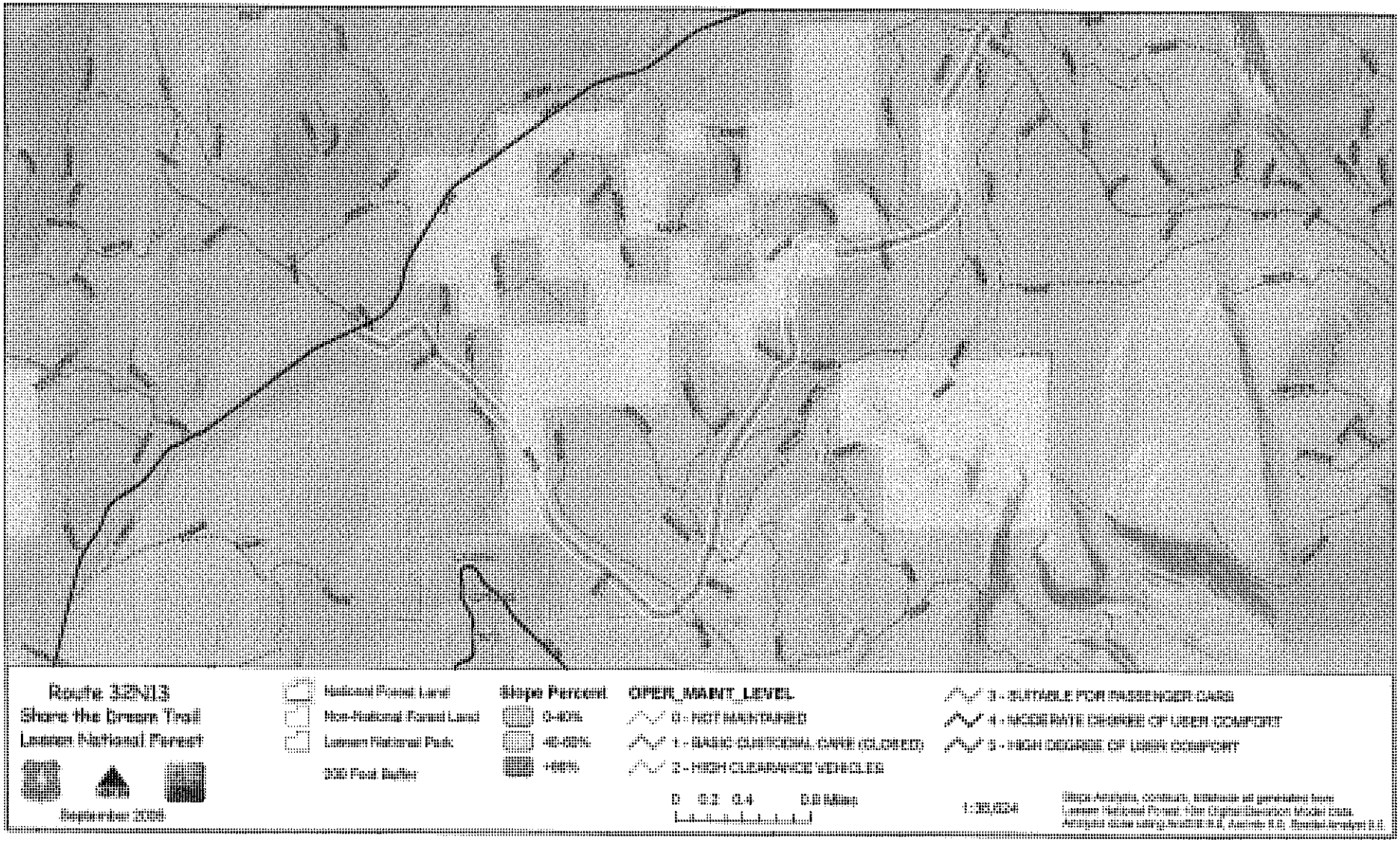
MP	WP	Surface	Average Width	Downhill Slope %	Average Speed	Sight Distance	Lat/Lon	Comments, Hazard, Mitigation, Etc.
0.0	01	C	14	0 to 10	10		N40°36.814 W121°28.025	Begin 32N12
0.06	02	C	12	0 to 10	5		N40°36.834 W121°28.060	Bridge, narrow, Object markers are in place W5-2 (2)
0.09	03	C	14	0 to 10	10	ok	N40°36.846 W121°28.091	SDC
0.24	04	C	14				N40°36.937 W121°28.193	End 32N12
		Overall	14	<40%	10			
		Widening exists on outside of nearly every curve.						

7/10/05 Notes Road 32N13

MP	WP	Surface	Average Width	Downhill Slope %	Average Speed	Sight Distance	Lat/Lon	Comments, Hazard, Mitigation, Etc.
0.0		C	16	0 to 5	15 to 20		N40°36.973 W121°28.193	Begin 32N13,Has vertical maintenance level 2 route marker at both ends
0.06		C	16		15 to 20		N40°36.890 W121°28.242	Cattle Guard, needs paddles, OM-3L (2) OM-3R (2)
0.08		C	16		15 to 20		N40°36.874 W121°28.251	Count Station 8, Shoulders 2'
0.09		C	16		15 to 20		N40°36.883, W121°28.245	Campground entrance
0.34		C	16	0 to 5	15 to 20		N40°36.836 W121°28.270	Campground entrance
0.66		C	16		15 to 20		N40°36.432 W121°28.446	Private Campground entrance
1.49		C	12	10 to 30	15 to 20		N40°35.863, W121°28.719	RBE
1.73		C	12	10 to 30	15 to 20		N40°35.811, W121°28.985	RBE
2.0		C	16	<40	15 to 20		N40°35.820 W121°29.283	SDC
2.17		C	16	40	15 to 20	160'	N40°35.850 W121°29.447	SDC

7/10/05 Notes for 32N13 continued

MP	WP	Surface	Average Width	Downhill Slope %	Average Speed	Sight Distance	Lat/Lon	Comments, Hazard, Mitigation, Etc.
2.48		C	16	10 to 20	15 to 20		N40°35.608 W121°29.566	SDC
2.9		C	16		15 to 20		N40°35.251 W121°29.529	SDC
4.12		C	16		15 to 20		N40°34.305 W121°30.101	RBE
4.47		C	16		15 to 20		N40°34.045 W121°30.231	SDC
450		C	16		15 to 20		N40°34.020 W121°30.254	Intersection 32N75Y
4.67		C	18		20 to 25		N40°33.935, W121°30.398	Count Station #9
5.93		C	18		20		N40°34.708 W121°31.321	SDC
7.49		C	18		20		N40°35.409 W121°32.485	End 32N13 at SR 44/89, R1-1 exists
		Overall	16	<40%	20			
		Widening exists on outside of nearly every curve.						


Route 32N13
Share the Dream Trail
Lassen National Forest
September 2009
National Forest Land
Non-National Forest Land
Lassen National Park
300 Foot Buffer
Slope Percent
0-40%
40-60%
+60%
OPER_MAINT_LEVEL
0 - NOT MAINTAINED
1 - BASIC OUTDOOR DRIVE (CLOSED)
2 - HIGH CLEARANCE VEHICLES
3 - SUITABLE FOR PASSENGER CARS
4 - MODERATE DEGREE OF USER COMFORT
5 - HIGH DEGREE OF USER COMFORT
0 0.2 0.4 0.8 Miles
1:36,024

7/10/05 Notes for 33N16 (16 Road)

MP	WP	Surface	Average Width	Downhill Slope %	Average Speed	Sight Distance	Lat/Lon	Comments, Hazard, Mitigation, Etc.
0.0	19	Cinders	18	0 to 10	20-25		N40°35.406 W121°32.488	Begin 32N16 (16 Road) at SR 44/89 Stop Sign in place
0.52	20	Cinders	18		20-25		N40°35.734 W121°32.923	Intersection 32N30
1.61	21	Cinders	18		20 to 25		N40°36.327 W121°33.737	Intersection 32N25
2.60	22	Cinders	18		20 to 25		N40°37.189 W121°33.874	SDC
3.40	23	Cinders	18		20 to 25		N40°37.549 W121°34.501	End of 33N16, Count Station 10
		Overall	18	<40%	23			
		Widening exists on outside of nearly every curve.						

7/10/05 Notes for 32N24

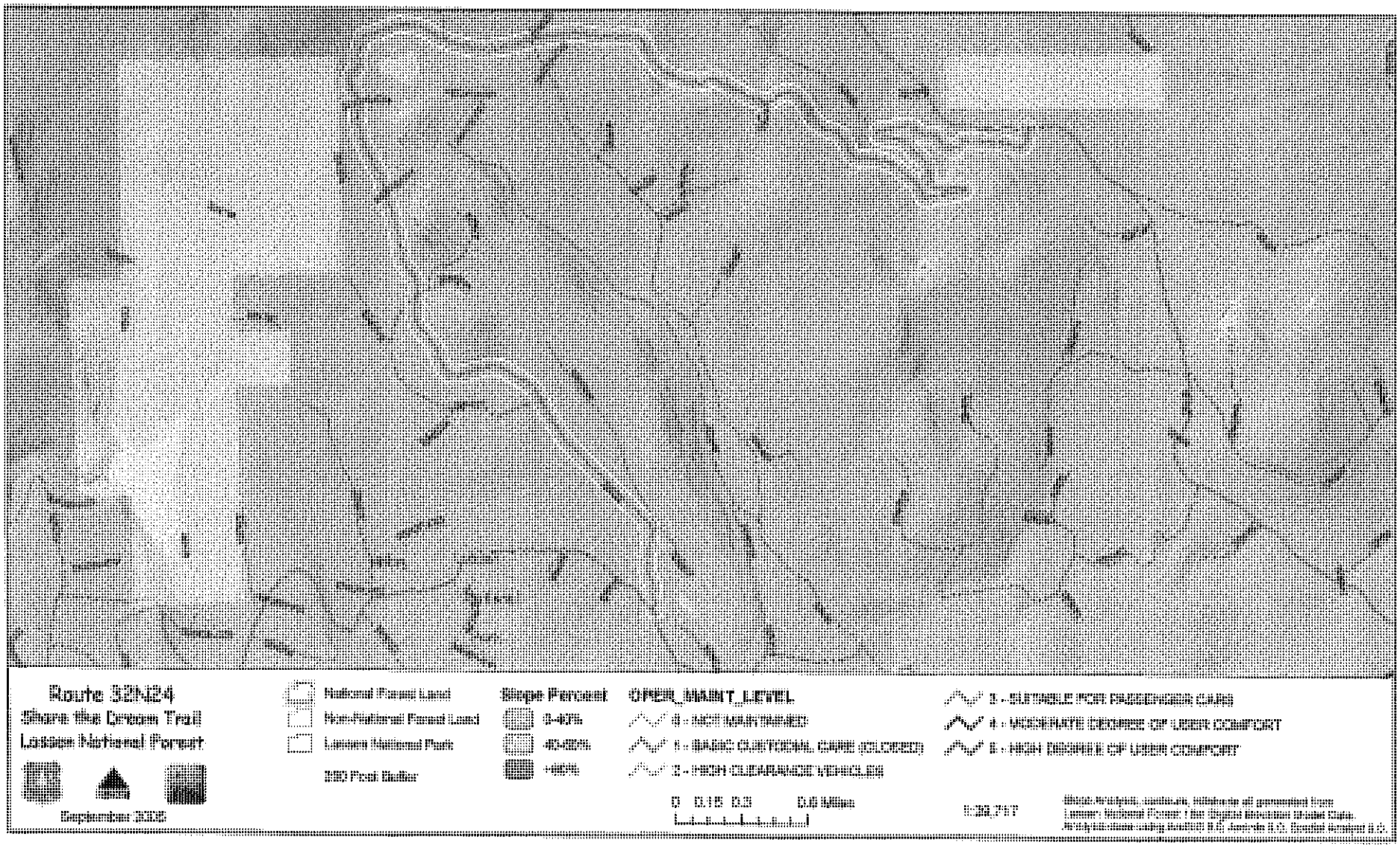
MP	WP	Surface	Average Width	Downhill Slope %	Average Speed	Sight Distance	Lat/Lon	Comments, Hazard, Mitigation, Etc.
0.0	23	Cinders	14	0 to 10	20		N40°37.549 W121°34.501	Begin 32N24 at 16 Road
0.1	24	Cinders	14	10 to 20	12 to 15		N40°37.475 W121°34.534	Begin steeper slope
0.3	24A	C		30	12 to 15		N40°37.482 W121°34.755	
0.4	25	Cinders	14	30	12 to 15		N40°37.466 W121°34.889	SDC
0.5	25A	C		10 to 20	12 to 15		N40°37.494 W121°34.967	Slope lessens
0.6	26	Cinders	14	10 to 20	12 to 15		N40°37.525 W121°35.043	SDC
0.8	27	Cinders	14	10 to 20	12 to 15		N40°37.545 W121°35.273	Intersection 32N46, SDC
0.9	27A	C		30	12 to 15		N40°37.499 W121°35.203	
1.0	27B	C			15 to 18		N40°37.457 W121°35.098	
1.1	28	Cinders	14	35	15 to 18		N40°37.363 W121°35.008	

7/10/05 Notes for 32N24 Continued

MP	WP	Surface	Average Width	Downhill Slope %	Average Speed	Sight Distance	Lat/Lon	Comments, Hazard, Mitigation, Etc.
1.2	29	Cinders	14		15 to 18		N40°37.310 W121°35.003	SDC
1.4	30	Cinders	14				N40°37.293 W121°34.781	SC, W1-1 (L&R),W13-1 (5 MPH) (2)
1.8	30A	Cinders	14		15 to 20		N40°37.281 W121°34.934	
1.9	30B	Cinders	14	40 to 50	15 to 20		N40°37.273 W121°34.973	Begin steeper slope
2.1	30C	Cinders	14	30 to 40	15 to 20		N40°37.350 W121°35.154	Shoulder 2 feet
3.3	30D	Cinders	14	10 to 20	15 to 20		N40°37.732 W121°36.080	Slope lessens
3.6	31	Cinders	14		20 to 25		N40°37.922 W121°37.015	Cattle Guard, Intersection 32N36 OM-3L (2), OM-3R (2)
4.6	31A	Cinders	14		20 to 25		N40°37.927 W121°37.945	SDC
4.8	31B	Cinders	14		15 to 20		N40°37.760 W121°38.006	
5.0	31C	Cinders	14		20 to 25		N40°37.588 W121°37.970	

7/10/05 Notes for 32N24 continued

MP	WP	Surface	Average Width	Downhill Slope %	Average Speed	Sight Distance	Lat/Lon	Comments, Hazard, Mitigation, Etc.
6.1	31D	Cinders	14	0 to 10	20 to 25		N40°36.705 W121°37.601	
7.0	32	Cinders	14		20 to 25		N40°36.286 W121°36.888	SCMP, OM2-IV (2)
7.2	32A	Cinders	16'		20 to 25		N40°36.149 W121°36.735	Shoulder 2 feet
7.5	33	Cinders	16		20 to 25		N40°35.976 W121°36.488	SDC
7.9	34	Cinders	16		20 to 25		N40°35.636 W121°36.473	End of 32N24
		Overall	14	<40%	18			
		Widening exists on outside on nearly every curve.						


Route 32N24
Shore the Dream Trail
Lassen National Forest
September 2008
National Forest Land
Non-National Forest Land
Lassen National Park
100 Foot Buffer
Slope Percent
0-40%
40-60%
+60%
OPER_MAINT_LEVEL
1 - NOT MAINTAINED
1 - BASIC CUSTODIAL CARE (CLOSED)
1 - HIGH CLEARANCE VEHICLES
1 - SUITABLE FOR PASSENGER CARS
1 - MODERATE DEGREE OF USER COMFORT
1 - HIGH DEGREE OF USER COMFORT
0 0.15 0.3 0.6 Miles
NAD_1983_UTM_Zone_10N

7/10/05 Notes for 32N31

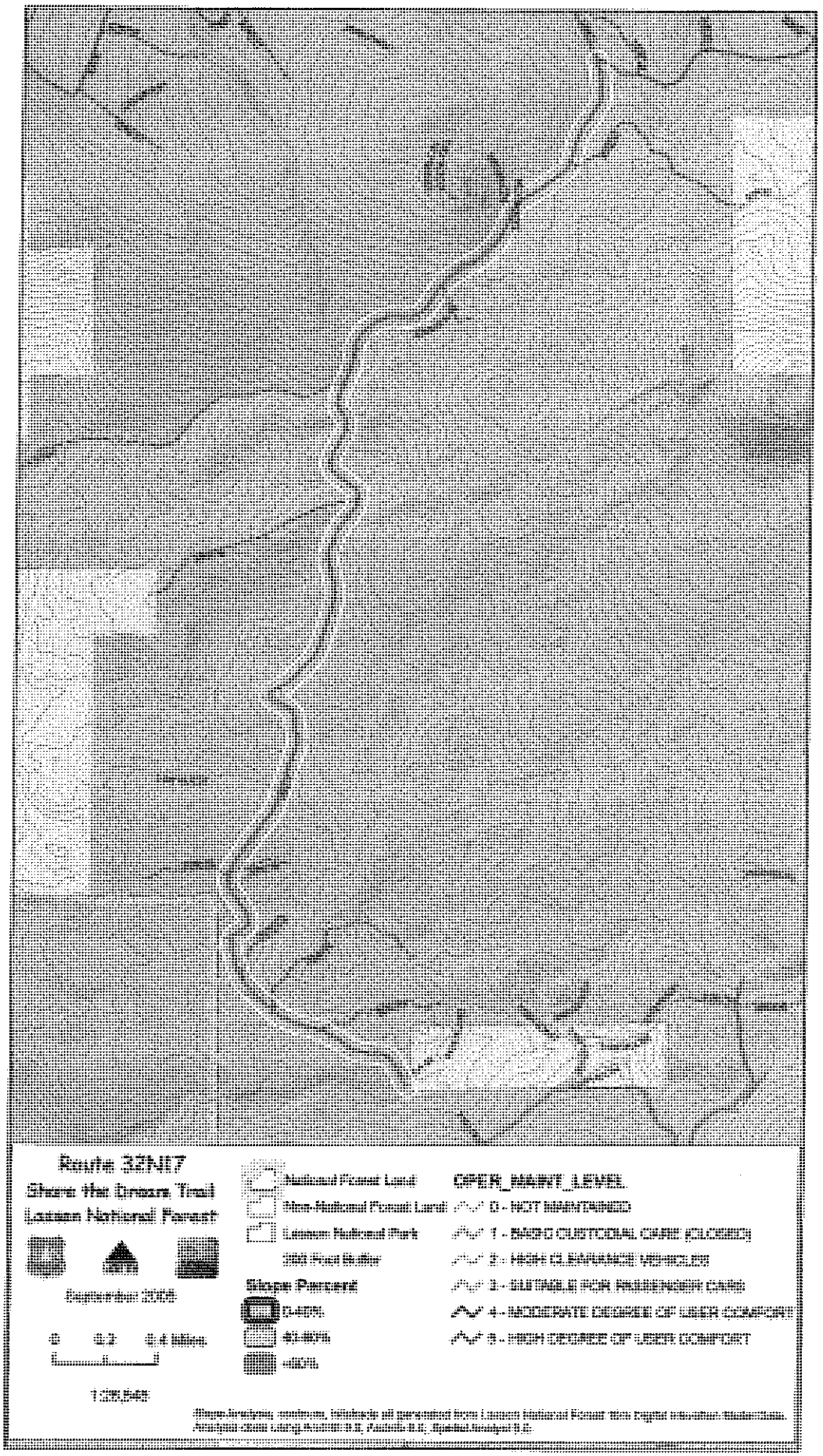
MP	WP	Surface	Average Width	Downhill Slope %	Average Speed	Sight Distance	Lat/Lon	Comments, Hazard, Mitigation, Etc.
0.0	34	Agg	18	10 to 20	25		N40°35.636 W121°36.473	Begin 32N31
0.3	35	Agg	18	10 to 20	25		N40°35.423 W121°36.358	End 32N31
		Overall	18	<40%	25			

7/10/05 Notes for 32N17

MP	WP	Surface	Average Width	Downhill Slope %	Average Speed	Sight Distance	Lat/Lon	Comments, Hazard, Mitigation, Etc.
0.0	35	Cinders	16	0 to 10	10 to020		N40°35.423 W121°36.358	Begin 32N17
0.03	36	Cinders	16		14		N40°35.397 W121°36.351	Station 11
0.65	37	Cinders	16				N40°34.944 W121°36.734	SDC
0.75	37A	C		10 to 20	20 to 25		N40°34.861 W121°36.787	
1.4	37B	C	14 feet	0			N40°34.562 W121°37.325	14 feet for short distance
1.77	37C						N40°34.284 W121°37.535	W1-5, W13-1 (15 MPH) Southbound
1.85	38	Cinders	16		10 to 20		N40°34.211 W121°37.485	Shoulder 8 feet, SDC
2.25	38A		16		15		N40°33.917 W121°37.461	Grade, roughness, W1-5, W13-1 (15MPH) Northbound
3.01	39	Cinders	16		20 to25		N40°33.341 W121°37.754	SDC

7/10/05 Notes for 32N17 Continued

MP	WP	Surface	Average Width	Downhill Slope %	Average Speed	Sight Distance	Lat/Lon	Comments, Hazard, Mitigation, Etc.
3.10	40	Cinders	10		20 to25		N40°33.292 W121°37.834	SC W1-1 (L&R(, W13-1 (10 MPH) (2)
3.5	40A	C	16	flat	20 to 25		N40°32.993 W121°37.774	Shoulders 8 feet
3.93	41	Cinders	16		20 to25		N40°32.672 W121°38.025	SCMP, OM2-IV (2)
4.33	42	Agg	16	10 to 20	20 to 25		N40°32.372 W121°37.970	Rough surface slows speed for short distance. Then returns to 20 to 25MPH. Shoulders 6 feet
5.21		Agg	16	0	20 to25		N40°31.973 W121°37.231	End of 32N17 at SR 44, R1-1 exists
		Overall	16	<40	20			
		Widening exists on outside of nearly every curve.						


Route 33N17
Share the Dream Trail
Lassen National Forest
September 2008
0 0.2 0.4 Miles
1:35,945
National Forest Land
Non-National Forest Land
Lassen National Park
300 Foot Buffer
Slope Percent
0-40%
41-80%
>80%
OPER_MAINT_LEVEL
0 - NOT MAINTAINED
1 - NEED CUSTODIAL CARE (CLOSED)
2 - HIGH CLEARANCE VEHICLES
3 - SUITABLE FOR PASSENGER CARS
4 - MODERATE DEGREE OF USER COMFORT
5 - HIGH DEGREE OF USER COMFORT

7/10/05 Notes for 31N17 (17 Road)

MP	WP	Surface	Average Width	Downhill Slope %	Average Speed	Sight Distance	Lat/Lon	Comments, Hazard, Mitigation, Etc.
0.0	44	Agg	10		10		N40°32.329 W121°35.805	Begin 17 Road at SR 44, 10 ft. through cut speed 10 MPH, R1-1 (existing)
0.1	45	Agg	18	0	25 to 30		N40°32.225 W121°35.761	W5-1 W13-1 (10 MPH), (Northbound)
0.4	46	Agg	18		15		N40°31.993 W121°35.690	SC, W1-1 (L&R), W13-1 (15 MPH) (2)
0.5	46A	Agg	18	35	25 to 30		N40°31.882 W121°35.797	SDC
0.9	47	Agg	18		25 to 30		N40°31.721 W121°36.030	SC W1-1 (L&R), W13-1 (15 MPH) (2)
1.0	47A	Agg	18	0	25 to 30		N40°31.744 W121°36.151	
1.5	47B	Agg	18	30	25 to 30		N40°31.692 W121°36.717	
1.6	47C	Agg	18	0	25 to 30		N40°31.605 W121°36.763	
1.7	47D	Agg	18	0 to 10	25 to 30		N40°31.423 W121°36.826	
2.5	47E	Agg	18	30	25 to 30		N40°30.923 W121°37.045	

7/10/05 Notes for 31N17 (17 Road), Continued

MP	WP	Surface	Average Width	Downhill Slope %	Average Speed	Sight Distance	Lat/Lon	Comments, Hazard, Mitigation, Etc.
2.7	47F	Agg	18	50	25 to 30		N40°30.793 W121°37.197	
2.8	48	Agg	18	0 to 20	15		N40°30.718 W121°37.250	SC
4.0	49	Agg	18		25 to 30		N40°30.056 W121°37.235	SDC, SC
4.5	49A	Agg	18	40 to 45	25 to 30		N40°29.848 W121°37.661	
4.6	49B	Agg	18	10 to 20	25 to 30		N40°29.762 W121°37.603	
4.8	50	Agg	18		15		N40°29.624 W121°37.564	SDC (Tanker fill at Bailey Creek), W1-1 (R) W13-1 (15 MPH) (Southbound)
4.9	51	Agg	18		20		N40°29.574 W121° 37.661	SDC, W1-1 (L),W13-1 (15 MPH) (Northbound)
5.1	52	Agg	18		20		N40°26.675 W121°37.875	Intersection Brokeoff Mdws. Road (Shasta County Road 3P001) R1-1 Needed
5.4	53	Agg	18		25 to 30		N40°29.630 W121°38.040	Intersection Shasta County Rd 3P001 to Viola, Continue on 17 Rd., R1-1 Needed
5.8	53A	Agg	18	0 to 10	25 to 30		N40°29.332 W121°38.021	

7/10/05 Notes for 31N17 (17 Road), Continued

MP	WP	Surface	Average Width	Downhill Slope %	Average Speed	Sight Distance	Lat/Lon	Comments, Hazard, Mitigation, Etc.
6.9	54	Agg	18		25 to 30		N40°28.478 W121°37.762	SDC
7.1	55	Agg	18		25 to 30		N40°28.324 W121°37.775	Intersection 31N17B
7.5	56	Agg	18		25 to 30		N40°28.071 W121°37.716	SDC
7.6A	57	Agg	18		25 to 30		N40°27.978 W121°37.724	SDC, Slope at culvert is 60% over fill
7.6B	58	Agg	15		25 to 30		N40°27.951 W121°37.774	15 ft width just past culvert. Lots of it has shoulders 2 feet
8.3	59	Agg	18		25 to 30		N40°27.579 W121°37.832	SDC, over culvert
8.4	60	Agg	18		25 to 30		N40°27.513 W121°37.825	SDC over stream
8.5	61	Agg	18		25 to 30		N40°27.449 W121°37.910	SDC over stream
8.8	62	Agg	18		25 to 30		N40°27.281 W121°38.137	SDC
8.9	63	Agg	18		25 to 30		N40°27.218 W121°38.045	SDC

7/10/05 Notes for 31N17 (17 Road), Continued

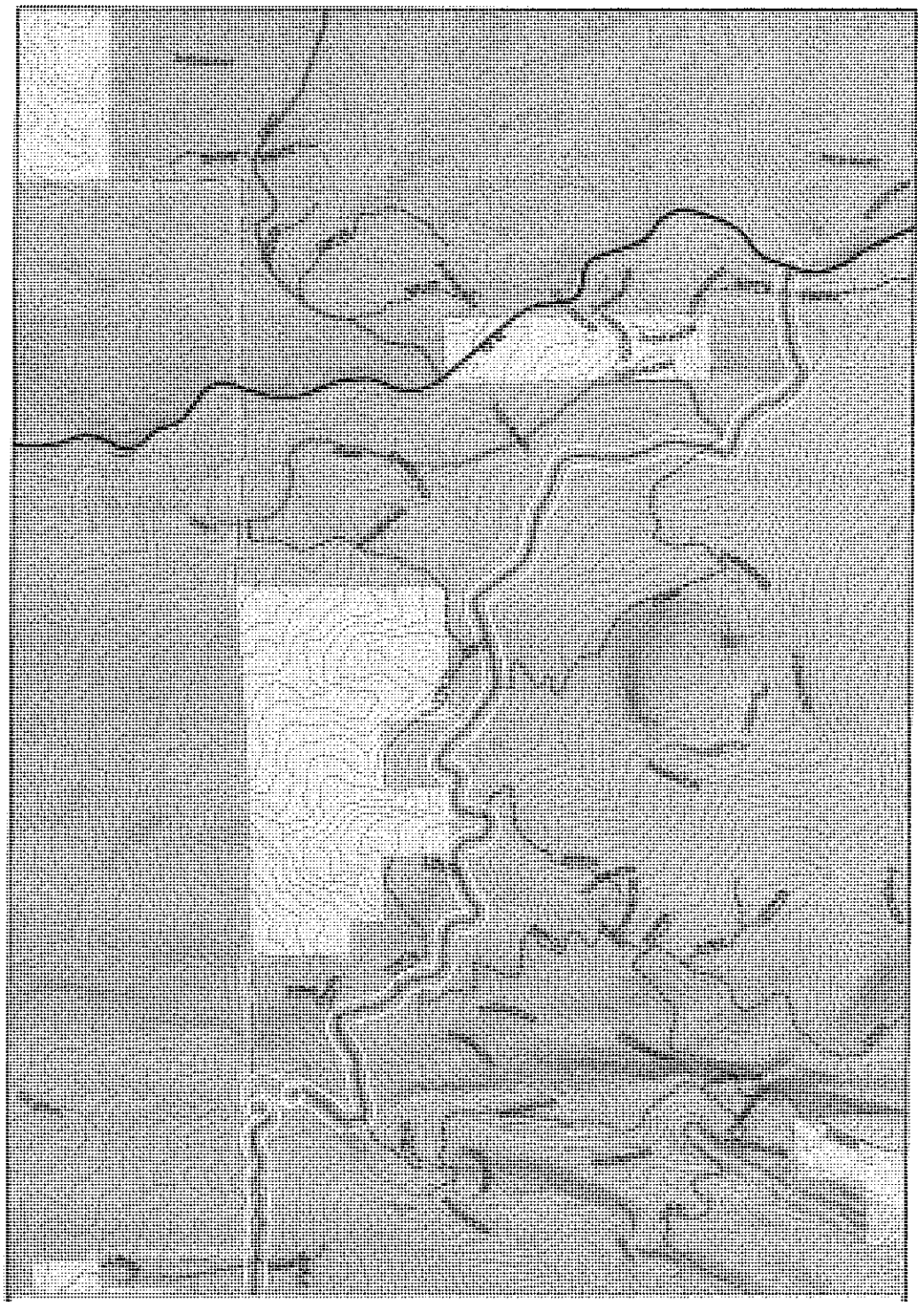
MP	WP	Surface	Average Width	Downhill Slope %	Average Speed	Sight Distance	Lat/Lon	Comments, Hazard, Mitigation, Etc.
9.4	63A	Agg	18	50	25 to 30		N40°26.989 W121°38.245	
9.5	64	Agg	18		25 to 30		N40°26.852 W121°38.232	SDC over culvert
9.7	64A	Agg	18	30	25 to 30		N40°26.689 W121°38.165	
9.8	65	Agg	18		25 to 30		N40°26.657 W121°38.156	SDC
9.9	65A	Agg	14		25 to 30		N40°26.584 W121°38.236	width 14 feet
10.0	66	Agg	14		25 to 30		N40°26.466 W121°38.305	SDC
10.3	67	Agg	14		15		N40°26.368 W121°38.598	SDC, W1-1 (L,R), W13-1 (15 MPH) (2)
10.5	67A	Agg	14	40	25 to 30		N40°26.285 W121°38.396	
10.7	67B	Agg	14	30	25 to 30		N40°26.280 W121°38.163	
10.9	68	Agg	14		15		N40°26.282 W121°37.963	SDC over culvert, W1-1 (L,R) W13-1 (15 MPH) (2)

7/10/05 Notes for 31N17 (17 Road), Continued

MP	WP	Surface	Average Width	Downhill Slope %	Average Speed	Sight Distance	Lat/Lon	Comments, Hazard, Mitigation, Etc.
11.0	69	Agg	14		15		N40°26.233 W121°37.979	SDC
11.1	70	Agg	14	50 to 60	15		N40°26.211 W121°37.998	RBE
11.6	70A	Agg	14		25 to 30		N40°25.979 W121°38.278	
11.9	70B	Agg	14	40 to 50	25 to 30		N40°250816 W121°32.923	
12.1A	71	Agg	14	40 to 50	15		N40°25.723 W121°37.843	Count station #12, 10 feet wide through cut
12.1B	72	Agg	14	40 to 50	15		N40°25.681 W121°37.800	SDC over SF Digger Creek
12.2	73	Agg	14	40 to 50	15		N40°25.645 W121°37.857	SDC, Slope still steep, W1-1 (L,R), W13-1 (15 MPH) (2)
12.3	74	Agg	12	50	20		N40°25.665 W121°38.033	Needs sign, narrow roadway for 300 feet with 50% slope, W5-1, W16-4 (300) (2) (Both Directions)
12.6	74A	Agg	14	0 to 10	25 to 30		N40°25.549 W121°38.188	
13.0	74B	Agg	14		25 to 30		N40°25.410 W121°37.784	2 foot shoulders
14.6	75	Agg	14		25 to 30		N40°24.411 W121°37.119	SCMP and SDC, OM2-IV (2)

7/10/05 Notes for 31N17 (17 Road), Continued

15.3	76	Agg	14		25 to 30		N40°23.885 W121°37.217	End of 17 Road, end of loop back to beginning at 0.0 on 30N16
		Overall	16	<40%	23			
		Widening exists on outside of nearly every curve.						



Route 31N17
Share the Dream Trail
Lassen National Forest

September 2009

0 0.2 0.4 Miles

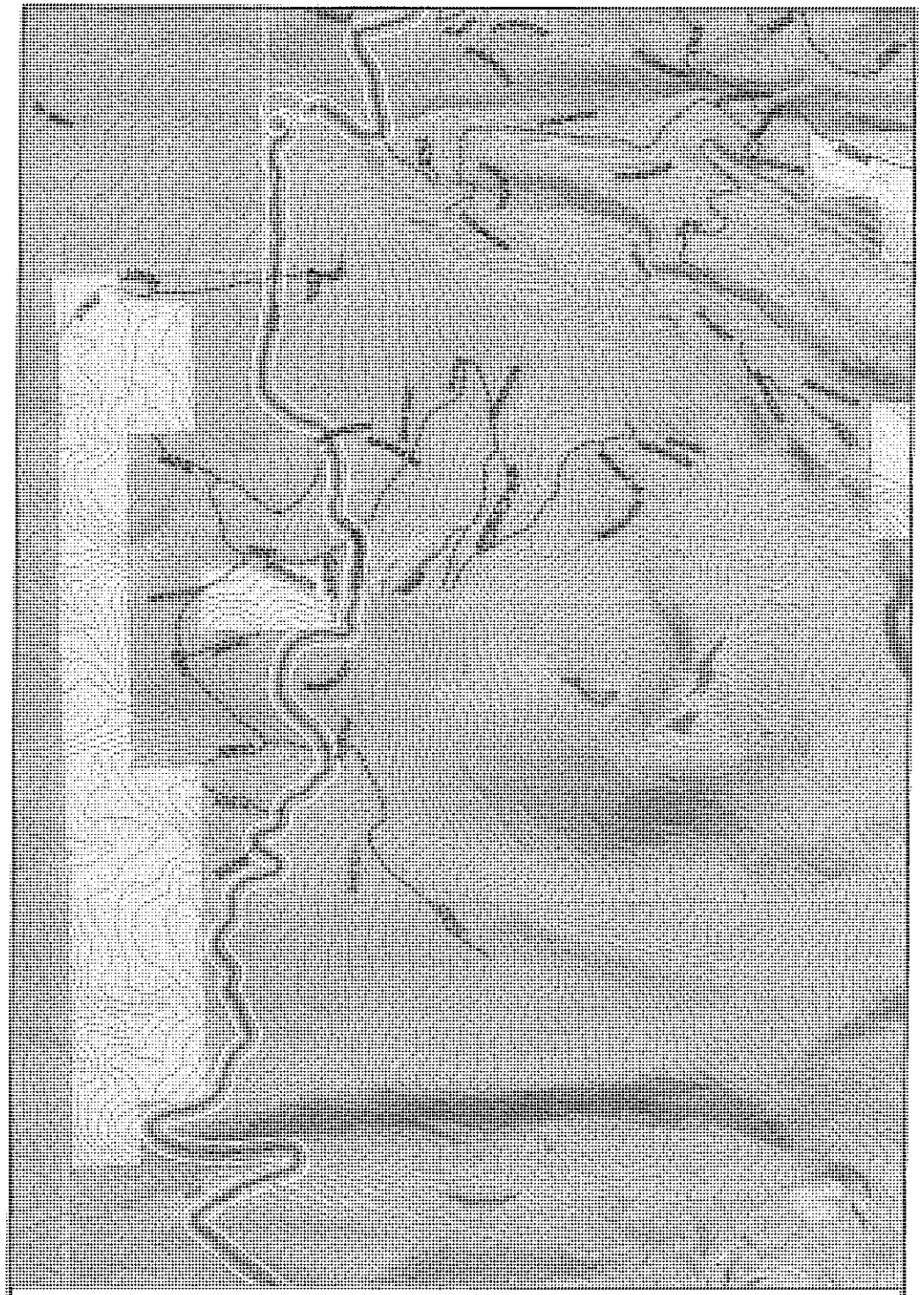
1:36,079

National Forest Land
Non-National Forest Land
Lassen National Park
200 Foot Buffer

Slope Percent
0-40%
40-60%
>60%

OPER_MAINT_LEVEL
0 - NOT MAINTAINED
1 - BASIC CUSTODIAL CARE (CLOSED)
2 - HIGH CLEARANCE VEHICLES
3 - SUITABLE FOR PASSENGER CARS
4 - MODERATE DEGREE OF USER COMFORT
5 - HIGH DEGREE OF USER COMFORT

Slope Analysis, Gradient, Elevation Information: Lassen National Forest Non Digital Elevation Model Data. Analysis done using Arc/Info 9.0, Arcedit 9.0, Gridanalyst 9.0.



Route 31N17
Share the Dream Trail
Lassen National Forest

September 2008

0 0.3 0.4 Miles

1:36,773

National Forest Land
Non-National Forest Land
Lassen National Park
300 Foot Buffer

Slope Percent
0-40%
40-60%
>60%

OPER_MAINT_LEVEL
0 - NOT MAINTAINED
1 - BASIC CUSTODIAL CARE (CLOSED)
2 - HIGH CLEARANCE VEHICLES
3 - SUITABLE FOR PASSENGER CARS
4 - MODERATE DEGREE OF USER COMFORT
5 - HIGH DEGREE OF USER COMFORT

Slope Analysis, contours, hillshade all generated from Lassen National Forest 10m Digital Elevation Model Data. Roadway data using Arcade 9.0, Arcinfo 9.0, Spatial Analyst 9.0.

Route 31N17
Share the Dream Trail
Lassen National Forest

September 2005

0 0.2 0.4 Miles

1:36,779

National Forest Land
Non-National Forest Land
Lassen National Park
200 Foot Buffer

Slope Percent
0-40%
41-60%
>60%

OPER_MAINT_LEVEL
0 - NOT MAINTAINED
1 - BASIC CUSTODIAL CARE (CLOSED)
2 - HIGH CLEARANCE VEHICLES
3 - SUITABLE FOR PASSENGER CARS
4 - MODERATE DEGREE OF USER COMFORT
5 - HIGH DEGREE OF USER COMFORT

Slope Analysis, contours, hillshade all generated from Lassen National Forest 10m Digital Elevation Model Data. Analysis done using ArcGIS 9.0, Arcinfo 9.0, Spatial Analyst 9.0.

Appendix F

Shared Use Assessment
Maintenance and/or Mitigation Tasks and Maps by road

Two separate evaluation guidelines are shown for arriving at a recommendation.

The following Shared Use Assessment sheets compile the observed information for each road as it relates to developed benchmarks. By comparing the observations with the benchmarks, risk factors are estimated.

For each assessment, there is a listing of observed maintenance and/or mitigation tasks all users can benefit from having accomplished.

Map Coding Guide:

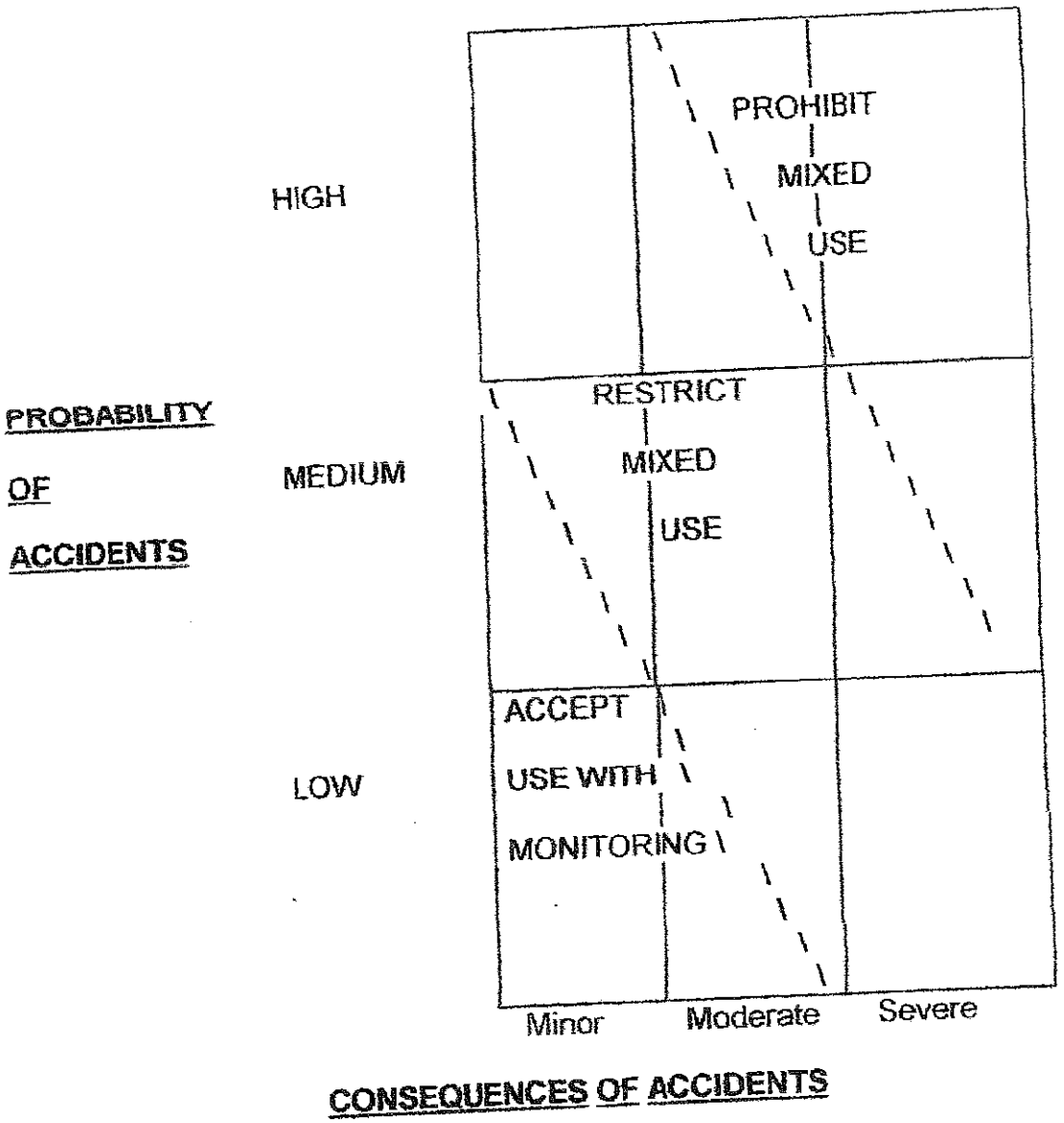
Map # 1 Vegetation Maintenance
- Red–Begin & End Mileposts
- Black–Traffic Count Station
- Green–SDC, RBE, & Snag
- Purple–Intersections

Map #2 Potential Signing
- Red–Begin & End Mileposts
- Black–Traffic Count Stations
- Purple–Intersections
- Red–Regulatory Sign
- Black–Warning Sign

FSH 7709.59

52.2 - Exhibit 01

GUIDELINE FOR MANAGEMENT OF MIXED USE



Evaluation and Mitigation of Crash Risk – WO Draft 8/23/05

The need and magnitude of mitigation recommended in order to designate a road as open for motorized mixed use varies depending on the risk related to probability and severity of crashes. The engineer may determine that the entire road or segment being evaluated is consistent and make recommendations for the entire road. On the other hand, the engineer may determine that one or more segments of the road has significantly higher or lower risk and therefore consider that segment separately.

Generally, no mitigation is necessary for low probability-low severity road segments, although some signing is often appropriate.

Generally, mitigation is necessary for high probability-high severity road segments.

Mitigation may be necessary for high probability=low severity road segments and for low probability-high severity road segments.

After completion of the analysis for probability and severity, determine alternatives and costs for managing the risk. The investment required to reduce the risk needs to be balance against the benefit of risk reduction.

Traffic Engineer Shared Use Assessment Lassen National Forest Summer 2005

Road Number 30N16 BCDT Segment Number 1 Length 6.56 Sheet 1 of 3

Maint. Level: Objective 3 Operational 3 Observed June–August 2005 2 Functional Class L Service Level B

Probability of an Accident	Benchmark Rankings		Summary 2005 Observations	Assessed Rankings		
	High	Low		H	M	L
Crash History	Several Crashes	None Known	None Known			L
Average Daily Traffic (ADT)	>150	30 or less	Count Sta ① 5.48			L
User Knowledge	Not Acquainte		Unknown		M	
Average Speed (MPH)	>40		15			L
Cross Section Changes	Changes		None Abrupt			L
Surface Type Changes	Changes		None			L
Curvature	Abrupt		Smooth *			L
Road Widths (Feet)	Variable		Uniform @ 15'			L

R4 uses <100

R8 uses <100

WO Did not list

R3 & R6 use 30

all Probability Assessed Ranking Low

Severity of an Accident	B		Summary 2005 Observations	Assessed Rankings		
	High			H	M	L
Average Speed (MPH)	>40		15			L
Clearance from Hazards	Little or none		Adequate *			L
Alignment & Sight Distance	Poor	Adequate	Adequate *			L
Roadway Gradient	>12%	<12%	<12%			L
Downhill Side Slopes	>60%	<40%	<40%			L
Radical Speed Changes	Many	Few	Few			L
Multi-passenger Vehicles	Buses	Cars, SUVs	Cars, SUVs			L

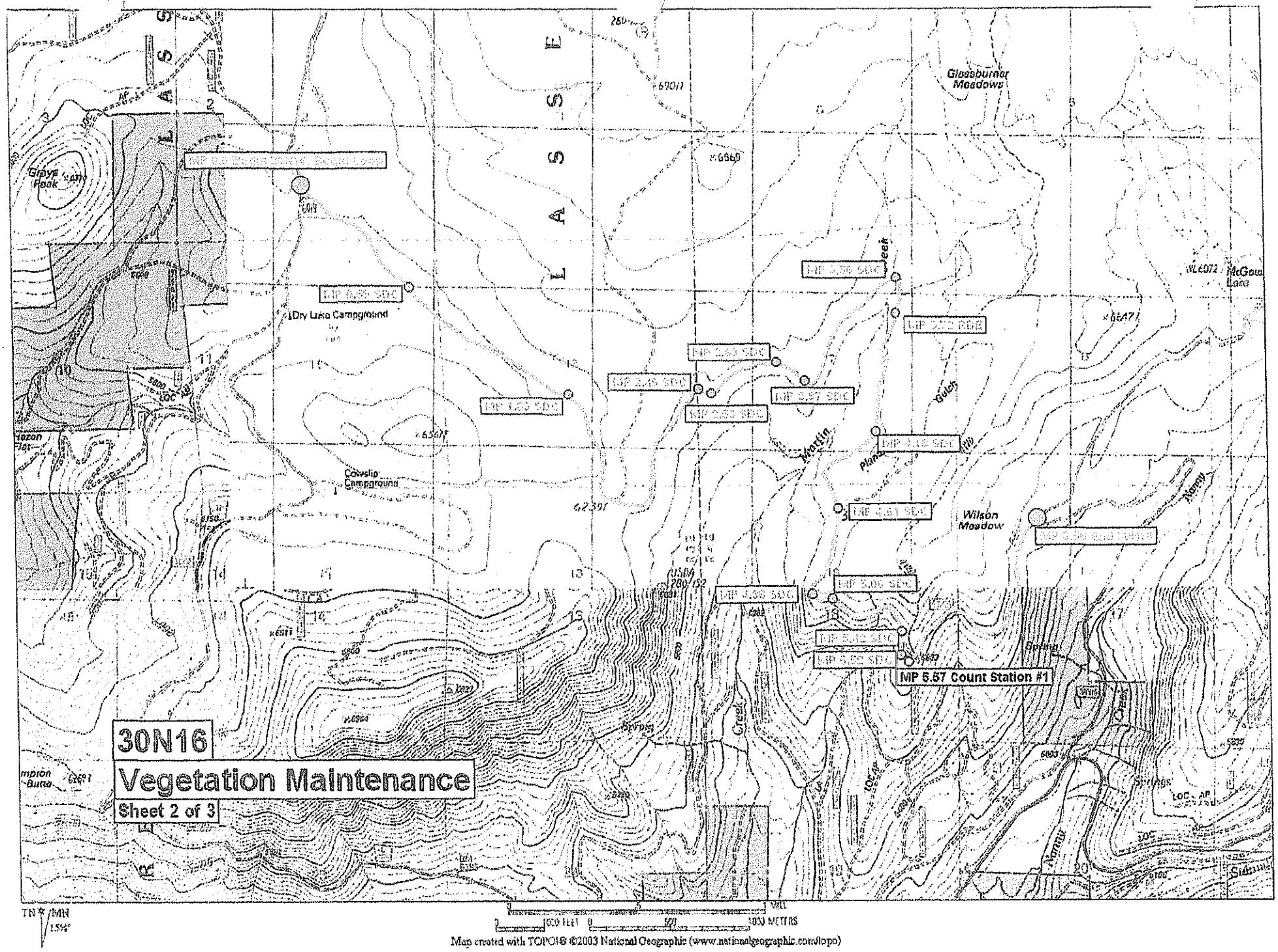
I chose the SAFER #

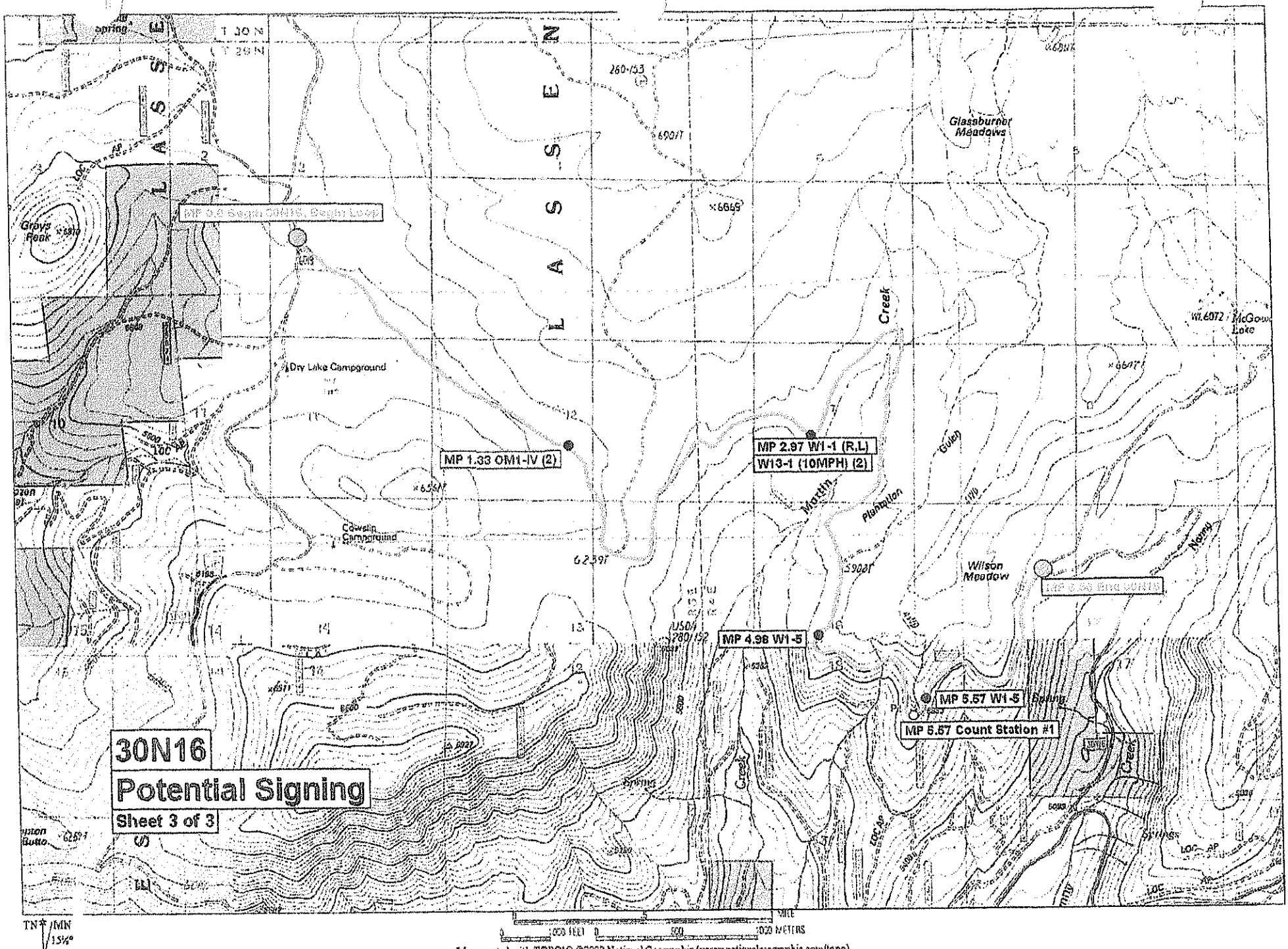
Overall Severity Assessed Ranking Low

Season of Use June - November Surface Native % Street Legal 42 % Non-Street Legal 58

SHARED USE RECOMMENDATION YES
Yes or No

*Mitigation opportunities by milepost, or other pertinent information on following page(s).


30N16
Vegetation Maintenance
Sheet 2 of 3
MP 5.57 Count Station #1
Glassburner Meadows
Dry Lake Campground
Cowslip Campground
Wilson Meadow
Gripye Peak
Lazon Flat
Spring
Creek
Martin
Plank
Gulch
Alamo
Spring
TN
MN
15½°
0
500 FEET
500
1000 METERS
Map created with TOPO!® ©2003 National Geographic (www.nationalgeographic.com/topo)


30N16
Potential Signing
Sheet 3 of 3
MP 1.33 OM1-IV (2)
MP 2.97 W1-1 (R.L)
W13-1 (10MPH) (2)
MP 4.98 W1-5
MP 5.57 W1-5
MP 5.57 Count Station #1
Dry Lake Campground
Cowslip Campground
Wilson Meadow
Glassburner Meadows
Grays Peak
Martin Creek
Plighton Gulch
Norby Creek
McGown Lake
Spring
T 30 N
T 29 N
TN
MN
15½°
MILE
1000 FEET
500
1000 METERS
Map created with TOPO!® ©2003 National Geographic (www.nationalgeographic.com/topo)

Traffic Engineer Shared Use Assessment Lassen National Forest Summer 2005

Road Number 29N22 BCDT Segment Number 1 Length 2.96 Sheet 1 of 3

Maint. Level: Objective 3 Operational 3 Observed June–August 2005 2 [Signed as Level 2] Functional Class L Service Level B

Probability of an Accident	Benchmark Rankings		Summary 2005 Observations	Assessed Rankings		
	High	Low		H	M	L
Crash History	Several Crashes	None Known	None Known			L
Average Daily Traffic (ADT)	>150	30 or less	Count Sta ① 5.48			L
User Knowledge	Not Acquainted	Well Acquainted	Unknown		M	
Average Speed (MPH)	>40	25 or less	15			L
Cross Section Changes	Changes	None Abrupt	None Abrupt			L
Surface Type Changes	Changes	No changes	None			L
Curvature	Abrupt	Smooth	Smooth			L
Road Widths (Feet)	Variable	Uniform	Uniform @ 15'			L

Overall Probability Assessed Ranking Low

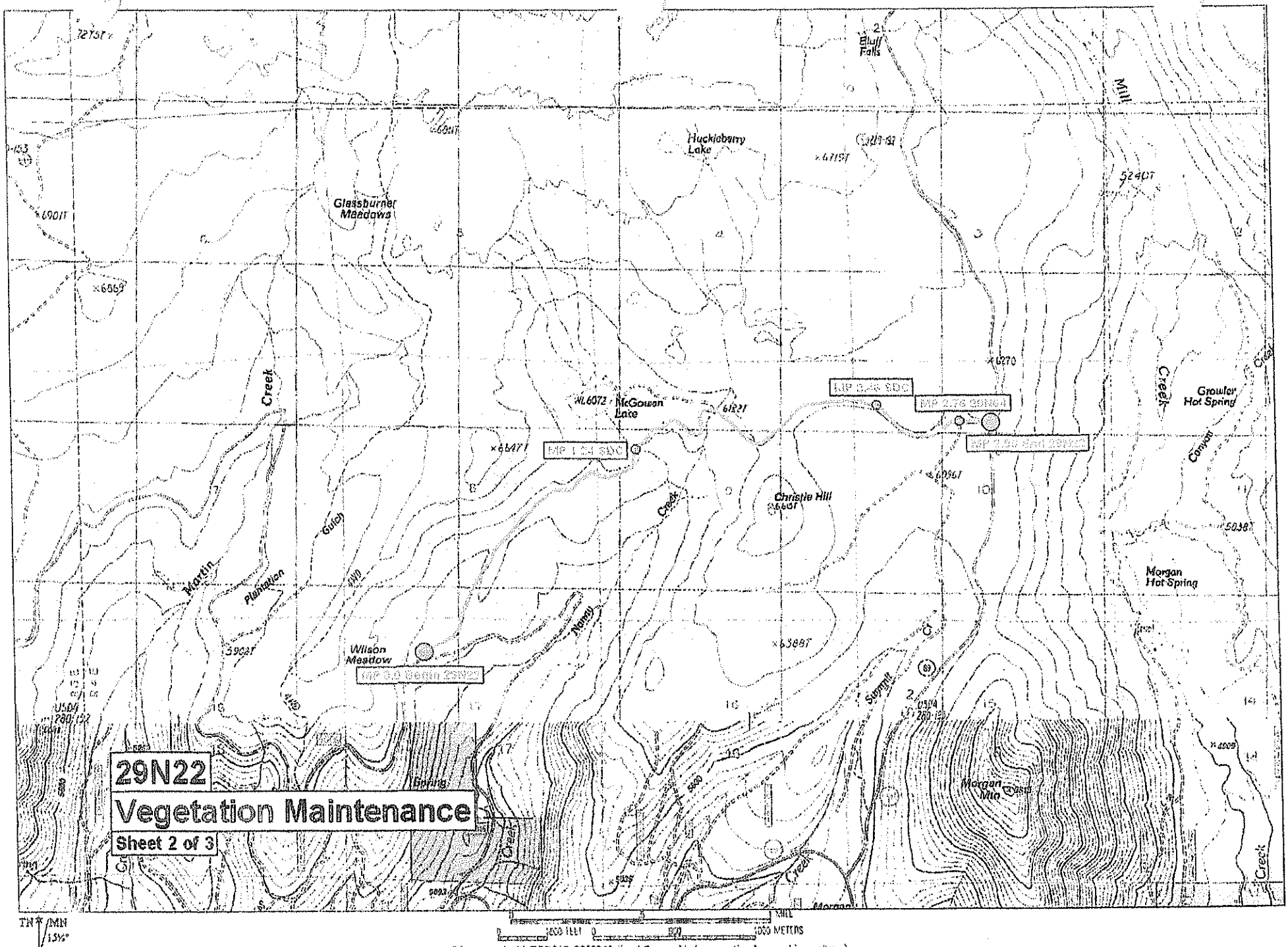
Severity of an Accident	Benchmark Rankings		Summary 2005 Observations	Assessed Rankings		
	High	Low		H	M	L
Average Speed (MPH)	>40	25 or Less	15			L
Clearance from Hazards	Little or none	Adequate	Adequate			L
Alignment & Sight Distance	Poor	Adequate	Adequate *			L
Roadway Gradient	>12%	<12%	<12%			L
Downhill Side Slopes	>60%	<40%	<40%			L
Radical Speed Changes	Many	Few	Few			L
Multi-passenger Vehicles	Buses	Cars, SUVs	Cars, SUVs			L

Overall Severity Assessed Ranking Low

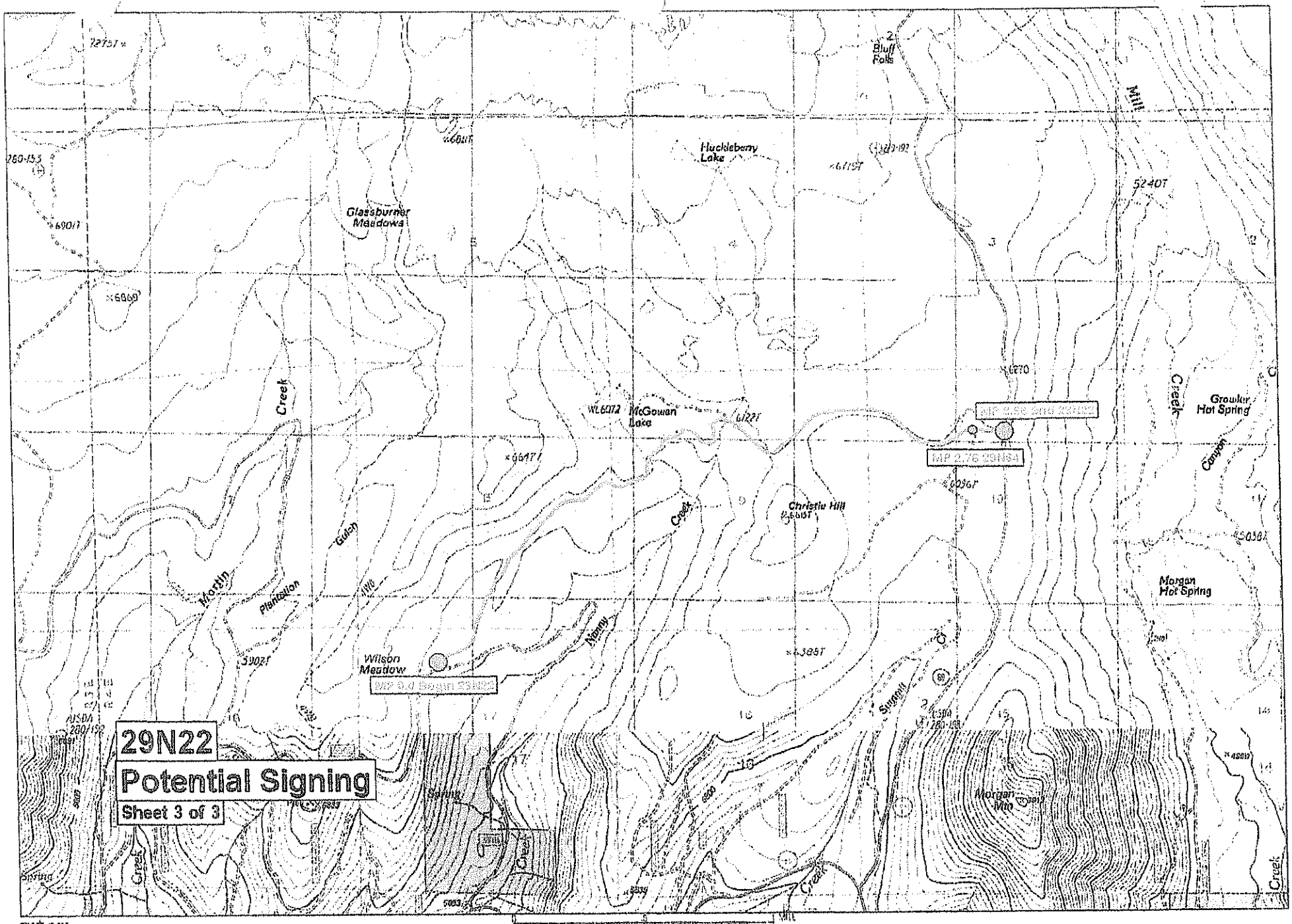
Season of Use June - November Surface Native % Street Legal 42 % Non-Street Legal 58

SHARED USE RECOMMENDATION YES (Yes or No)

*Mitigation opportunities by milepost, or other pertinent information on following page(s).



Map created with TOPO!® ©2003 National Geographic (www.nationalgeographic.com/topo)



Map created with TOPO!® ©2003 National Geographic (www.nationalgeographic.com/topo)

Traffic Engineer Shared Use Assessment ..ssen National Forest Summer 2005

Road Number 10 (32N10) BCDT Segment Number 13 Length 14.30 Sheet 1 of 7

Maint. Level: Objective 4 Operational 3 Observed June–August 2005 2 Functional Class C Service Level B

Probability of an Accident	Benchmark Rankings		Summary 2005 Observations	Assessed Rankings		
	High	Low		H	M	L
Crash History	Several Crashes	None Known	None Known			L
Average Daily Traffic (ADT)	>150	30 or less	Average 5/10 (5.435) 16.14			L
User Knowledge	Not Acquainted	Well Acquainted	Unknown		M	
Average Speed (MPH)	>40	25 or less	20			L
Cross Section Changes	Changes	None Abrupt	None Abrupt			L
Surface Type Changes	Changes	No changes	None			L
Curvature	Abrupt	Smooth	Smooth *			L
Road Widths (Feet)	Variable	Uniform	Uniform @ 16'			L

Overall Probability Assessed Ranking Low

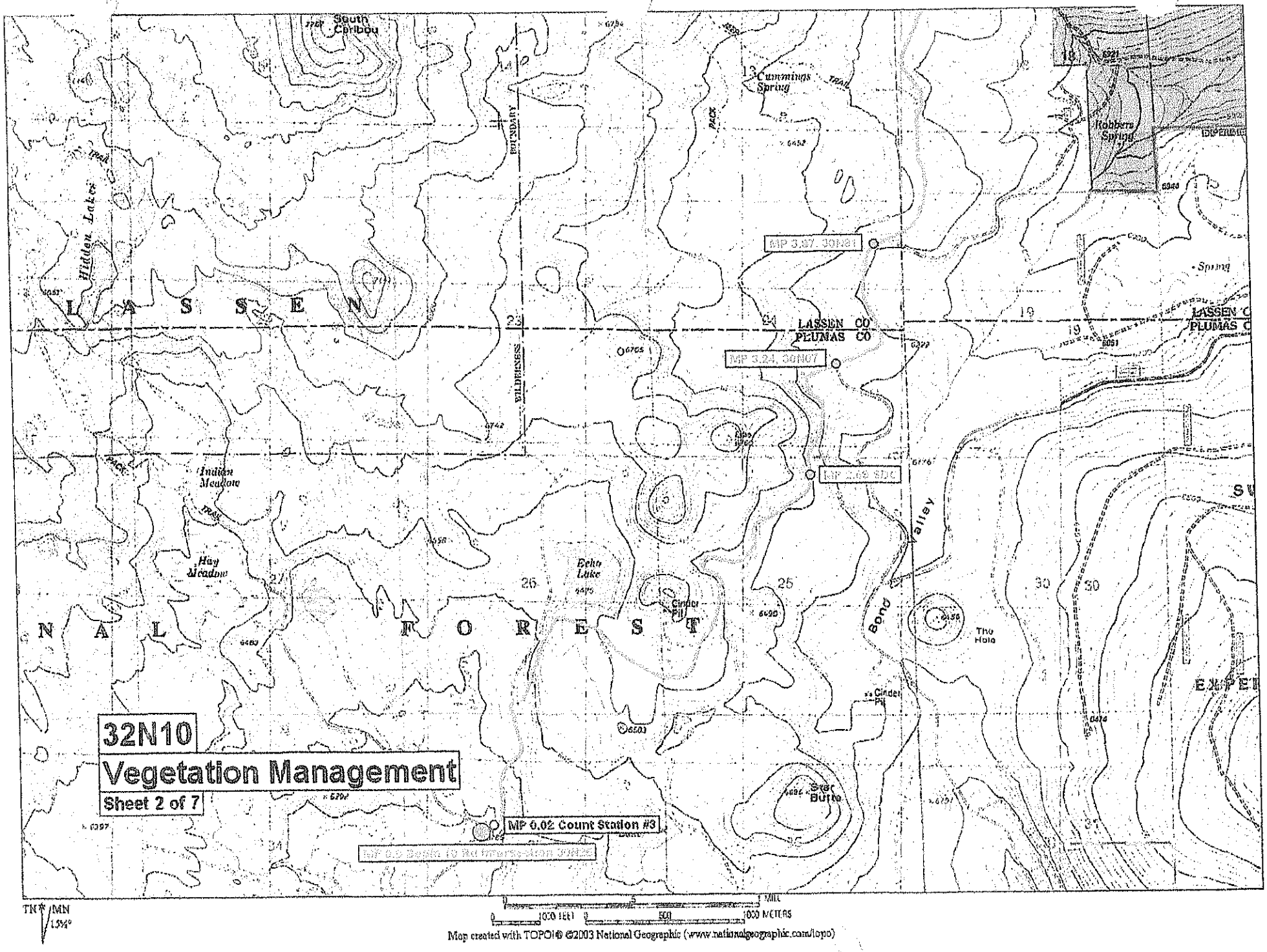
Severity of an Accident	Benchmark Rankings		Summary 2005 Observations	Assessed Rankings		
	High	Low		H	M	L
Average Speed (MPH)	>40	25 or Less	20			L
Clearance from Hazards	Little or none	Adequate	Adequate			L
Alignment & Sight Distance	Poor	Adequate	Adequate *			L
Roadway Gradient	>12%	<12%	<12%			L
Downhill Side Slopes	>60%	<40%	<40%			L
Radical Speed Changes	Many	Few	Few			L
Multi-passenger Vehicles	Buses	Cars, SUVs	Cars, SUVs			L

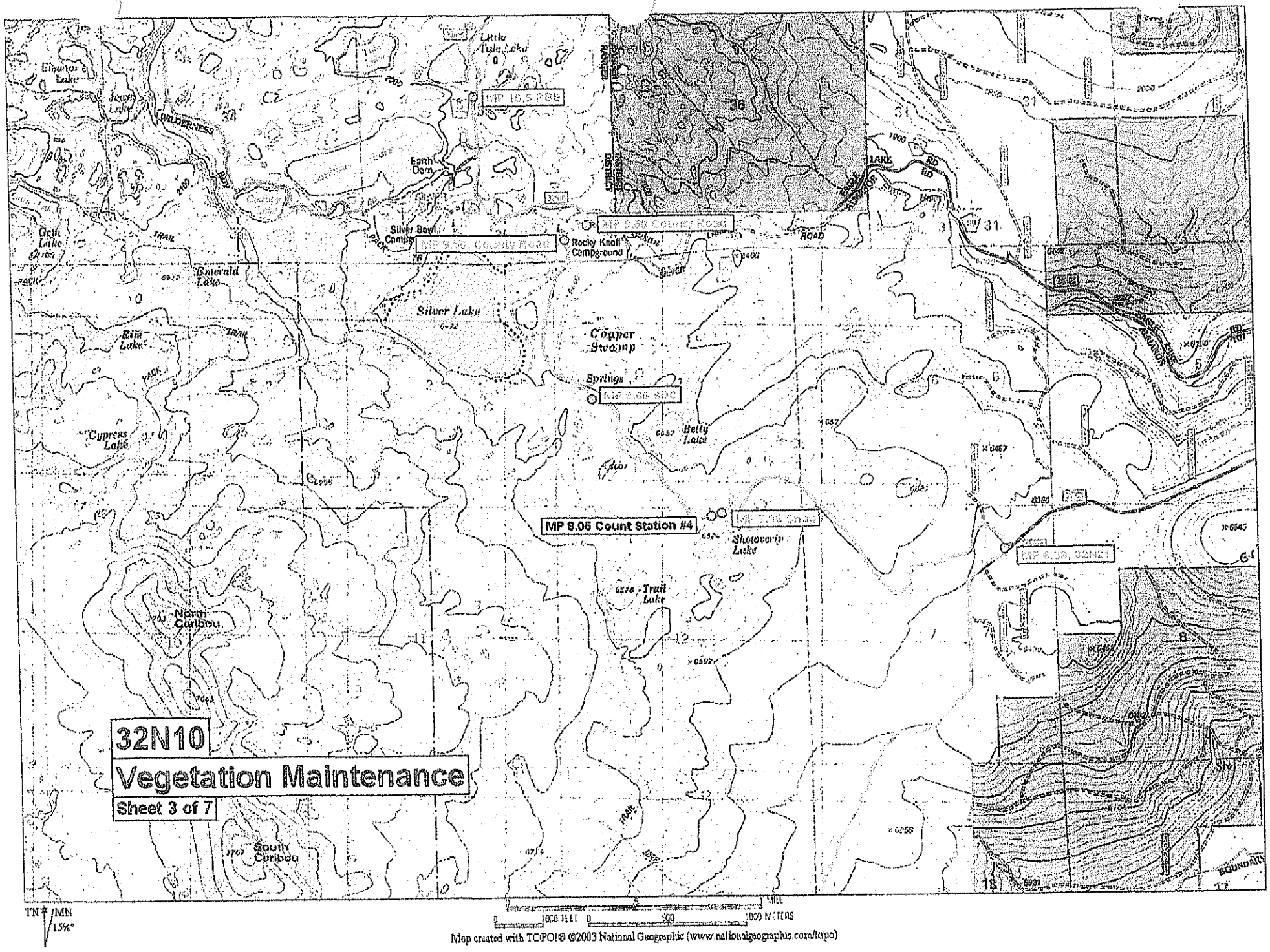
Overall Severity Assessed Ranking Low

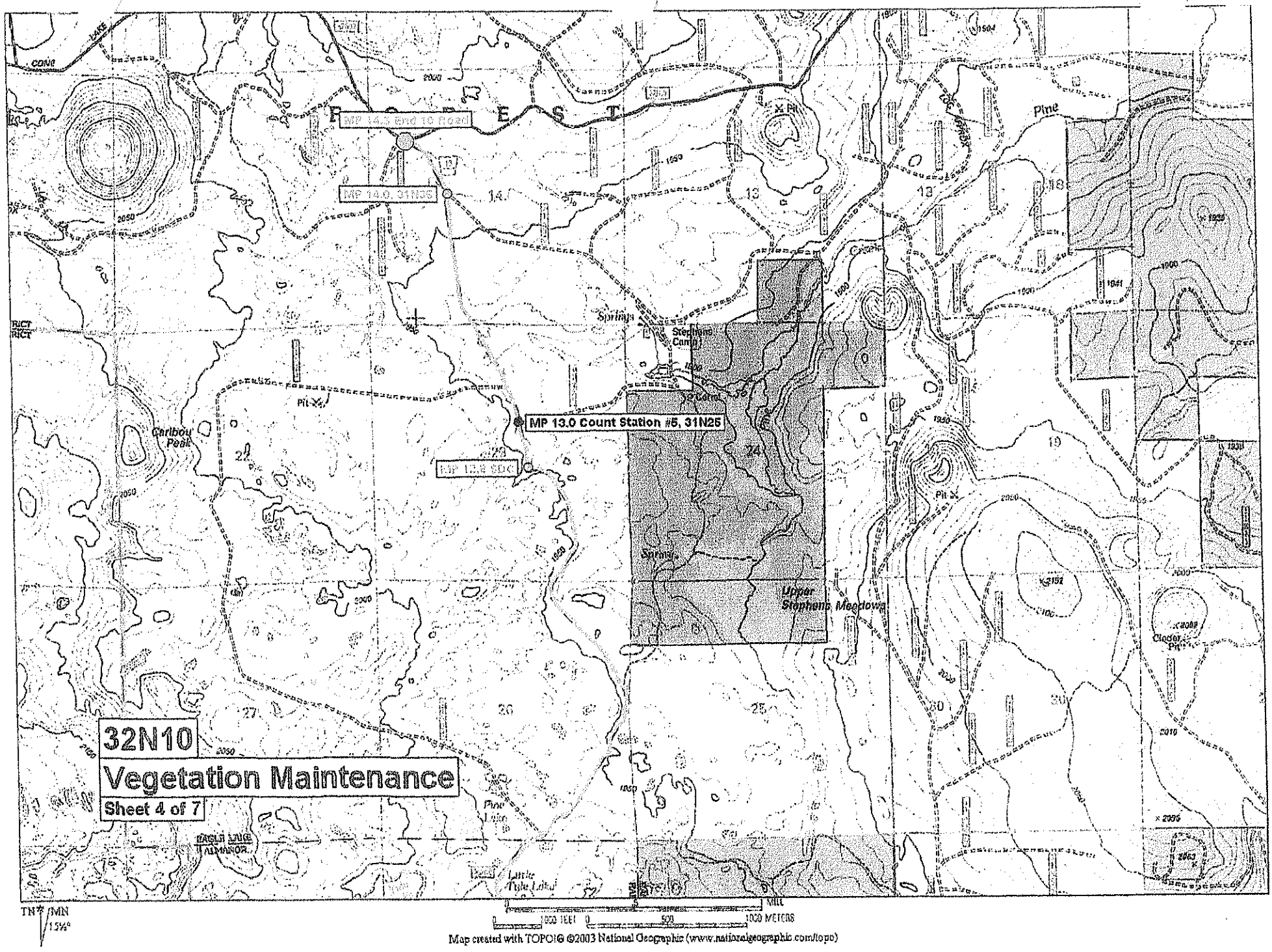
Season of Use June - November Surface Cinders % Street Legal 88 % Non-Street Legal 12

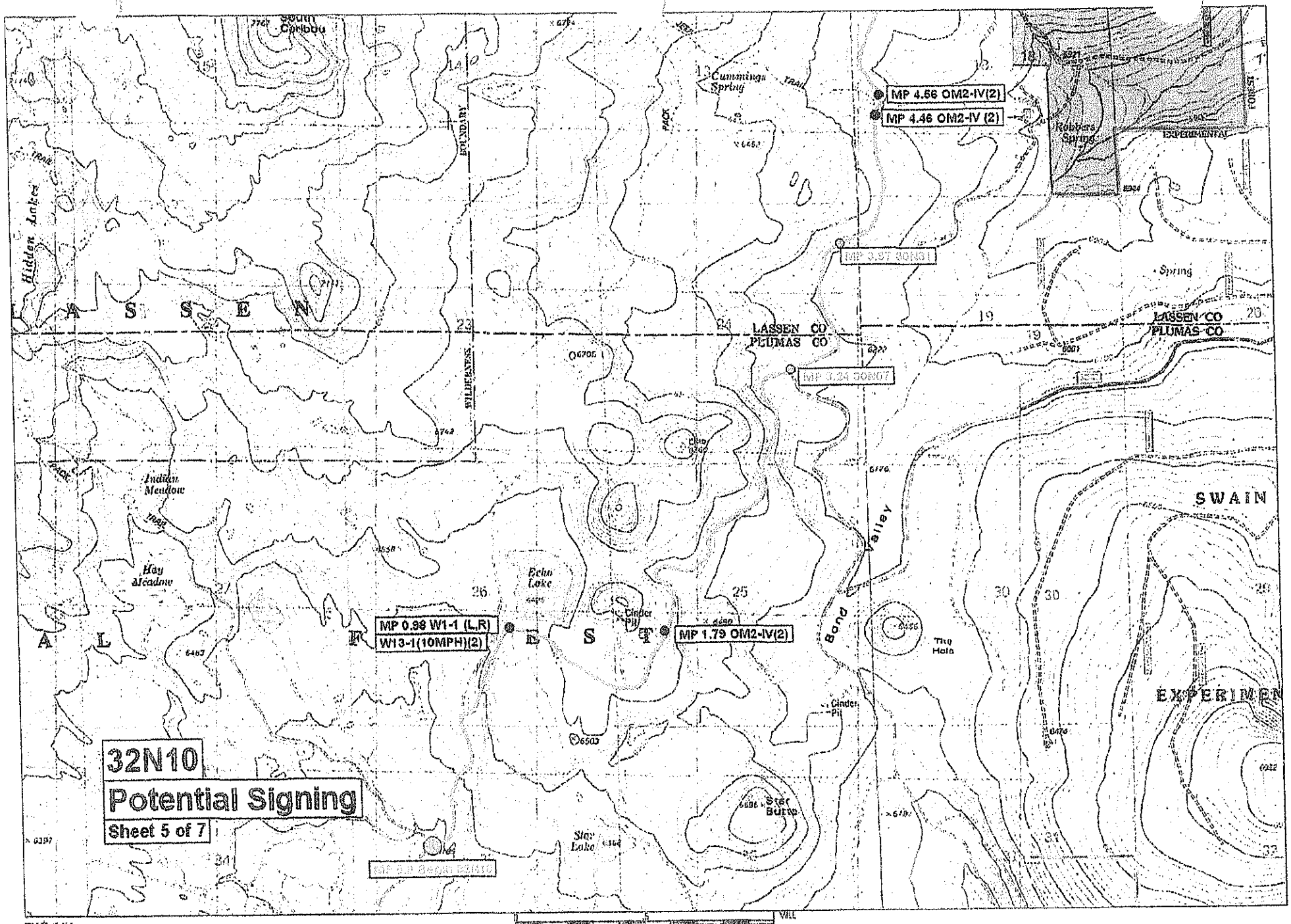
SHARED USE RECOMMENDATION YES
Yes or No

*Mitigation opportunities by milepost, or other pertinent information on following page(s).


32N10
Vegetation Management
Sheet 2 of 7
MP 0.02 Count Station #3
MP 3.37, 30N01
MP 3.24, 30N07
LASSEN CO
PLUMAS CO
LASSEN
NATIONAL FOREST
South Caribou
Cummings Spring
Robbers Spring
Hidden Lakes
Indian Meadow
Hay Meadow
Echo Lake
Cinder Pit
Bond Valley
The Hole
Burro
Spring
TRAIL
PACK
BOUNDARY
WILDERNESS
TN 15½° MN
1 MILE
1000 FEET
500
1000 METERS
Map created with TOPO!® ©2003 National Geographic (www.nationalgeographic.com/topo)


32N10
Vegetation Maintenance
Sheet 3 of 7
MP 8.05 Count Station #4
Silver Lake
Copper Swamp
Emerald Lake
Cypress Lake
Rim Lake
Gem Lake
Eleanor Lake
Little Tyde Lake
Earth Dam
Rocky Knoll Campground
Springs
Betty Lake
Shotovern Lake
Trail Lake
North Caribou
South Caribou
WILDERNESS
TRAIL
PACK
SILVER
ROAD
LAKE
BOUNDARY
TN 1/MN 15½°
1000 FEET
1000 METERS
Map created with TOPO!® ©2003 National Geographic (www.nationalgeographic.com/topo)


32N10
Vegetation Maintenance
Sheet 4 of 7
MP 14.3 End 10 Road
MP 14.0 31N25
MP 13.0 Count Station #5, 31N25
MP 12.6 10X
Caribou Peak
Stephens Camp
Upper Stephens Meadows
Springs
Pit
Pine
Closer Pit
Little Tyler Lake
EAGLE LAKE ALLMANOR
TN 15½°
MN
0 1000 FEET 0 500 1000 METERS
Map created with TOPO!© ©2003 National Geographic (www.nationalgeographic.com/topo)

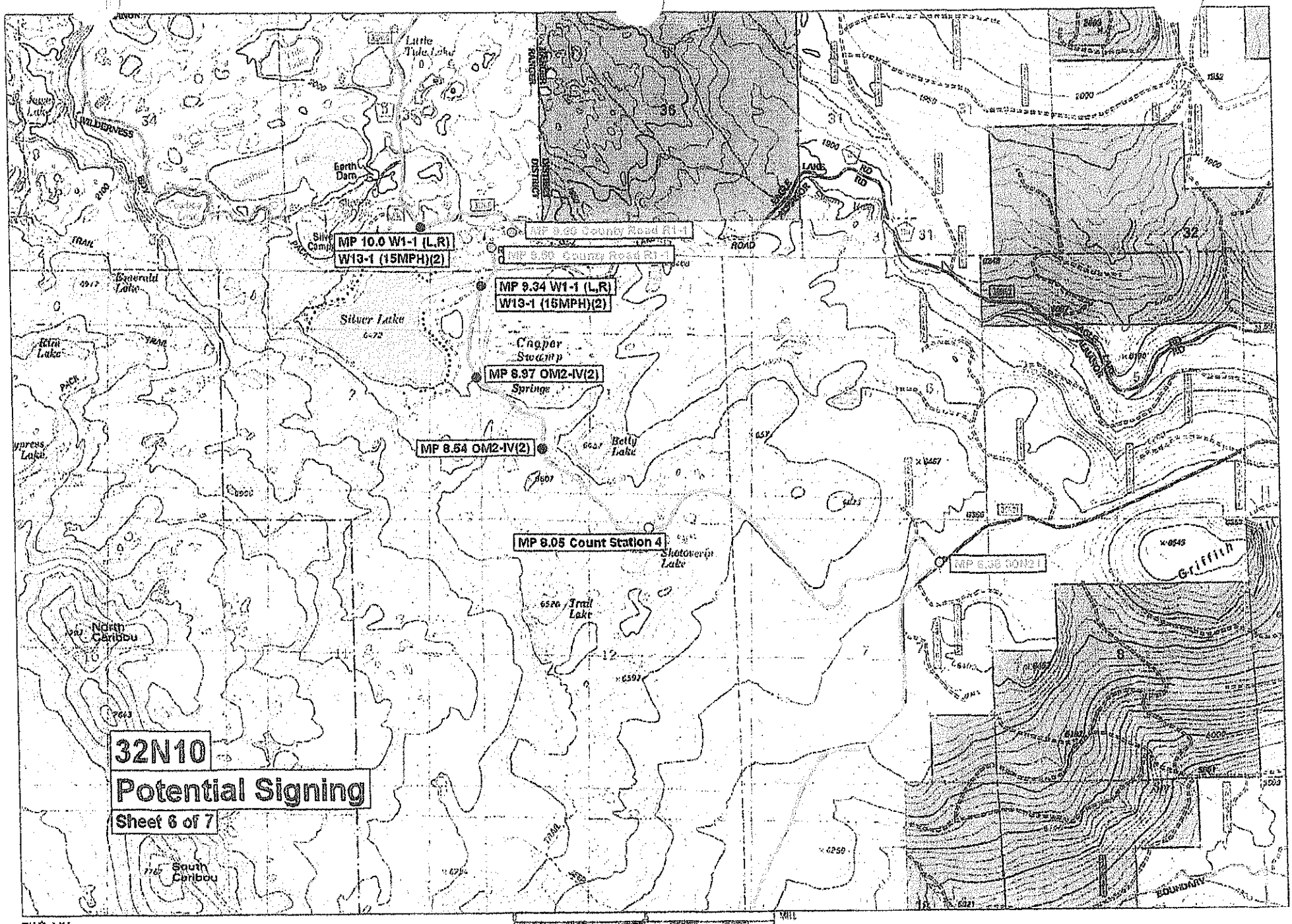


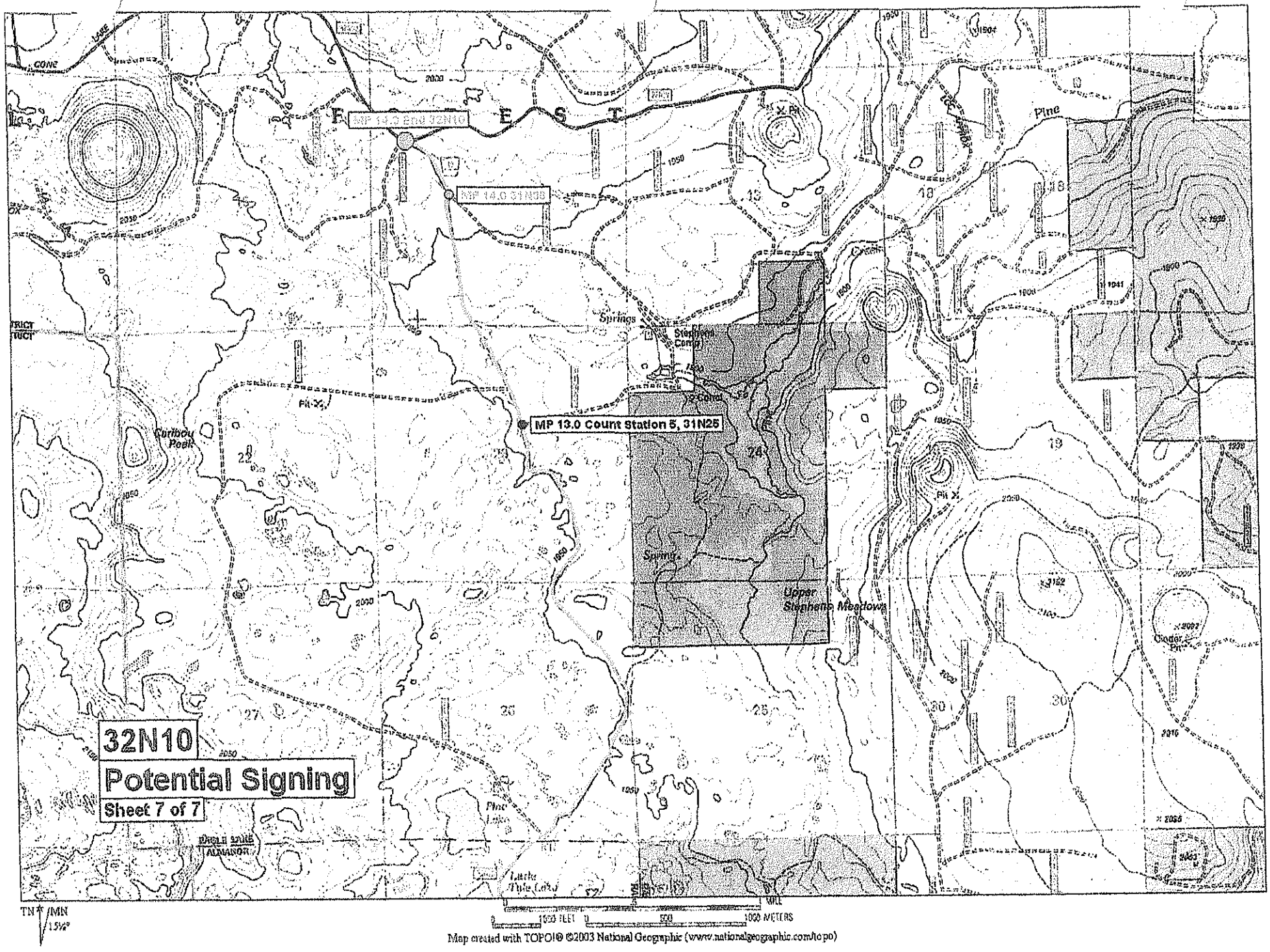
32N10

Potential Signing

Sheet 5 of 7

Map created with TOPO!® ©2003 National Geographic (www.nationalgeographic.com/topo)


MP 10.0 W1-1 (L,R)
W13-1 (15MPH)(2)
MP 9.60 County Road R1-1
MP 9.00 County Road R1-1
MP 9.34 W1-1 (L,R)
W13-1 (15MPH)(2)
MP 8.97 OM2-IV(2)
MP 8.54 OM2-IV(2)
MP 8.05 Count Station 4
MP 8.36 OM2-I
Little Tide Lake
Earth Dam
Silver Camp
Emerald Lake
Silver Lake
Copper Swamp
Spring
Betty Lake
Shotoverin Lake
Trail Lake
Griffith
North Caribou
South Caribou
WILDERNESS
TRAIL
ROAD
BOUNDARY
32N10
Potential Signing
Sheet 6 of 7
TN MN
1000 FEET
500
1000 METERS
Map created with TOPO!® ©2003 National Geographic (www.nationalgeographic.com/topo)


32N10
Potential Signing
Sheet 7 of 7
MP 13.0 Count Station 5, 31N25
MP 14.0 31N05
Caribou Pool
Upper Stephens Meadows
Springs
Stephens Camp
Pine
Cinder Pit
Little Pine Lake
TN
MN
15½°
1500 FEET
500
1000 METERS
Map created with TOPO! © 2003 National Geographic (www.nationalgeographic.com/topo)

Traffic Engineer Shared Use Assessment Lassen National Forest Summer 2005

Road Number 32N09 BCDT Segment Number 14 Length 7.73 Sheet 1 of 5

Maint. Level: Objective 3 Operational 3 Observed June–August 2005 2 Functional Class C Service Level B

Probability of an Accident	Benchmark Rankings		Summary 2005 Observations	Assessed Rankings		
	High	Low		H	M	L
Crash History	Several Crashes	None Known	None Known			L
Average Daily Traffic (ADT)	>150	30 or less	Count Sta. 5, 11.19			L
User Knowledge	Not Acquainted	Well Acquainted	Unknown		M	
Average Speed (MPH)	>40	25 or less	20			L
Cross Section Changes	Changes	None Abrupt	None Abrupt			L
Surface Type Changes	Changes	No changes	None			L
Curvature	Abrupt	Smooth	Smooth *			L
Road Widths (Feet)	Variable	Uniform	Basically Uniform @ 15' *			L

Overall Probability Assessed Ranking Low

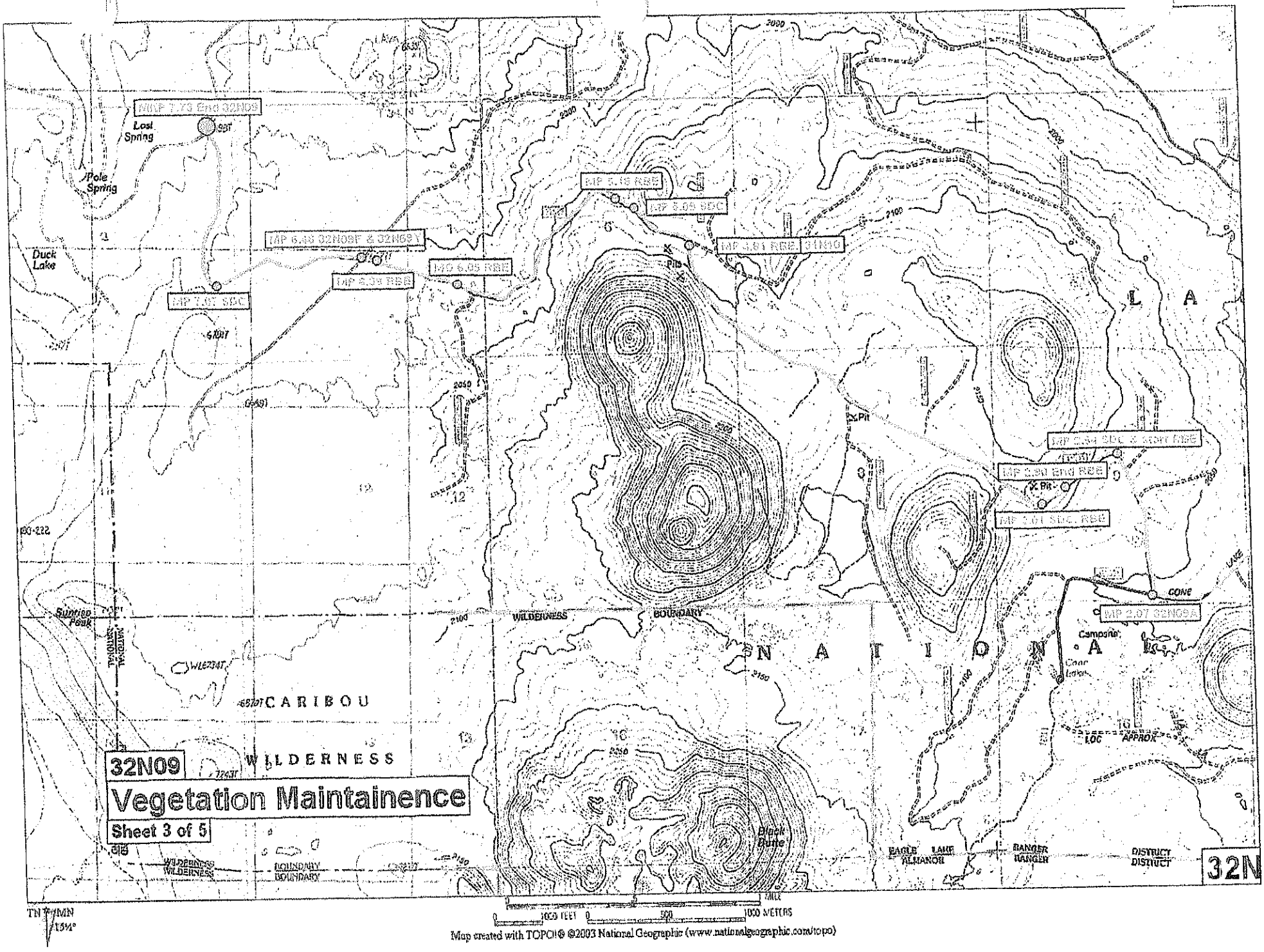
Severity of an Accident	Benchmark Rankings		Summary 2005 Observations	Assessed Rankings		
	High	Low		H	M	L
Average Speed (MPH)	>40	25 or Less	20			L
Clearance from Hazards	Little or none	Adequate	Adequate *			L
Alignment & Sight Distance	Poor	Adequate	Adequate *			L
Roadway Gradient	>12%	<12%	<12%			L
Downhill Side Slopes	>60%	<40%	<40%			L
Radical Speed Changes	Many	Few	Few *			L
Multi-passenger Vehicles	Buses	Cars, SUVs	Cars, SUVs			L

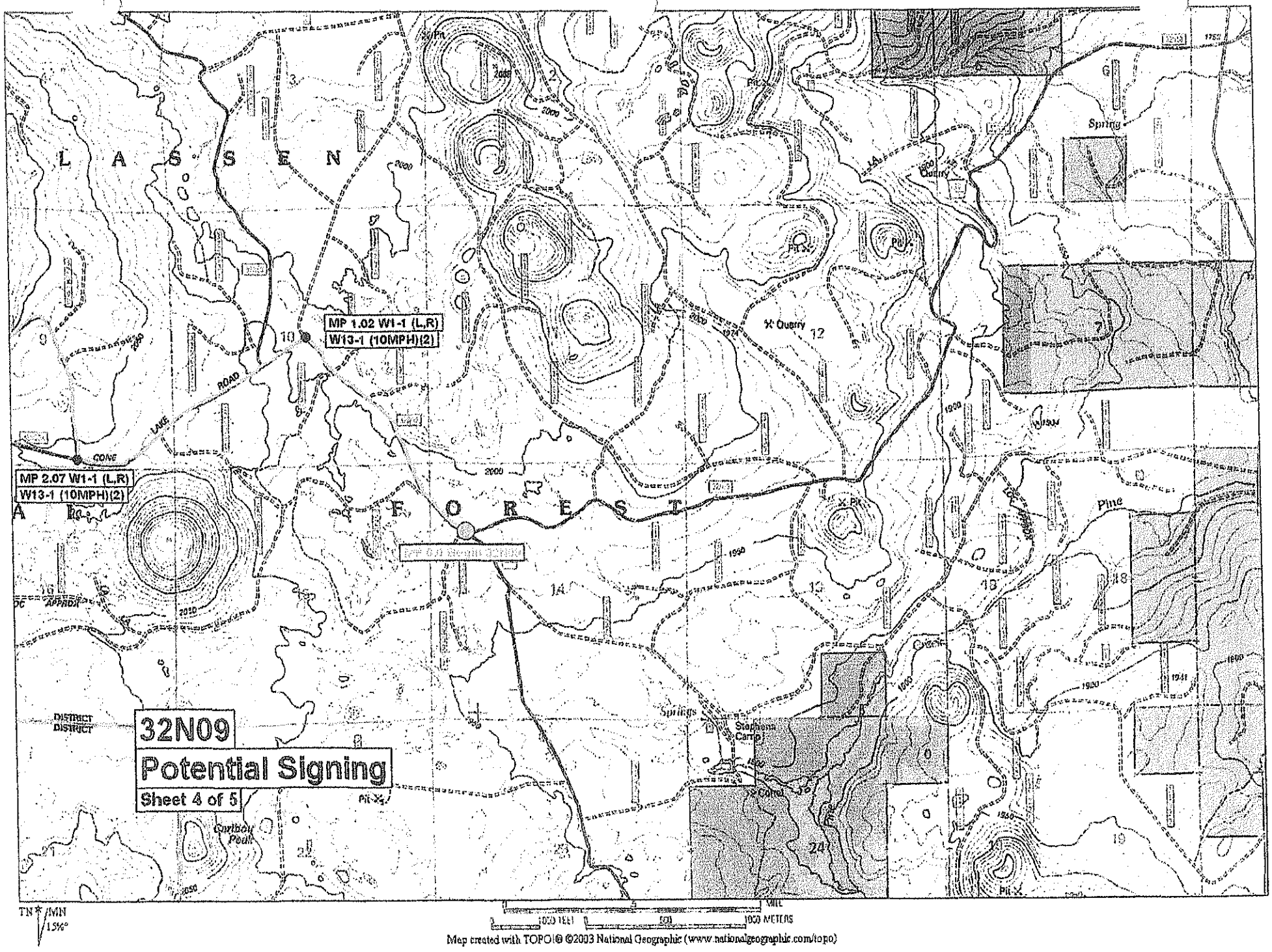
Overall Severity Assessed Ranking Low

Season of Use June - November Surface Cinders % Street Legal 87 % Non-Street Legal 13

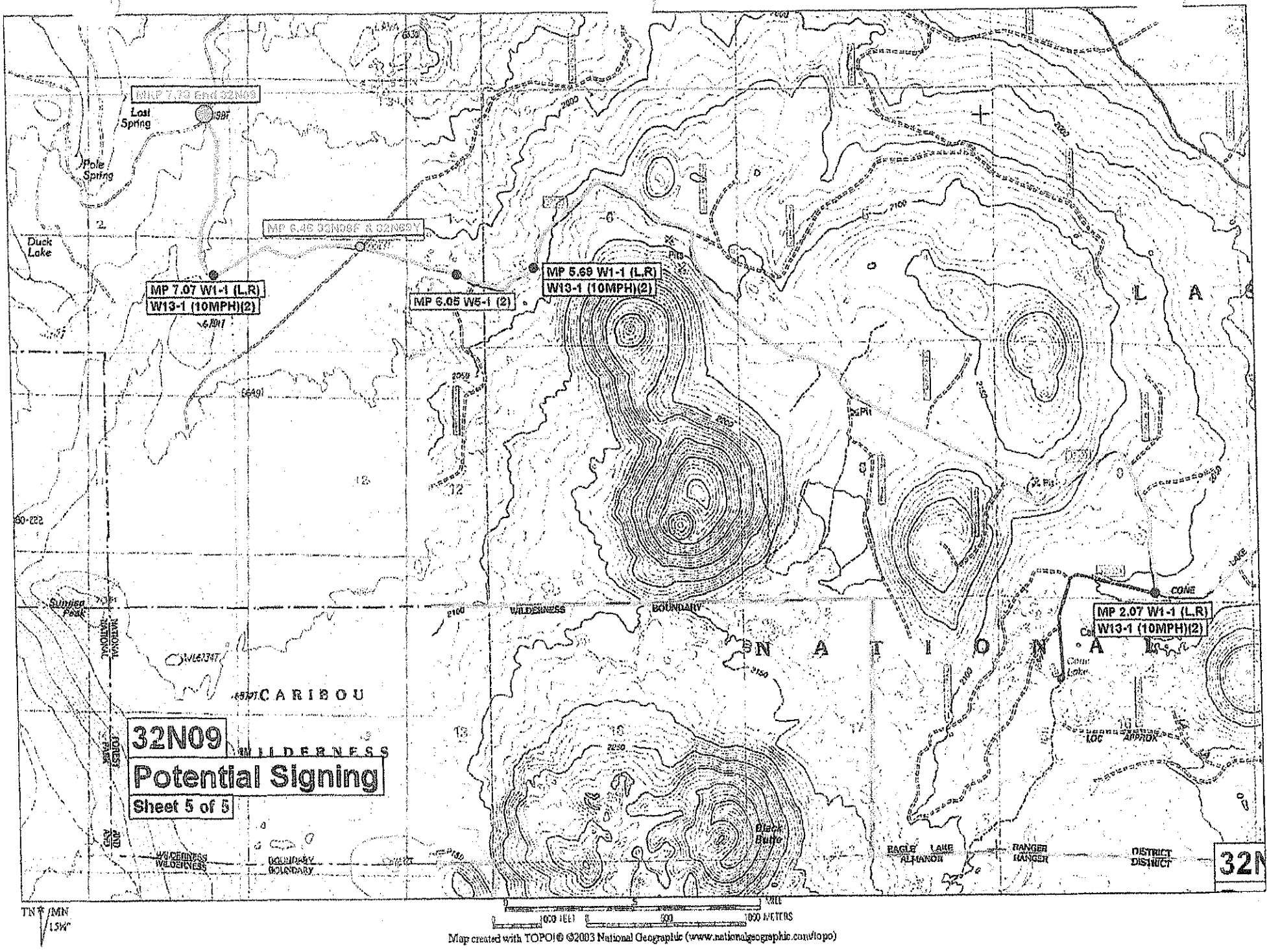
SHARED USE RECOMMENDATION Yes
Yes or No

*Mitigation opportunities by milepost, or other pertinent information on following page(s).


32N09
Vegetation Maintainence
Sheet 3 of 5
Lost Spring
Pole Spring
Duck Lake
Sunrise Peak
CARIBOU
WILDERNESS
BOUNDARY
NATIONAL
Black Butte
Campsite
Coar Lake
CONE
LOC
APPROX
EAGLE LAKE
ALMANOR
RANGER
DISTRICT
32N
TN 7°MN
15½°
1000 FEET
500
1000 METERS
Map created with TOPO!® ©2003 National Geographic (www.nationalgeographic.com/topo)



Map created with TOPO!® ©2003 National Geographic (www.nationalgeographic.com/topo)


MP 7.07 W1-1 (L,R)
W13-1 (10MPH)(2)
MP 6.05 W5-1 (2)
MP 5.69 W1-1 (L,R)
W13-1 (10MPH)(2)
MP 2.07 W1-1 (L,R)
W13-1 (10MPH)(2)
32N09
Potential Signing
Sheet 5 of 5
Lost Spring
Pole Spring
Duck Lake
Sunset Peak
CARIBOU
WILDERNESS
BOUNDARY
NATIONAL
FOREST
Black Butte
CONE
LOC
APPROX
EAGLE LAKE
ALTAMONT
RANGER
DISTRICT
32N
TN
MN
15W
1000 FEET
500
1000 METERS
Map created with TOPO! © ©2003 National Geographic (www.nationalgeographic.com/topo)

Traffic Engineer Shared Use Assessment ..ssen National Forest Summer 2005

Road Number 32N21 BCDT Segment Number 15 Length 0.36 Sheet 1 of 3

Maint. Level: Objective 3 Operational 3 Observed June–August 2005 3 Functional Class C Service Level B

Probability of an Accident	Benchmark Rankings		Summary 2005 Observations	Assessed Rankings		
	High	Low		H	M	L
Crash History	Several Crashes	None Known	None Known			L
Average Daily Traffic (ADT)	>150	30 or less	Butte Lake Rd No count Est +/- 30			L
User Knowl	cquainted	Well Acquainted	Unknown		M	
Average Sp		25 or less	20			L
Cross Secti	ges	None Abrupt	None Abrupt			L
Surface Typ	ges	No changes	None			L
Curvature	ot	Smooth	Smooth			L
Road Widths (feet)	..mble	Uniform	Uniform @ 24'			L

Per LUNP
ADT June – Aug
25

Overall Probability Assessed Ranking Low

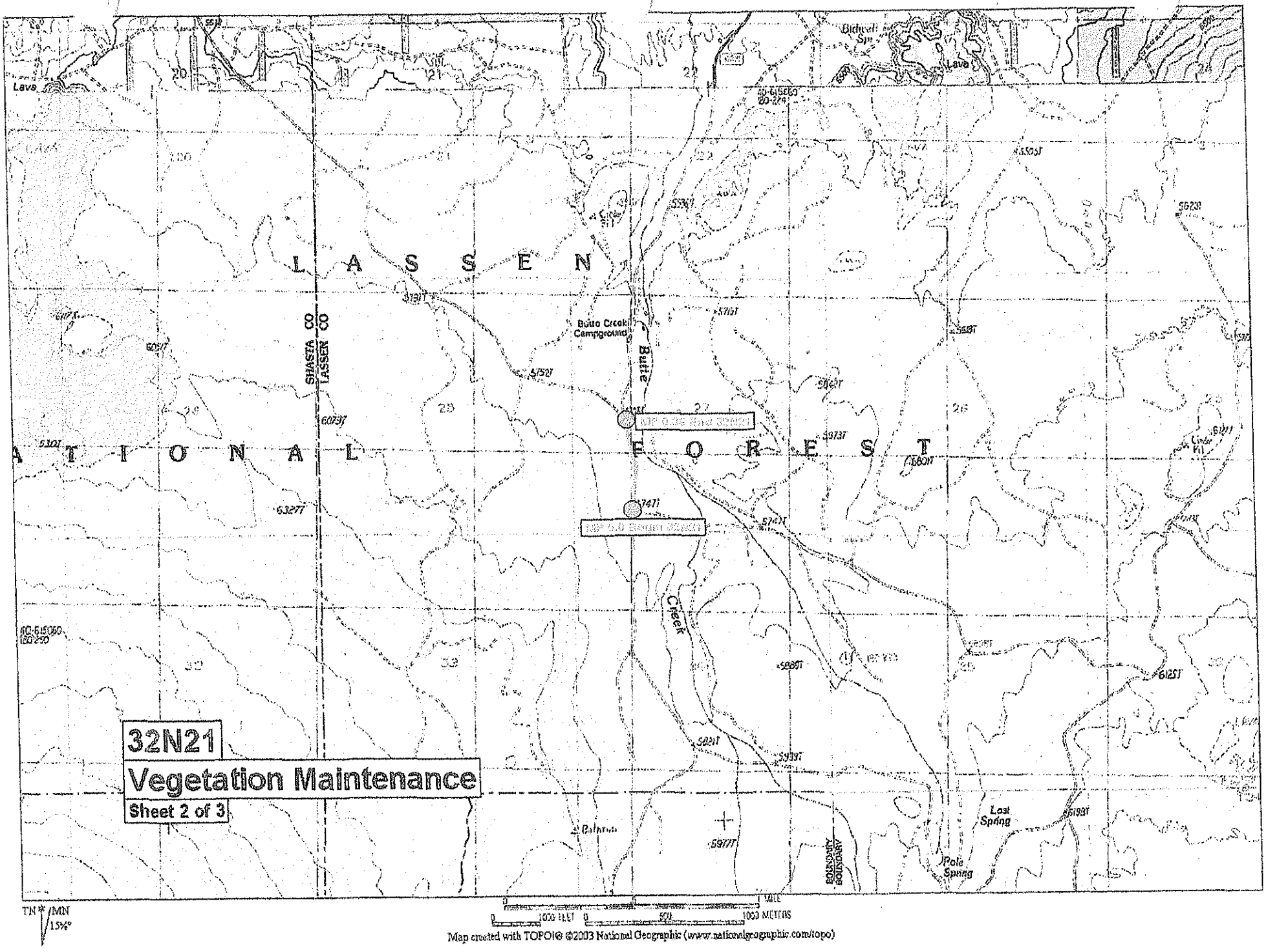
Severity of an Accident	Benchmark Rankings		Summary 2005 Observations	Assessed Rankings		
	High	Low		H	M	L
Average Speed (MPH)	>40	25 or Less	20			L
Clearance from Hazards	Little or none	Adequate	Adequate			L
Alignment & Sight Distance	Poor	Adequate	Adequate			L
Roadway Gradient	>12%	<12%	<12%			L
Downhill Side Slopes	>60%	<40%	<40%			L
Radical Speed Changes	Many	Few	Few (None)			L
Multi-passenger Vehicles	Buses	Cars, SUVs	Cars, SUVs			L

Overall Severity Assessed Ranking Low

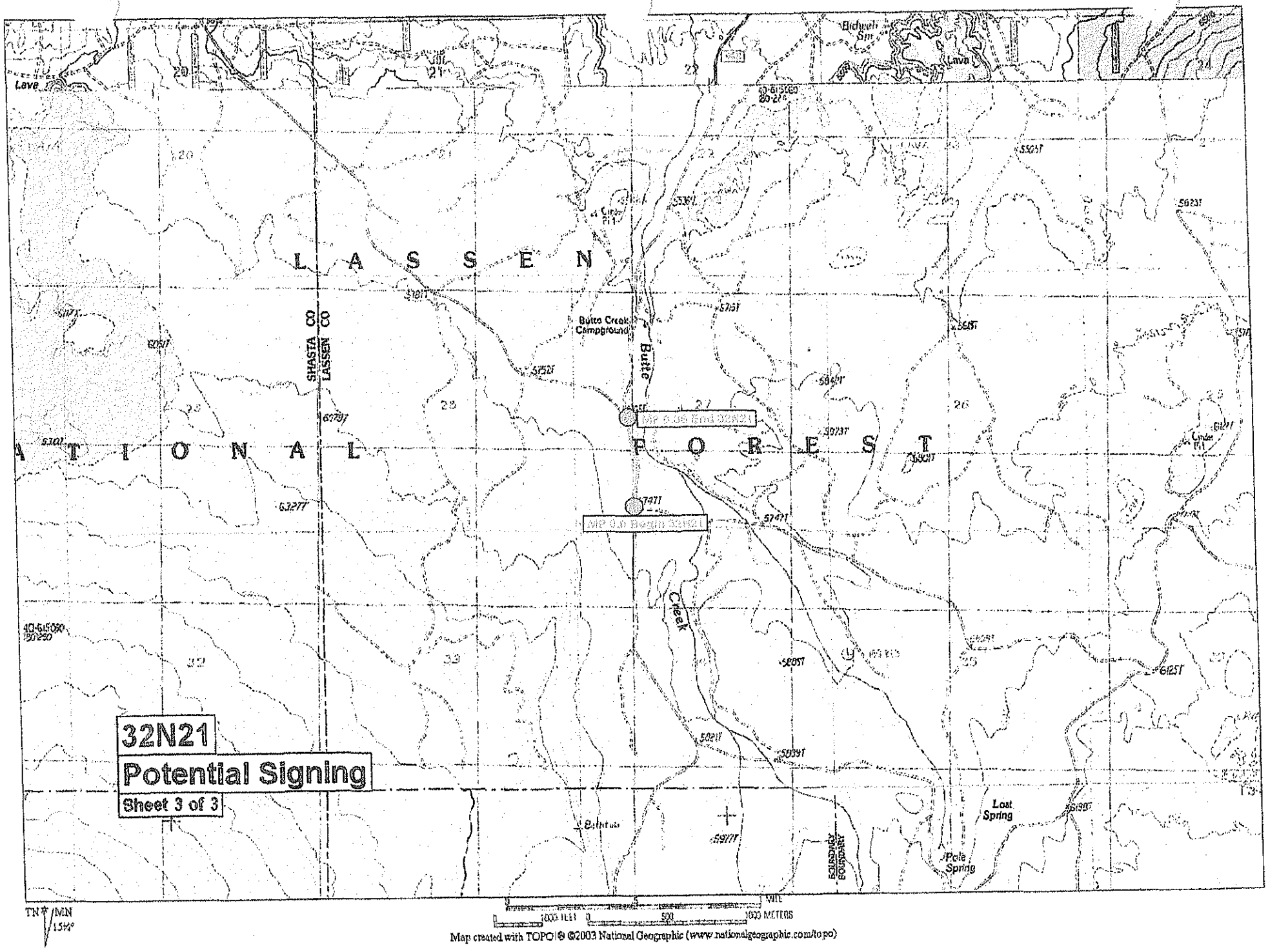
Season of Use May - November Surface Aggregate % Street Legal Est 95 % Non-Street Legal 5%

SHARED USE RECOMMENDATION YES
Yes or No

*Mitigation opportunities by milepost, or other pertinent information on following page(s).



Map created with TOPO!® ©2003 National Geographic (www.nationalgeographic.com/topo)


32N21
Potential Signing
Sheet 3 of 3
L A S S E N
A T I O N A L
F O R E S T
SHASTA CO
LASSEN CO
Butte Creek Campground
Butte
Creek
MP 0.0 Begin 32N21
Lost Spring
Pole Spring
Lava
TN
MN
15½°
1000 FEET
500
1000 METERS
Map created with TOPO! © ©2003 National Geographic (www.nationalgeographic.com/topo)

Traffic Engineer Shared Use Assessment ssen National Forest **Summer 2005**

Road Number 32N12 BCDT Segment Number 19 Length 0.24 Sheet 1 of 3

Maint. Level: Objective 3 Operational 3 Observed June–August 2005 2 Functional Class L Service Level B

Probability of an Accident	Benchmark Rankings		Summary 2005 Observations	Assessed Rankings		
	High	Low		H	M	L
Crash History	Several Crashes	None Known	None Known			L
Average Daily Traffic (ADT)	>150	30 or less	Average Stn. (8+9) 16.17			L
User Knowledge	Not Acquainted	Well Acquainted	Unknown		M	
Average Speed (MPH)	>40	25 or less	10			L
Cross Section Changes	Changes	None Abrupt	None Abrupt			L
Surface Type Changes	Changes	No changes	None			L
Curvature	Abrupt	Smooth	Smooth *			L
Road Widths (Feet)	Variable	Uniform	Uniform @ 14. *			L

Overall Probability Assessed Ranking Low

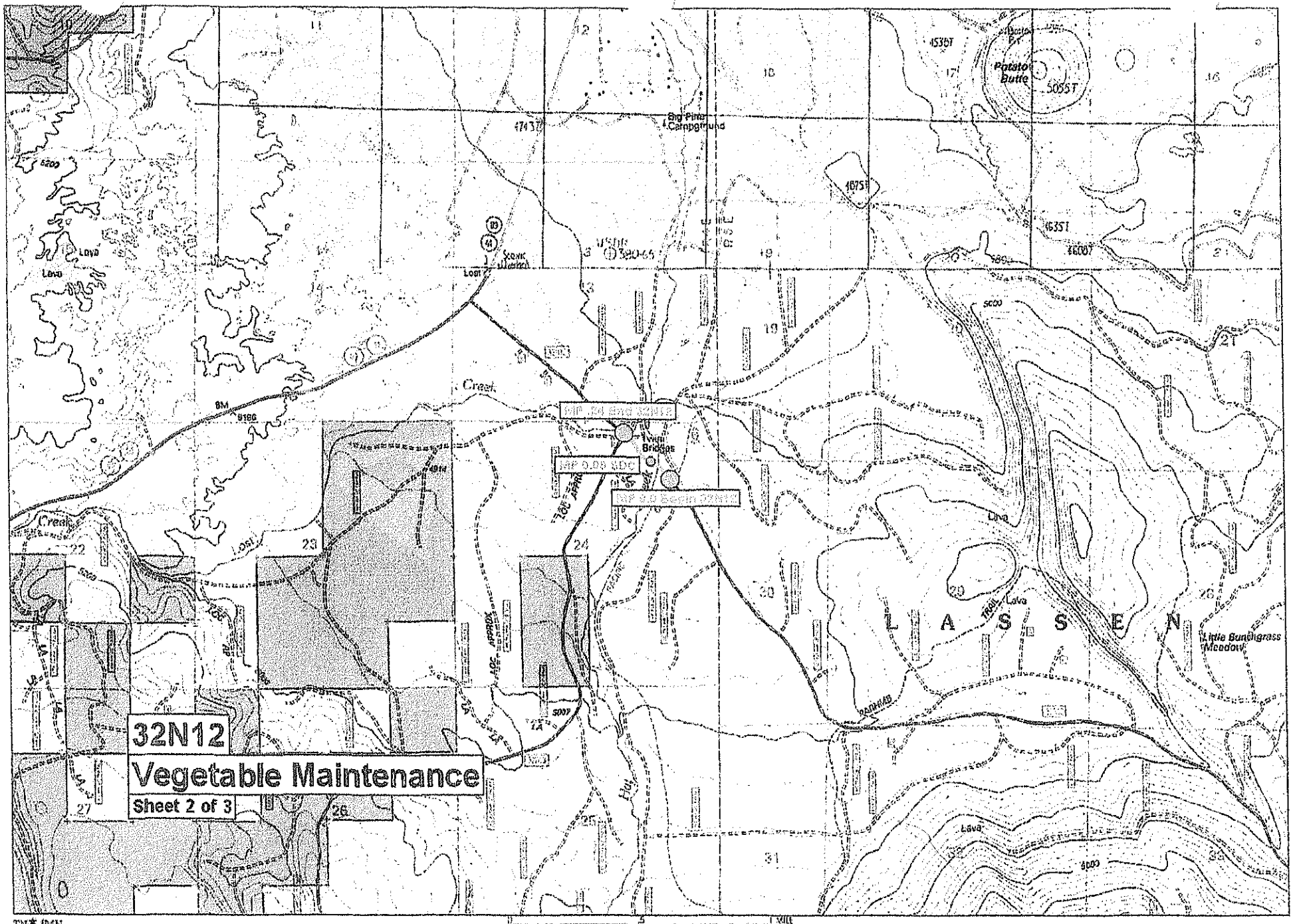
Severity of an Accident	Benchmark Rankings		Summary 2005 Observations	Assessed Rankings		
	High	Low		H	M	L
Average Speed (MPH)	>40	25 or Less	10			L
Clearance from Hazards	Little or none	Adequate	Adequate *			L
Alignment & Sight Distance	Poor	Adequate	Adequate *			L
Roadway Gradient	>12%	<12%	<12%			L
Downhill Side Slopes	>60%	<40%	<40% (8-10)			L
Radical Speed Changes	Many	Few	Few (None)			L
Multi-passenger Vehicles	Buses	Cars, SUVs	Cars, SUV's			L

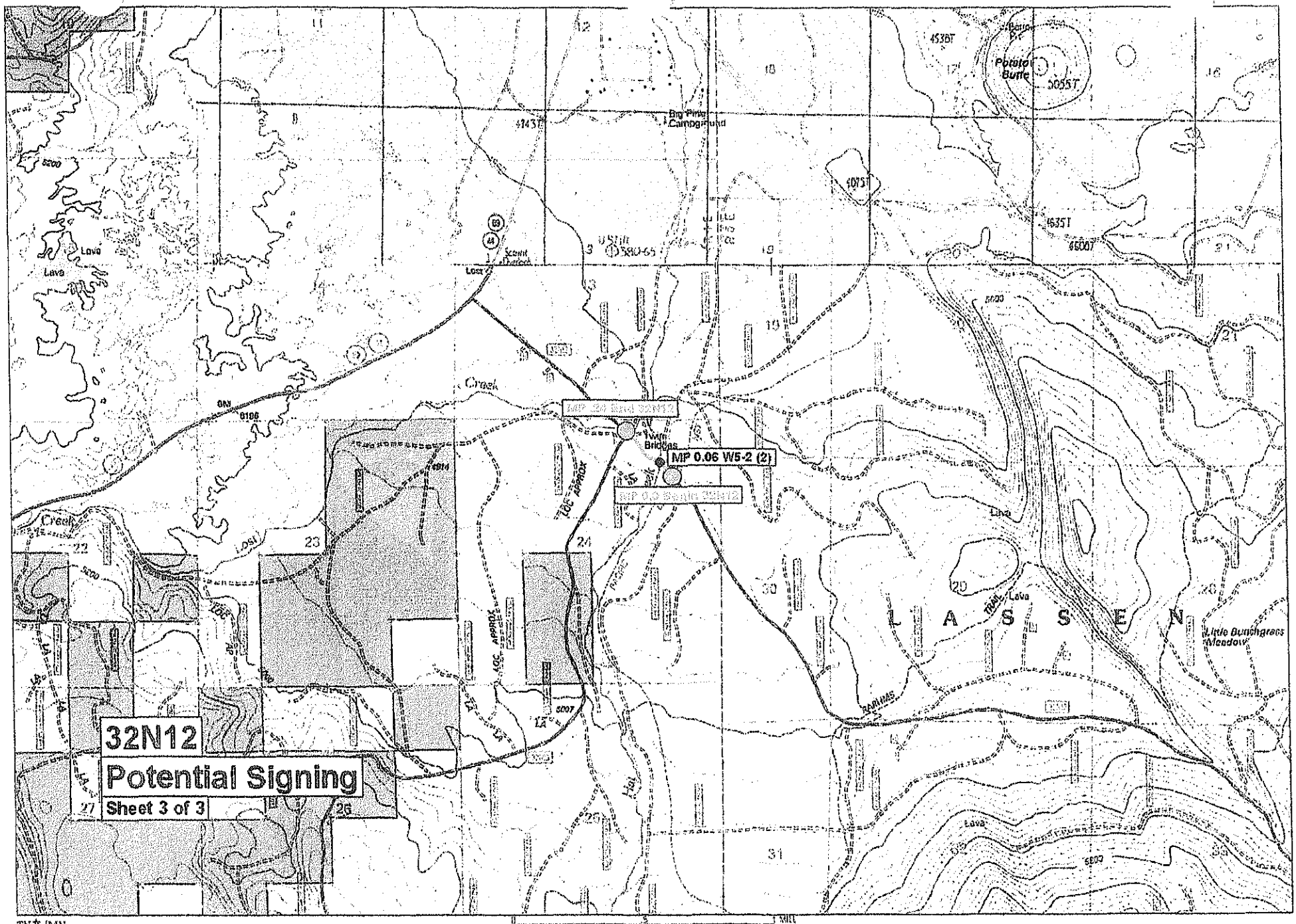
Overall Severity Assessed Ranking Low

Season of Use May-November Surface Cinders % Street Legal 83 % Non-Street Legal 17

SHARED USE RECOMMENDATION YES
Yes or No

*Mitigation opportunities by milepost, or other pertinent information on following page(s).


32N12
Vegetable Maintenance
Sheet 2 of 3
Potato Butte
Big Pine Campground
Twin Bridges
L A S S E N
Little Bunchgrass Meadow
Creek
Lava
TN 16°
MN
1000 FEET
500
1000 METERS
Map created with TOPO!© ©2003 National Geographic (www.nationalgeographic.com/topo)


32N12
Potential Signing
Sheet 3 of 3
MP 0.06 W5-2 (2)
Potato Butte
Big Pine Campground
Twin Bridges
Little Bunchgrass Meadow
L A S S E N
Lava
Creek
TOC APPROX
LOC APPROX
TRAIL
TRAILHEAD
TN 7°/MN 16°
1000 FEET
500
1000 METERS
Map created with TOPO! © ©2003 National Geographic (www.nationalgeographic.com/topo)

Traffic Engineer Shared Use Assessment ...sen National Forest **Summer 2005**

Road Number 32N13 BCDT Segment Number 19 Length 7.49 Sheet 1 of 5

Maint. Level: Objective 2 Operational 3 Observed June–August 2005 2 [Signed as level 2] Functional Class L Service Level C

Probability of an Accident	Benchmark Rankings		Summary 2005 Observations	Assessed Rankings		
	High	Low		H	M	L
Crash History	Several Crashes	None Known	None Known			L
Average Daily Traffic (ADT)	>150	30 or less	Average Sta (8.9) 16.17			L
User Knowledge	Not Acquainted	Well Acquainted	Unknown		M	
Average Speed (MPH)	>40	25 or less	20			L
Cross Section Changes	Changes	None Abrupt	None Abrupt			L
Surface Type Changes	Changes	No changes	None			L
Curvature	Abrupt	Smooth	Smooth			L
Road Widths (Feet)	Variable	Uniform	Uniform @ 16' *			L

Overall Probability Assessed Ranking Low

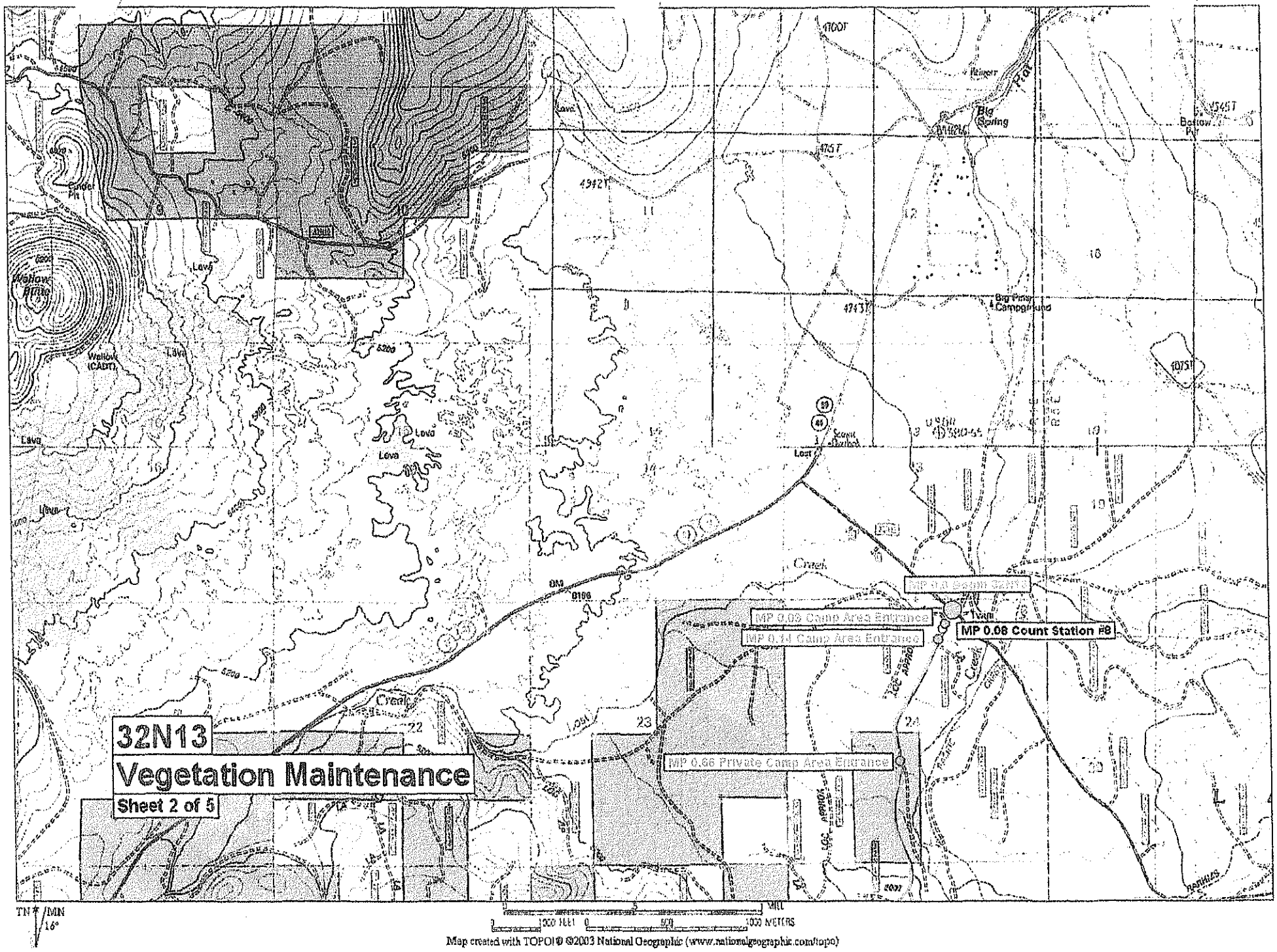
Severity of an Accident	Benchmark Rankings		Summary 2005 Observations	Assessed Rankings		
	High	Low		H	M	L
Average Speed (MPH)	>40	25 or Less	20			L
Clearance from Hazards	Little or none	Adequate	Adequate *			L
Alignment & Sight Distance	Poor	Adequate	Adequate *			L
Roadway Gradient	>12%	<12%	<12%			L
Downhill Side Slopes	>60%	<40%	<40%			L
Radical Speed Changes	Many	Few	Few			L
Multi-passenger Vehicles	Buses	Cars, SUVs	Cars, SUVs			L

Overall Severity Assessed Ranking Low

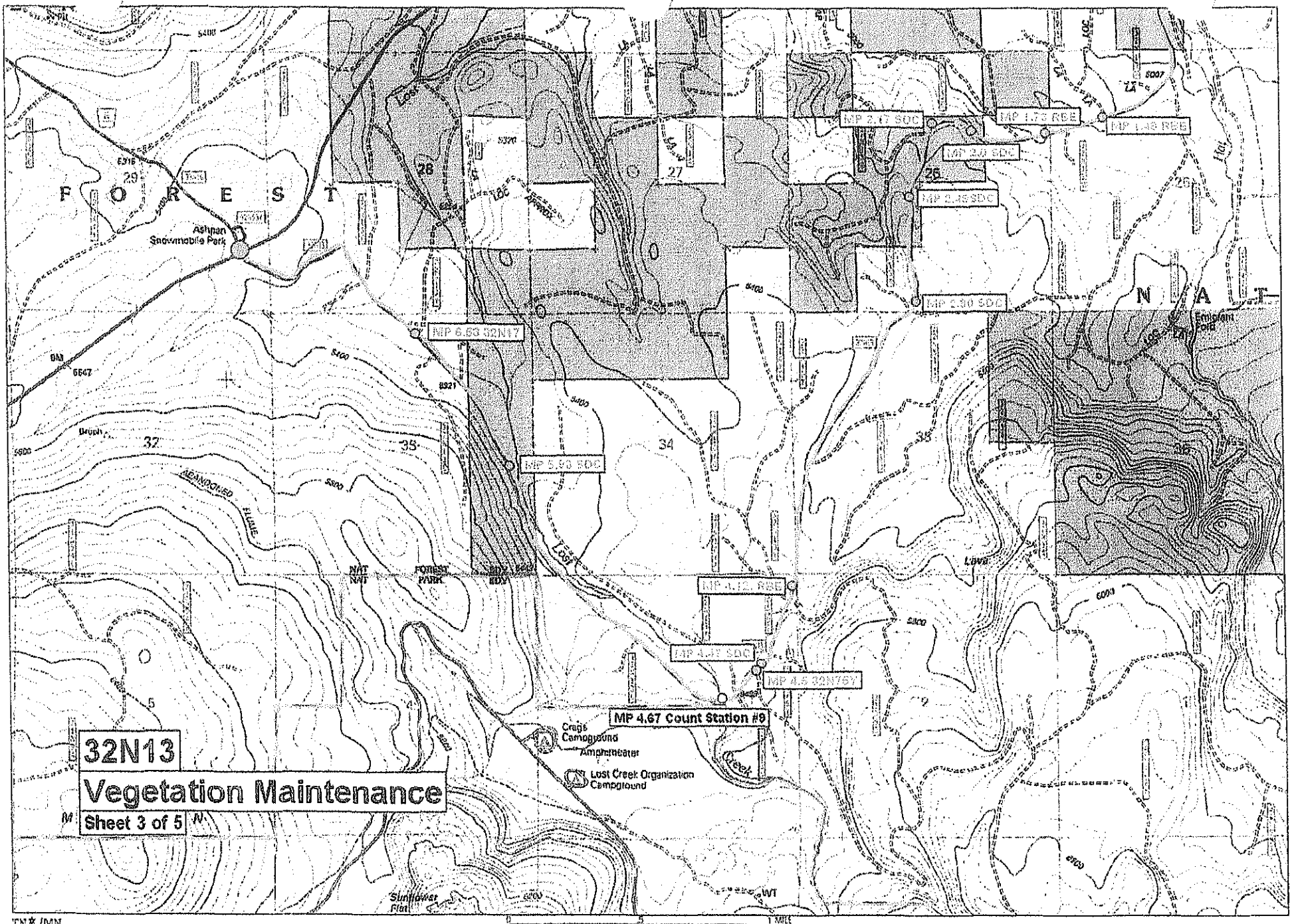
Season of Use May - November Surface Cinders % Street Legal 83 % Non-Street Legal 17

SHARED USE RECOMMENDATION YES
Yes or No

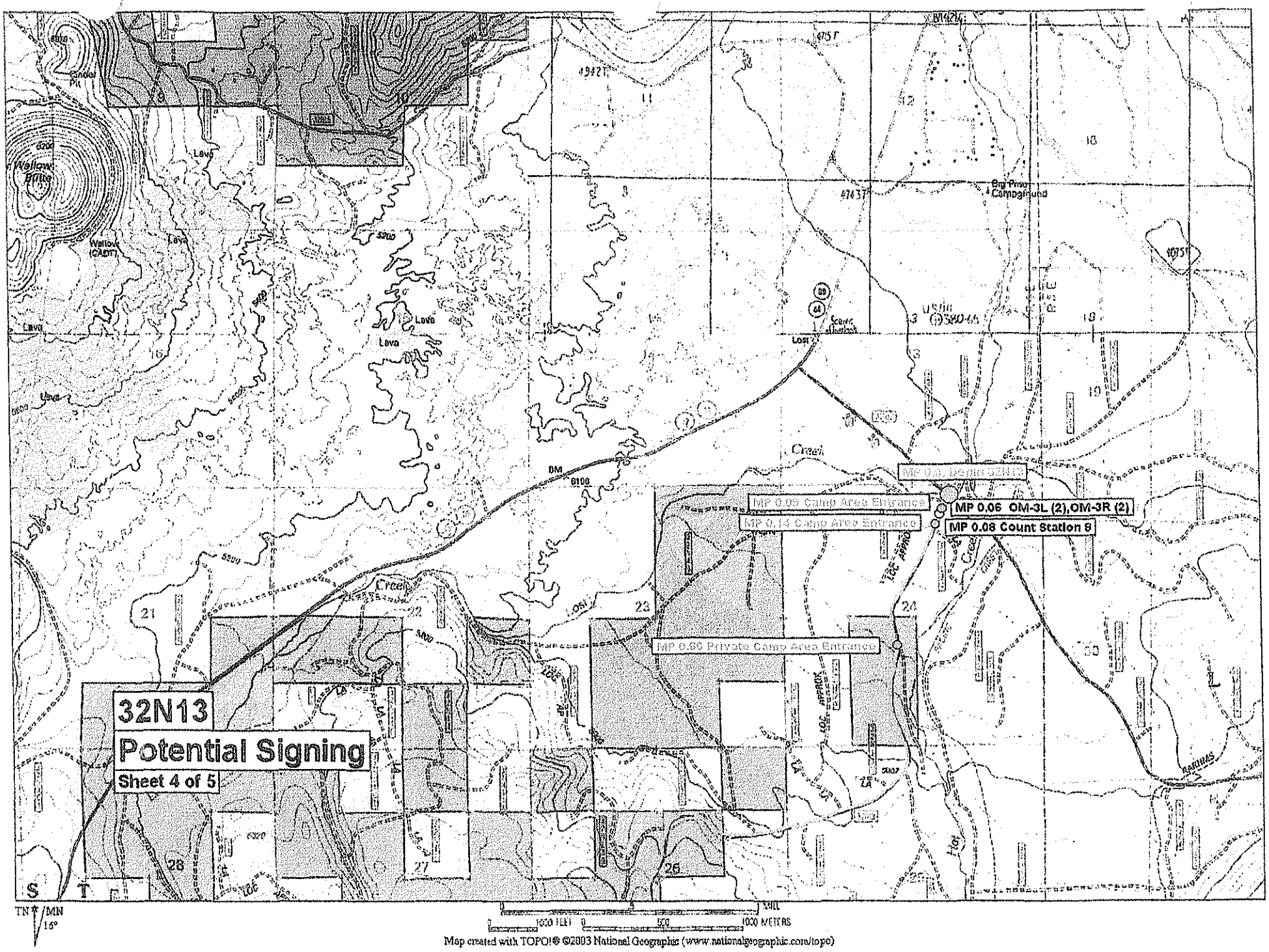
*Mitigation opportunities by milepost, or other pertinent information on following page(s).



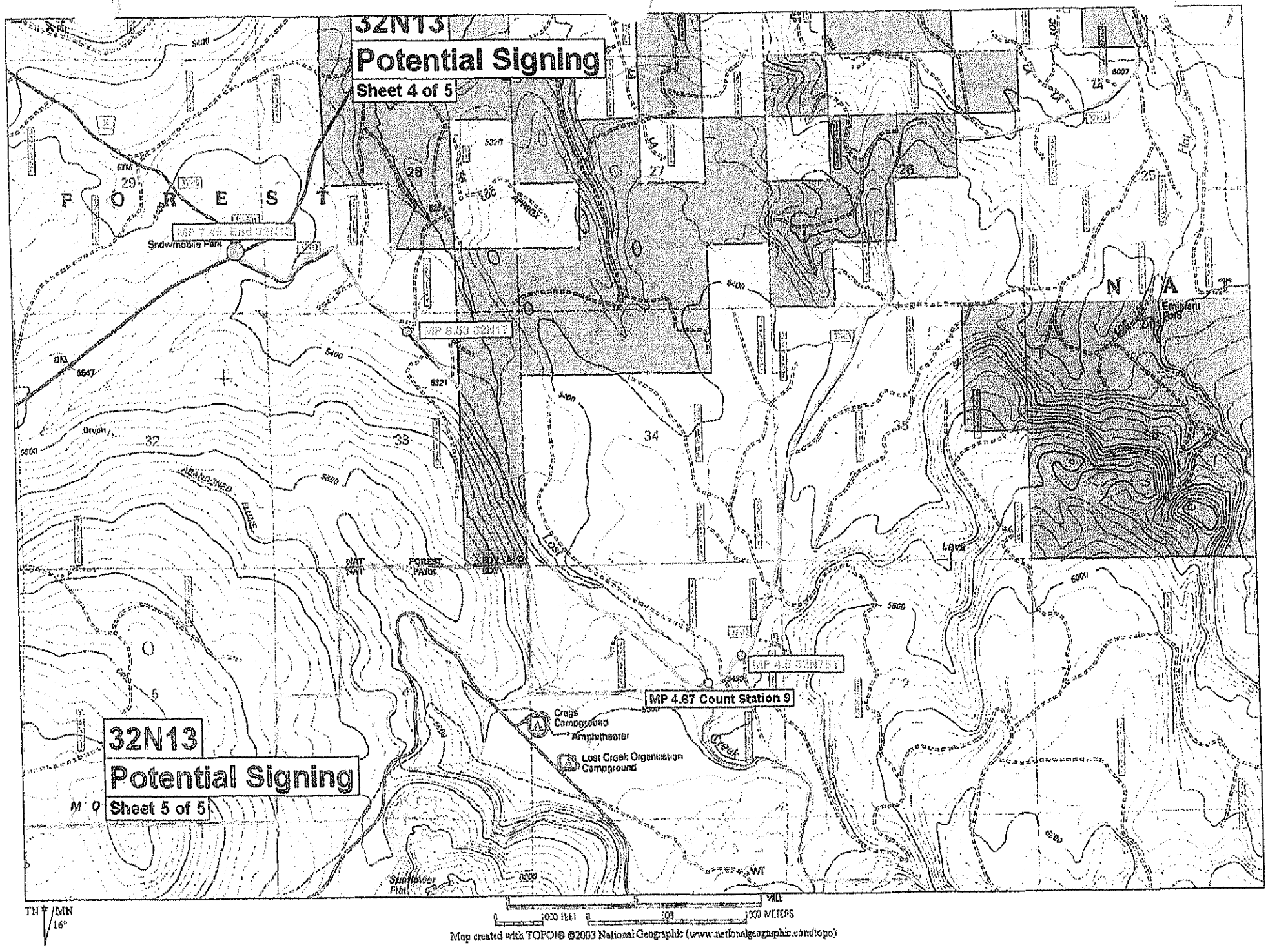
Map created with TOPO!® ©2003 National Geographic (www.nationalgeographic.com/topo)



Map created with TOPO!® ©2003 National Geographic (www.nationalgeographic.com/topo)



Map created with TOPO!® ©2003 National Geographic (www.nationalgeographic.com/topo)



Map created with TOPO!® ©2003 National Geographic (www.nationalgeographic.com/topo)

Traffic Engineer Shared Use Assessment ..ssen National Forest Summer 2005

Road Number 16 (32N16) BCDT Segment Number 2.0 Length 3.40 Sheet 1 of 3

Maint. Level: Objective 4 Operational 3 Observed June-August 2005 2 Functional Class C Service Level B

Probability of an Accident	Benchmark Rankings		Summary 2005 Observations	Assessed Rankings		
	High	Low		H	M	L
Crash History	Several Crashes	None Known	None Known			L
Average Daily Traffic (ADT)	>150	30 or less	Count Sta (10) 13.62			L
User Knowledge	Not Acquainted	Well Acquainted	Unknown		M	
Average Speed (MPH)	>40	25 or less	24			L
Cross Section Changes	Changes	None Abrupt	None Abrupt			L
Surface Type Changes	Changes	No changes	None			L
Curvature	Abrupt	Smooth	Smooth			L
Road Widths (Feet)	Variable	Uniform	Uniform @ 18'			L

Overall Probability Assessed Ranking Low

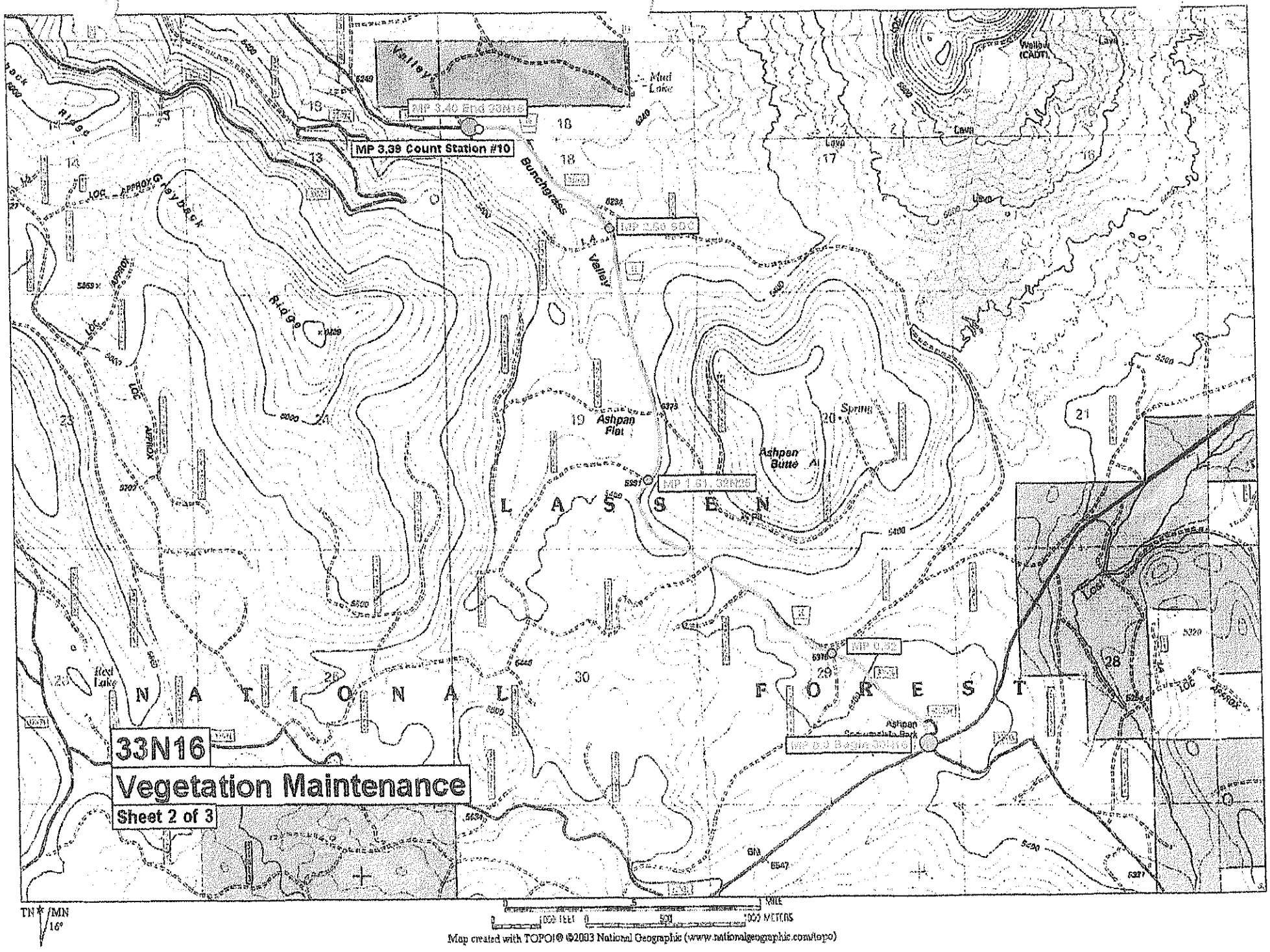
Severity of an Accident	Benchmark Rankings		Summary 2005 Observations	Assessed Rankings		
	High	Low		H	M	L
Average Speed (MPH)	>40	25 or Less	20			L
Clearance from Hazards	Little or none	Adequate	Adequate			L
Alignment & Sight Distance	Poor	Adequate	Adequate *			L
Roadway Gradient	>12%	<12%	<12%			L
Downhill Side Slopes	>60%	<40%	<40			L
Radical Speed Changes	Many	Few	Few (None)			L
Multi-passenger Vehicles	Buses	Cars, SUVs	Cars, SUVs			L

Overall Severity Assessed Ranking Low

Season of Use May-November Surface Cinders % Street Legal 77 % Non-Street Legal 23

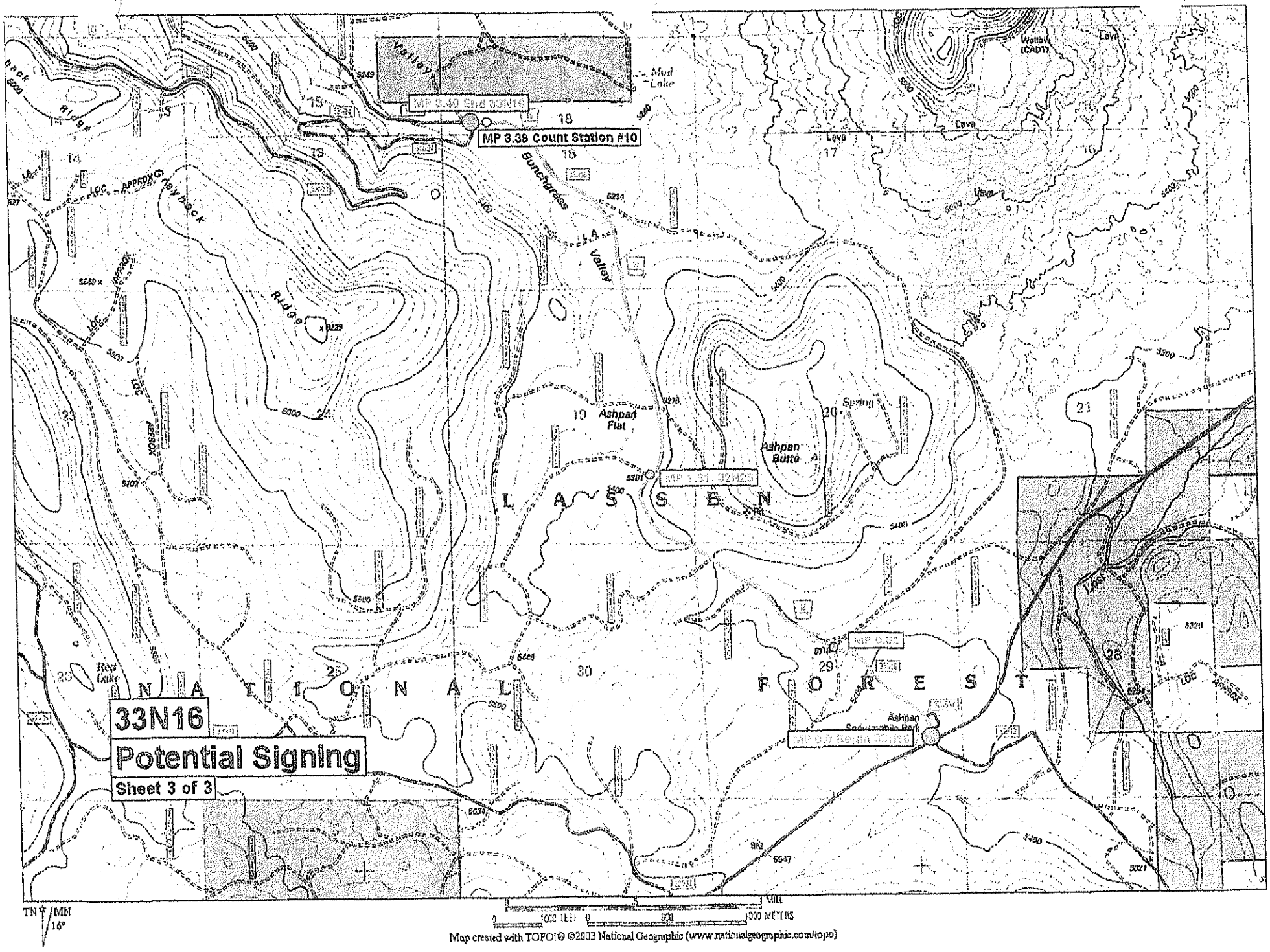
SHARED USE RECOMMENDATION Yes
Yes or No

*Mitigation opportunities by milepost, or other pertinent information on following page(s).



TN 16° /MN

Map created with TOPO!® ©2003 National Geographic (www.nationalgeographic.com/topo)


33N16
Potential Signing
Sheet 3 of 3
MP 3.39 Count Station #10
Mud Lake
Bunchgrass Valley
Ashpan Flat
Ashpan Butte
Spring
L A S S E N
N A T I O N A L F O R E S T
Ridge
Lava
Wallow (CAD7)
Ashpan Sedimentation Pond
TN 16° MN
Map created with TOPO! © ©2003 National Geographic (www.nationalgeographic.com/topo)

Traffic Engineer Shared Use Assessment .ssen National Forest Summer 2005

Road Number 32N24 BCDT Segment Number 14 Length 7.90 Sheet 1 of 3

Maint. Level: Objective 3 Operational 3 Observed June–August 2005 2 Functional Class L Service Level C

Probability of an Accident	Benchmark Rankings		Summary 2005 Observations	Assessed Rankings		
	High	Low		H	M	L
Crash History	Several Crashes	None Known	None Known			L
Average Daily Traffic (ADT)	>150	30 or less	Count Sta (11) 13.95			L
User Knowledge	Not Acquainted	Well Acquainted	Unknown		M	
Average Speed (MPH)	>40	25 or less	18			L
Cross Section Changes	Changes	None Abrupt	None Abrupt			L
Surface Type Changes	Changes	No changes	None			L
Curvature	Abrupt	Smooth	Smooth *			L
Road Widths (Feet)	Variable	Uniform	Uniform @ 14'			L

Overall Probability Assessed Ranking Low

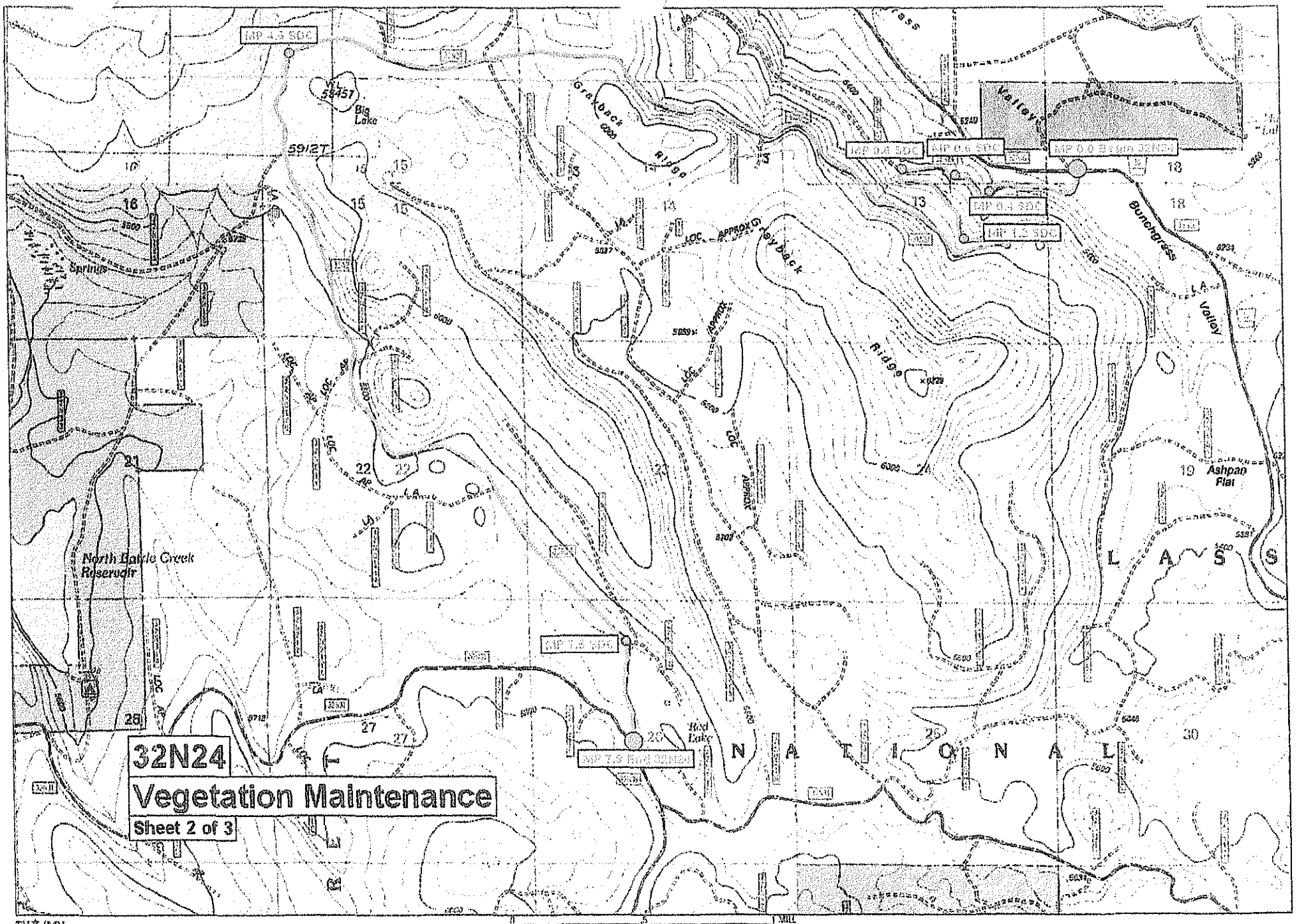
Severity of an Accident	Benchmark Rankings		Summary 2005 Observations	Assessed Rankings		
	High	Low		H	M	L
Average Speed (MPH)	>40	25 or Less	18			L
Clearance from Hazards	Little or none	Adequate	Adequate *			L
Alignment & Sight Distance	Poor	Adequate	Adequate *			L
Roadway Gradient	>12%	<12%	<12%			L
Downhill Side Slopes	>60%	<40%	<40%			L
Radical Speed Changes	Many	Few	Few			L
Multi-passenger Vehicles	Buses	Cars, SUVs	Cars, SUVs			L

Overall Severity Assessed Ranking Low

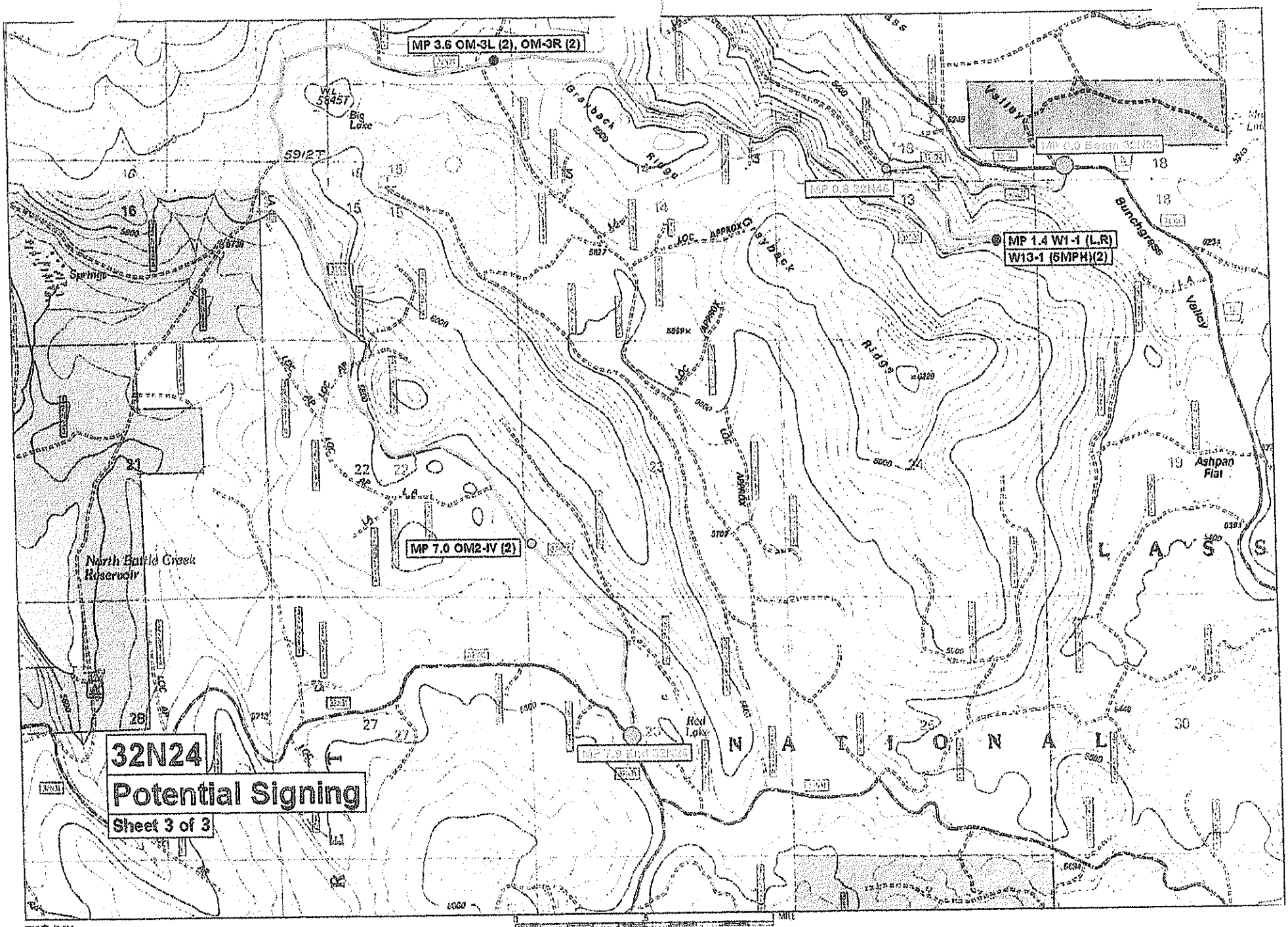
Season of Use June-November Surface Cinders % Street Legal 95 % Non-Street Legal 5

SHARED USE RECOMMENDATION YES
Yes or No

*Mitigation opportunities by milepost, or other pertinent information on following page(s).



Map created with TOPO!® ©2003 National Geographic (www.nationalgeographic.com/topo)


MP 3.6 OM-3L (2), OM-3R (2)
MP 1.4 W1-1 (L,R)
W13-1 (5MPH)(2)
MP 7.0 OM2-IV (2)
32N24
Potential Signing
Sheet 3 of 3
Big Lake
Red Lake
Ashpan Flat
North Battle Creek Reservoir
Grayback Ridge
Bunchgrass Valley
N A T I O N A L
L A S S
TN 1/MN 16°
Map created with TOPO! © ©2003 National Geographic (www.nationalgeographic.com/topo)

Traffic Engineer Shared Use Assessment **Lassen National Forest** **Summer 2005**

Road Number 32N31 BCDT Segment Number 14 Length 0.30 Sheet 1 of 3

Maint. Level: Objective 3 Operational 3 Observed June–August 2005 2 Functional Class L Service Level C

Probability of an Accident	Benchmark Rankings		Summary 2005 Observations	Assessed Rankings		
	High	Low		H	M	L
Crash History	Several Crashes	None Known	None Known			L
Average Daily Traffic (ADT)	>150	30 or less	Count Sta (11) 13.95			L
User Knowledge	Not Acquainted	Well Acquainted	Unknown		M	
Average Speed (MPH)	>40	25 or less	25			L
Cross Section Changes	Changes	None Abrupt	None Abrupt			L
Surface Type Changes	Changes	No changes	None			L
Curvature	Abrupt	Smooth	Smooth			L
Road Widths (Feet)	Variable	Uniform	Uniform @ 18'			L

Overall Probability Assessed Ranking Low

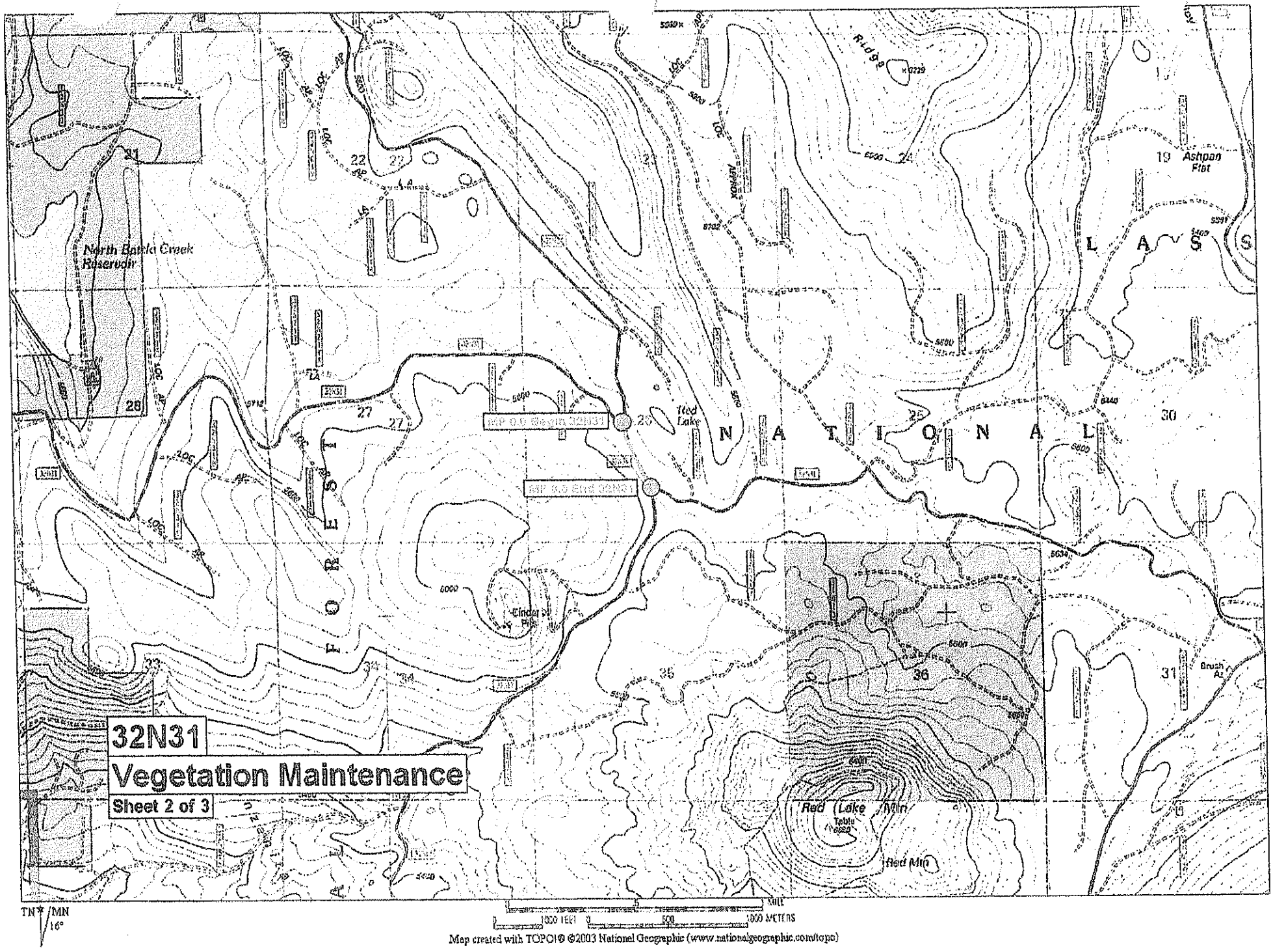
Severity of an Accident	Benchmark Rankings		Summary 2005 Observations	Assessed Rankings		
	High	Low		H	M	L
Average Speed (MPH)	>40	25 or Less	25			L
Clearance from Hazards	Little or none	Adequate	Adequate			L
Alignment & Sight Distance	Poor	Adequate	Adequate			L
Roadway Gradient	>12%	<12%	<12%			L
Downhill Side Slopes	>60%	<40%	<40%			L
Radical Speed Changes	Many	Few	Few (None)			L
Multi-passenger Vehicles	Buses	Cars, SUVs	Cars, SUV's			L

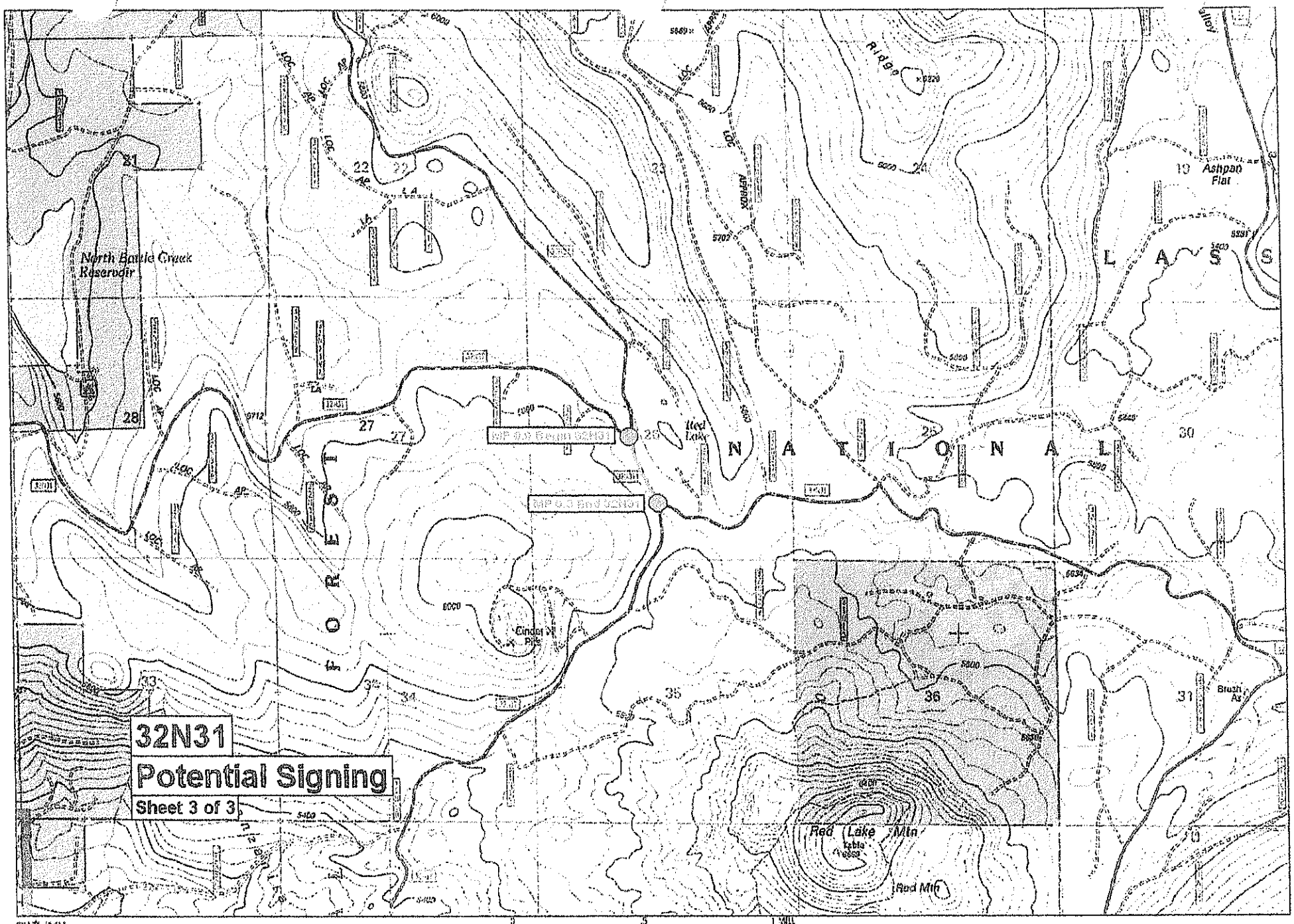
Overall Severity Assessed Ranking Low

Season of Use May – November Surface Aggregate % Street Legal 95 % Non-Street Legal 5

SHARED USE RECOMMENDATION YES
Yes or No

*Mitigation opportunities by milepost, or other pertinent information on following page(s).


32N31
Vegetation Maintenance
Sheet 2 of 3
North Battle Creek Reservoir
Red Lake
Cinder Pit
Red Lake Mtn
Red Mtn
Ashpan Flat
Brush Al
Ridge
NATIONAL
FOREST
LAS
TN
MN
16°
1000 FEET
1000 METERS
Map created with TOPO! © 2003 National Geographic (www.nationalgeographic.com/topo)


32N31
Potential Signing
Sheet 3 of 3
North Battle Creek Reservoir
Ashpan Flat
Red Lake Mtn
Red Mtn
Cinder Pit
Brush Ck
Red Lake
NATIONAL
FOREST
LASSEN
TN
MN
16°
1000 FEET
500
1000 METERS
Map created with TOPO! © 2003 National Geographic (www.nationalgeographic.com/topo)

Traffic Engineer Shared Use Assessment .ssen National Forest Summer 2005

Road Number 32N17 BCDT Segment Number 14 Length 5.21 Sheet 1 of 5

Maint. Level: Objective 3 Operational 3 Observed June–August 2005 2 Functional Class L Service Level L

Probability of an Accident	Benchmark Rankings		Summary 2005 Observations	Assessed Rankings		
	High	Low		H	M	L
Crash History	Several Crashes	None Known	None Known			L
Average Daily Traffic (ADT)	>150	30 or less	Count Sta (11) 13.95			L
User Knowledge	Not Acquainted	Well Acquainted	Unknown		M	
Average Speed (MPH)	>40	25 or less	20			L
Cross Section Changes	Changes	None Abrupt	None Abrupt			L
Surface Type Changes	Changes	No changes	0.8 miles aggregate South end			L
Curvature	Abrupt	Smooth	Smooth			L
Road Widths (Feet)	Variable	Uniform	Uniform @ 16'			L

Overall Probability Assessed Ranking Low

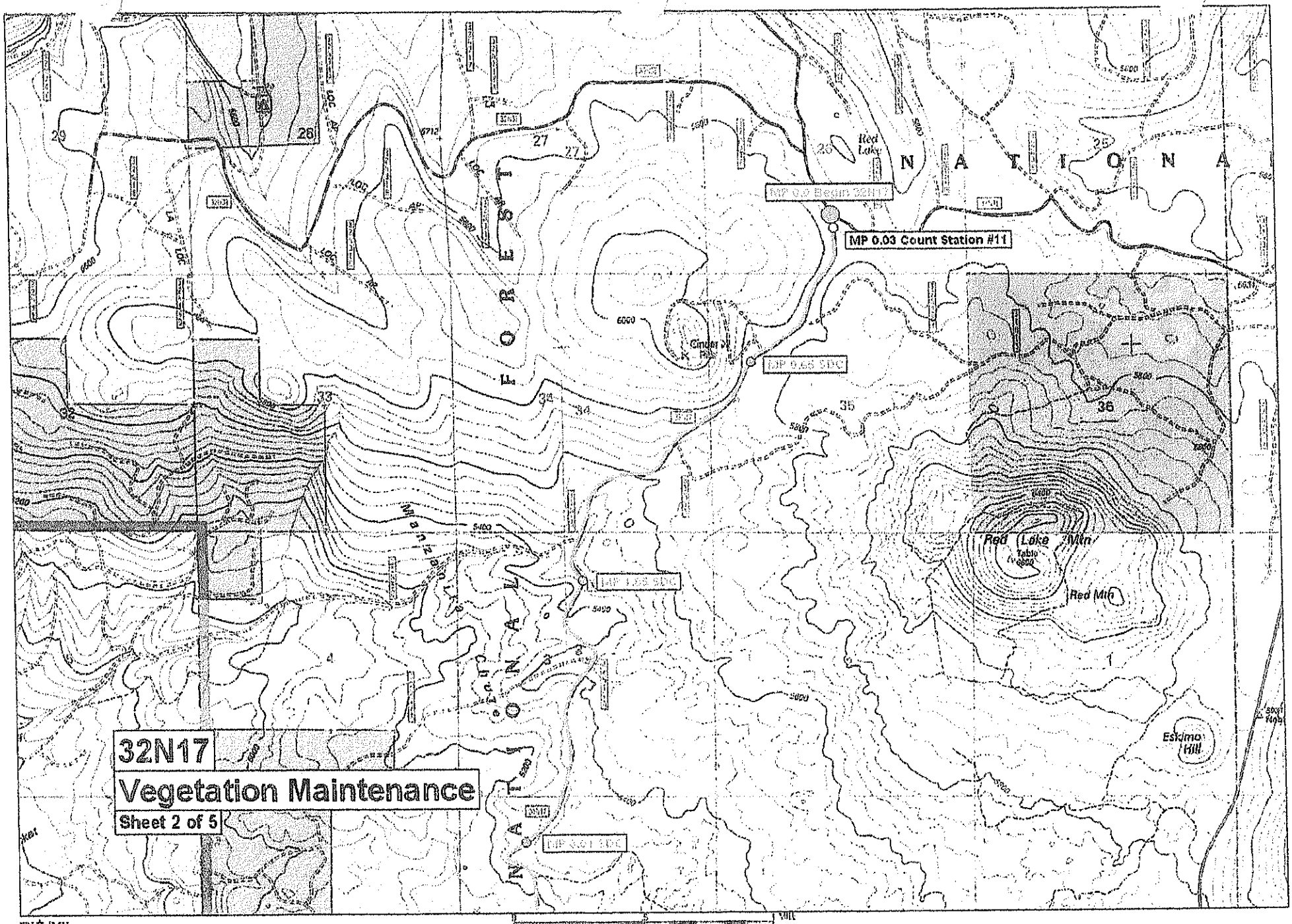
Severity of an Accident	Benchmark Rankings		Summary 2005 Observations	Assessed Rankings		
	High	Low		H	M	L
Average Speed (MPH)	>40	25 or Less	20			L
Clearance from Hazards	Little or none	Adequate	Adequate *			L
Alignment & Sight Distance	Poor	Adequate	Adequate *			L
Roadway Gradient	>12%	<12%	<12%			L
Downhill Side Slopes	>60%	<40%	<40%			L
Radical Speed Changes	Many	Few	Few			L
Multi-passenger Vehicles	Buses	Cars, SUVs	Cars, SUVs			L

Overall Severity Assessed Ranking Low

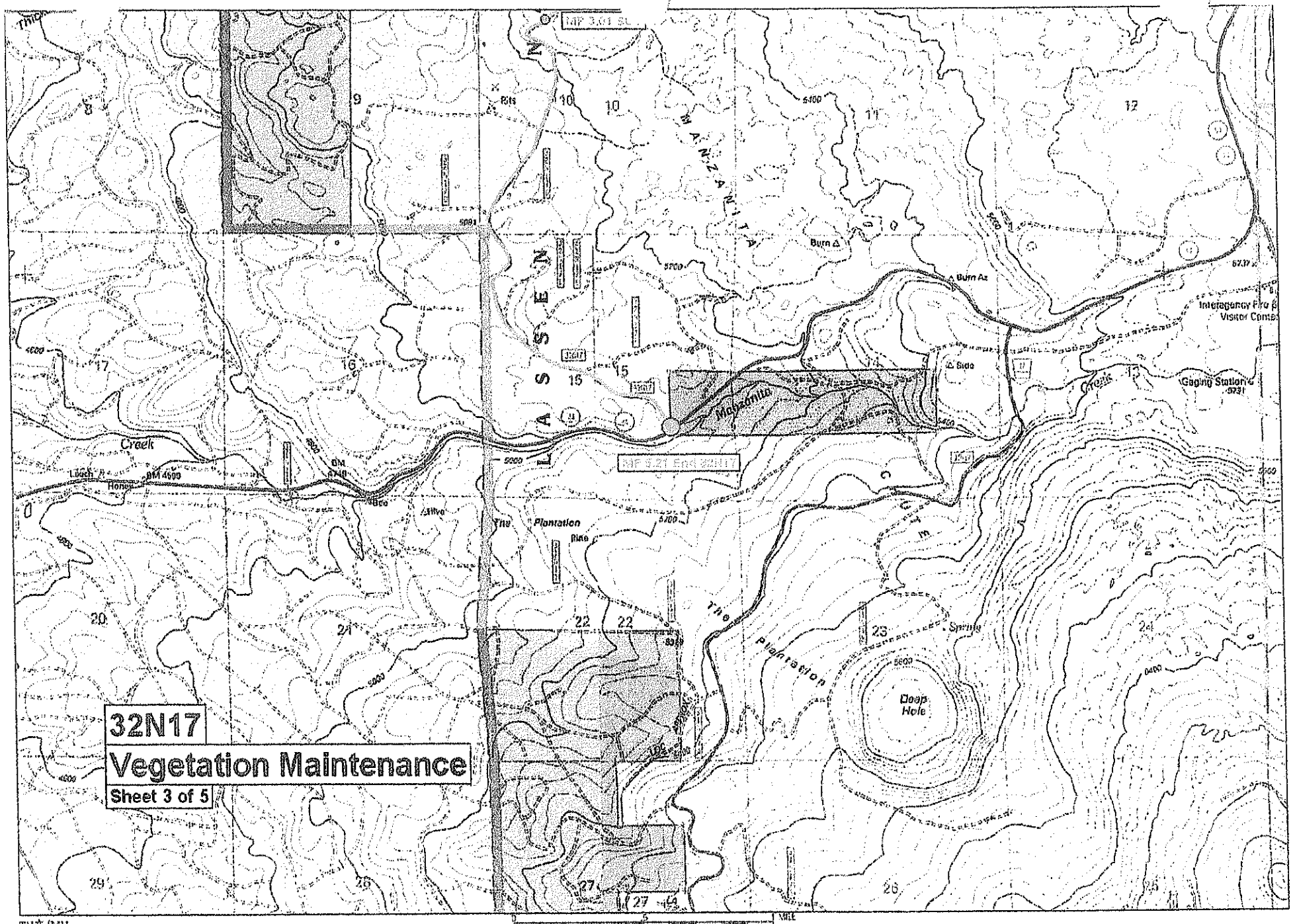
Season of Use May-November Surface Cinders % Street Legal 95 % Non-Street Legal 5

SHARED USE RECOMMENDATION YES
Yes or No

*Mitigation opportunities by milepost, or other pertinent information on following page(s).



Map created with TOPO!® ©2003 National Geographic (www.nationalgeographic.com/topo)

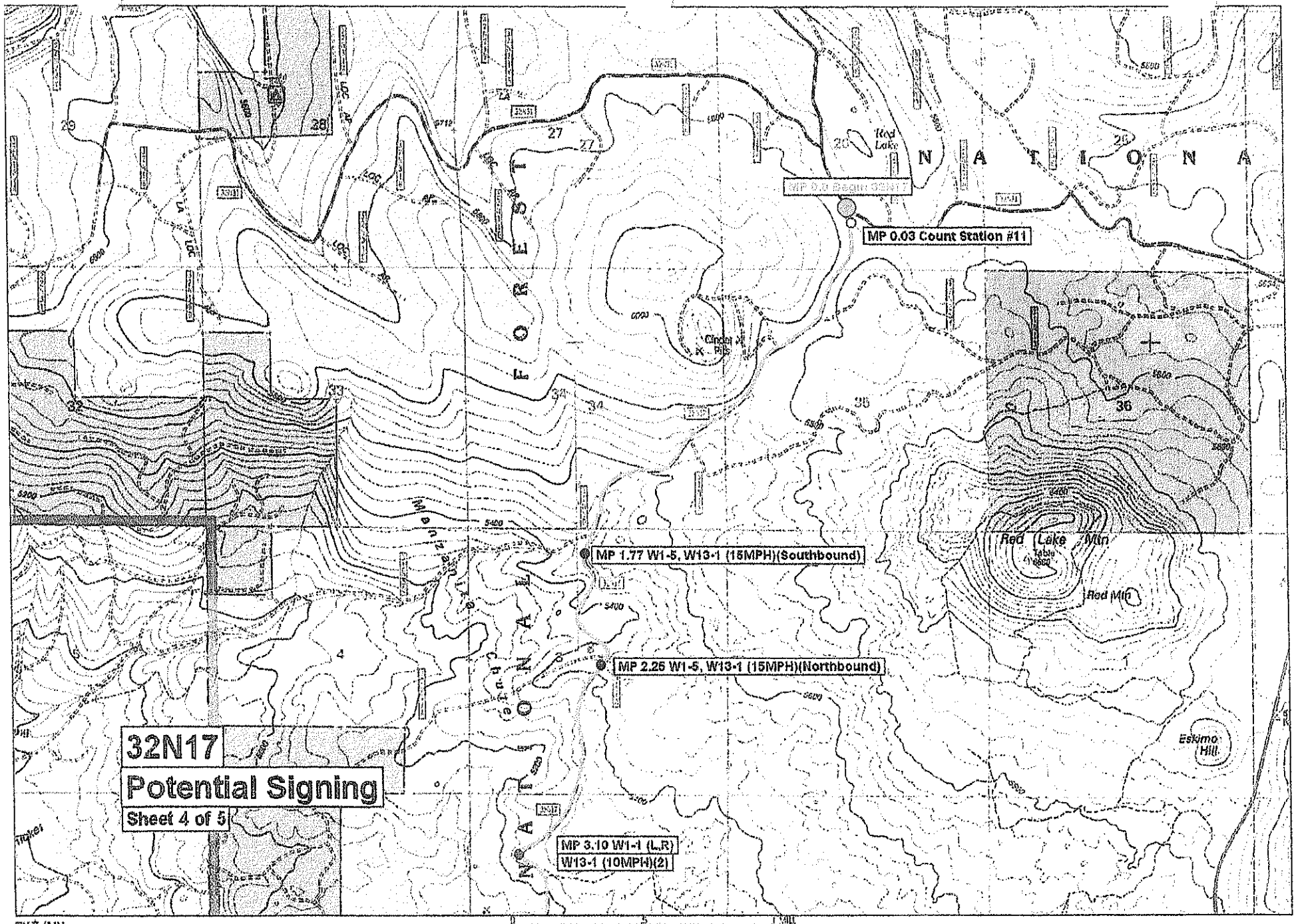


32N17

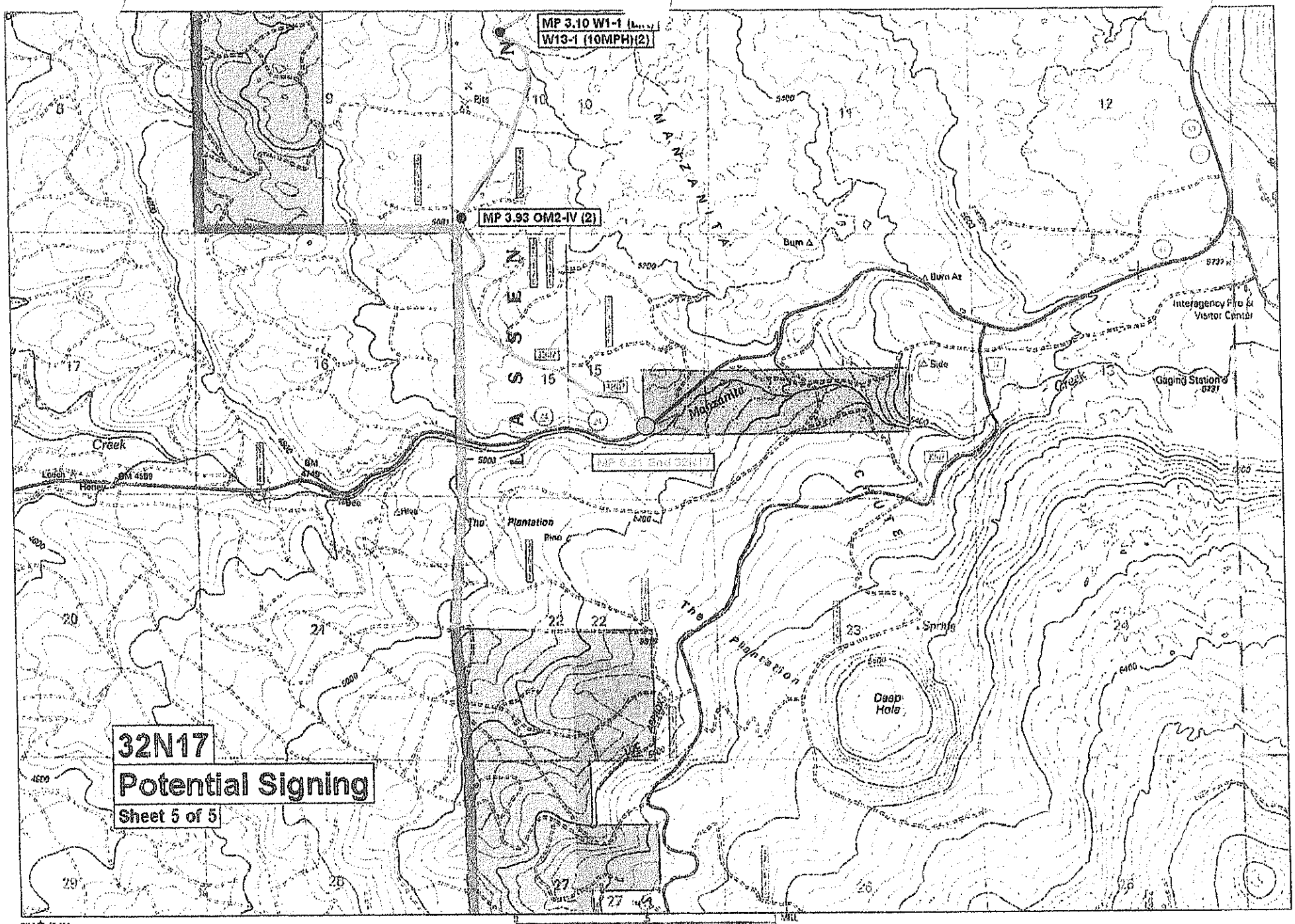
Vegetation Maintenance

Sheet 3 of 5

Map created with TOPO!® ©2003 National Geographic (www.nationalgeographic.com/topo)



Map created with TOPO!® ©2003 National Geographic (www.nationalgeographic.com/topo)



Map created with TOPO!® ©2003 National Geographic (www.nationalgeographic.com/topo)

Traffic Engineer Shared Use Assessment .ssen National Forest Summer 2005

Road Number 17(31N17) BCDT Segment Number 12 Length 15.3 Sheet 1 of ____

Maint. Level: Objective 4 Operational 3 Observed June–August 2005 2 Functional Class C Service Level B

Probability of an Accident	Benchmark Rankings		Summary 2005 Observations	Assessed Rankings		
	High	Low		H	M	L
Crash History	Several Crashes	None Known	None Known			L
Average Daily Traffic (ADT)	>150	30 or less	Count Sta (12) 7.86			L
User Knowledge	Not Acquainted	Well Acquainted	Unknown		M	
Average Speed (MPH)	>40	25 or less	27			L
Cross Section Changes	Changes	None Abrupt	None Abrupt			L
Surface Type Changes	Changes	No changes	None			L
Curvature	Abrupt	Smooth	Smooth			L
Road Widths (Feet)	Variable	Uniform	Fairly Uniform @ 16'			L

Overall Probability Assessed Ranking Low

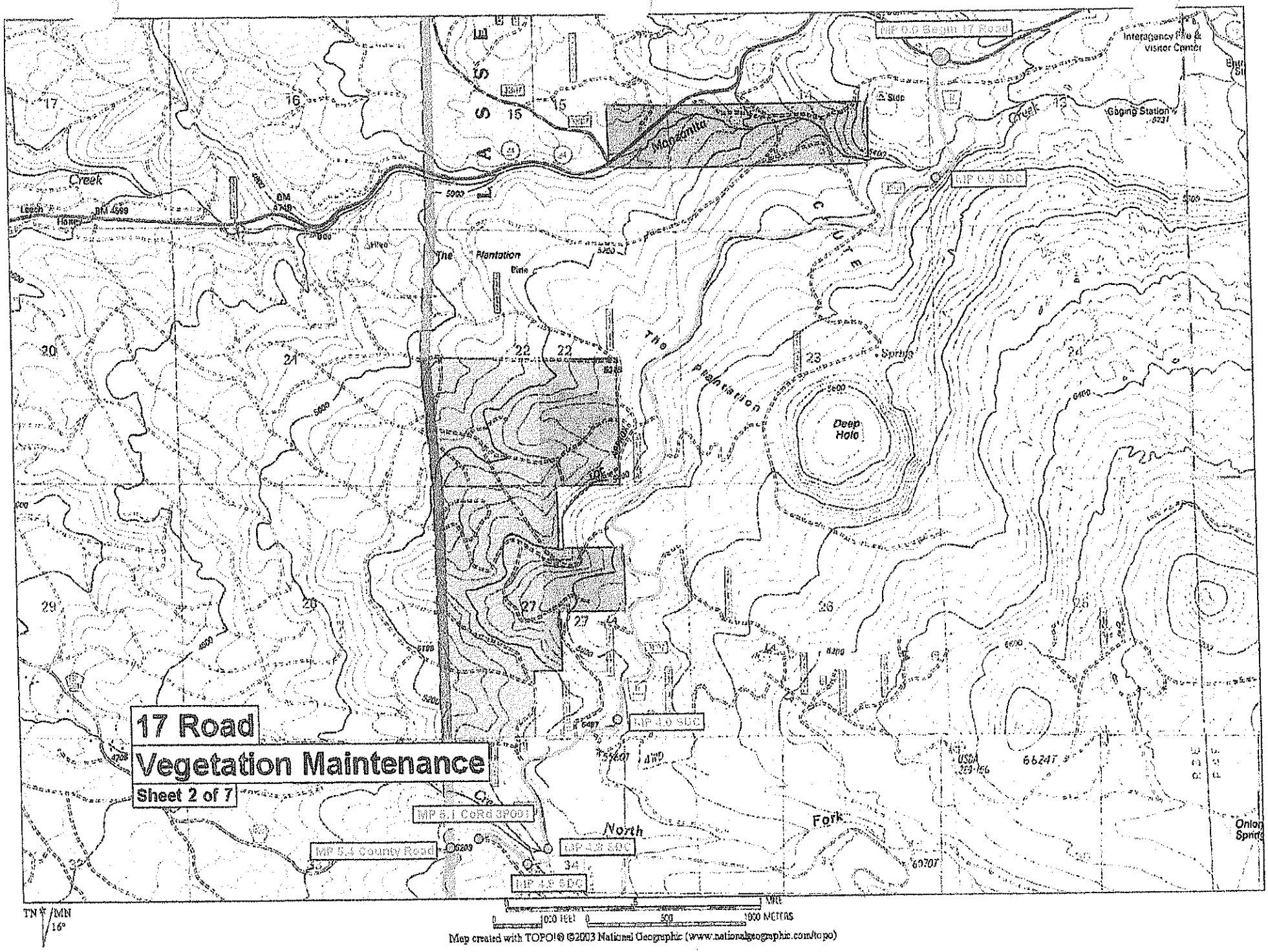
Severity of an Accident	Benchmark Rankings		Summary 2005 Observations	Assessed Rankings		
	High	Low		H	M	L
Average Speed (MPH)	>40	25 or Less	27			L
Clearance from Hazards	Little or none	Adequate	Adequate *			L
Alignment & Sight Distance	Poor	Adequate	Adequate *			L
Roadway Gradient	>12%	<12%	<12%			L
Downhill Side Slopes	>60%	<40%	<40%			L
Radical Speed Changes	Many	Few	Few			L
Multi-passenger Vehicles	Buses	Cars, SUVs	Cars, SUVs			L

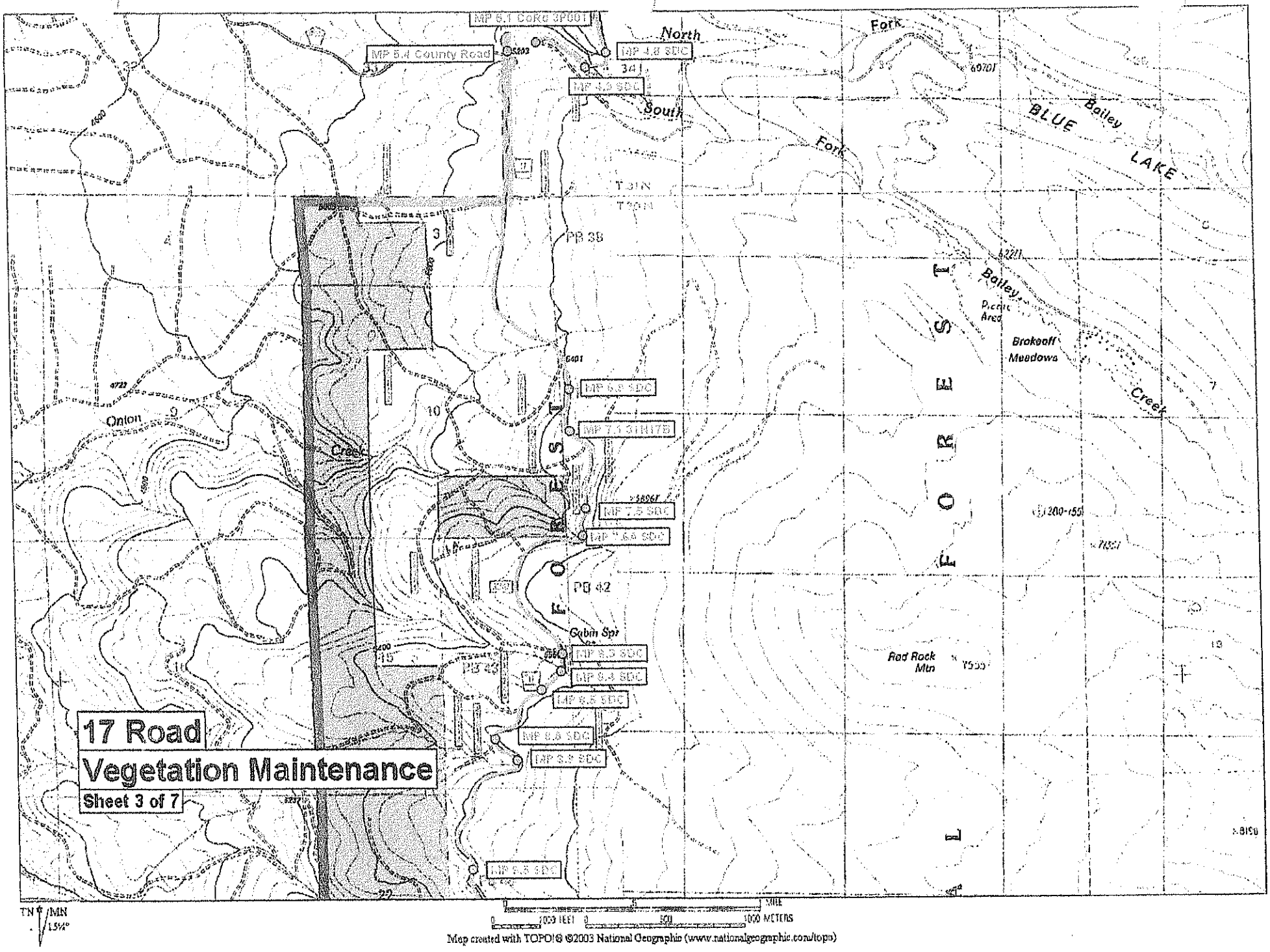
Overall Severity Assessed Ranking Low

Season of Use June - November Surface Aggregate % Street Legal 85 % Non-Street Legal 15

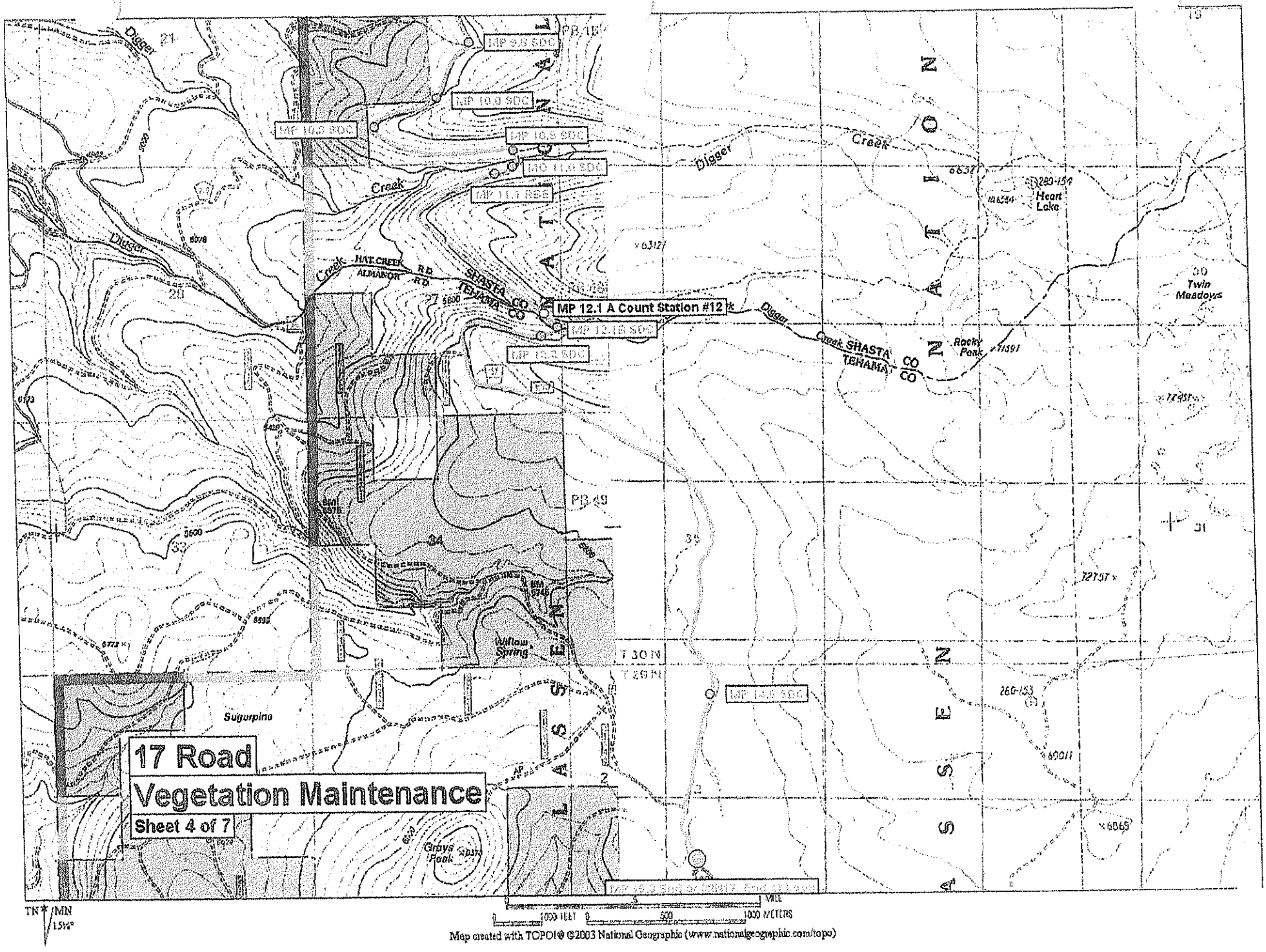
SHARED USE RECOMMENDATION YES
Yes or No

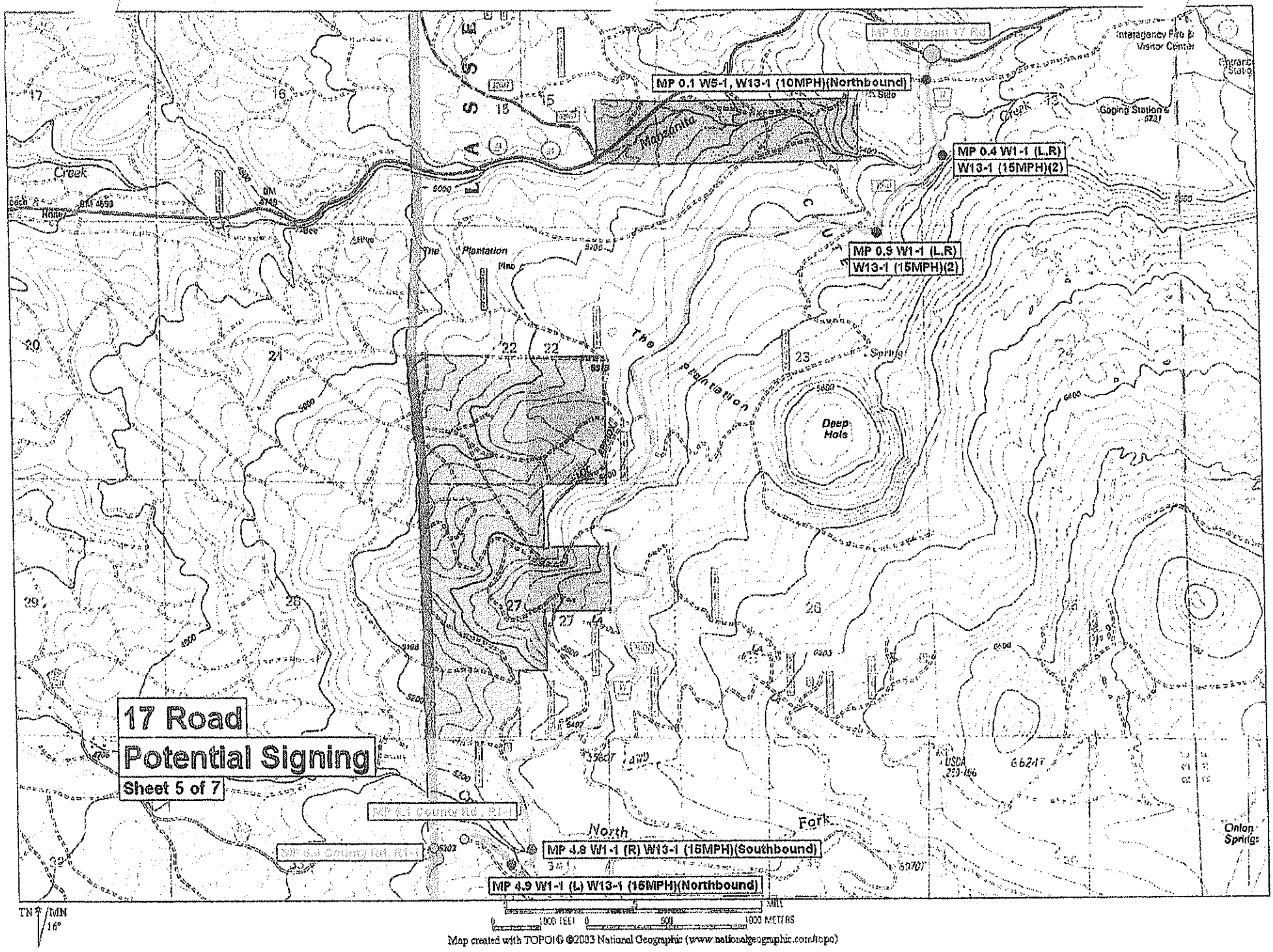
*Mitigation opportunities by milepost, or other pertinent information on following page(s).

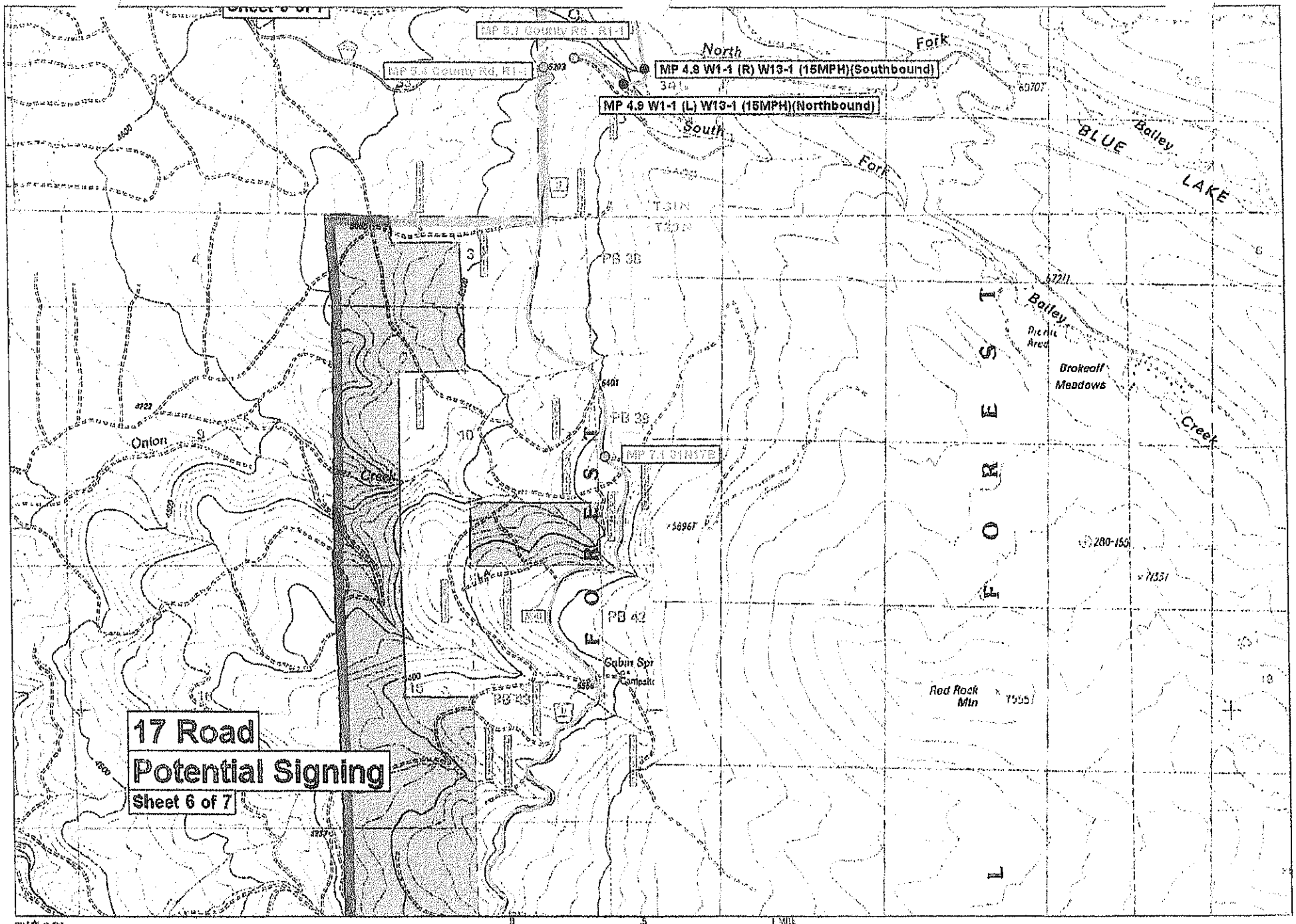

17 Road
Vegetation Maintenance
Sheet 2 of 7
MP 0.0 Begin 17 Road
Interagency Fire & Visitor Center
Gaging Station
Mapzanita
Creek
Leach Honey
The Plantation
Pine
Deep Hole
Spring
MP 4.0 SDC
MP 5.1 CoRd 3700
MP 5.4 County Road
North
Fork
Onion Spring
TN
MN
16°
1000 FEET
500
1000 METERS
Map created with TOPO!® ©2003 National Geographic (www.nationalgeographic.com/topo)



Map created with TOPO! © ©2003 National Geographic (www.nationalgeographic.com/topo)


17 Road
Vegetation Maintenance
Sheet 4 of 7
MP 12.1 A Count Station #12
Digger Creek
HAT CREEK ALMANOR RD
SHASTA CO
TEHAMA CO
Heart Lake
Twin Meadows
Rocky Peak
Willow Spring
Sugarpine
Grays Peak
T 30 N
T 29 N
PB 49
MP 9.8 SDC
MP 10.0 SDC
MP 10.3 SDC
MP 10.5 SDC
MP 11.0 SDC
MP 11.1 RBE
MP 12.1B SDC
MP 12.3 SDC
MP 13.0 SDC
MP 13.3 End of DRR17 End of Road
TN
MN
15½°
1000 FEET
1000 METERS
Map created with TOPO!® ©2003 National Geographic (www.nationalgeographic.com/topo)

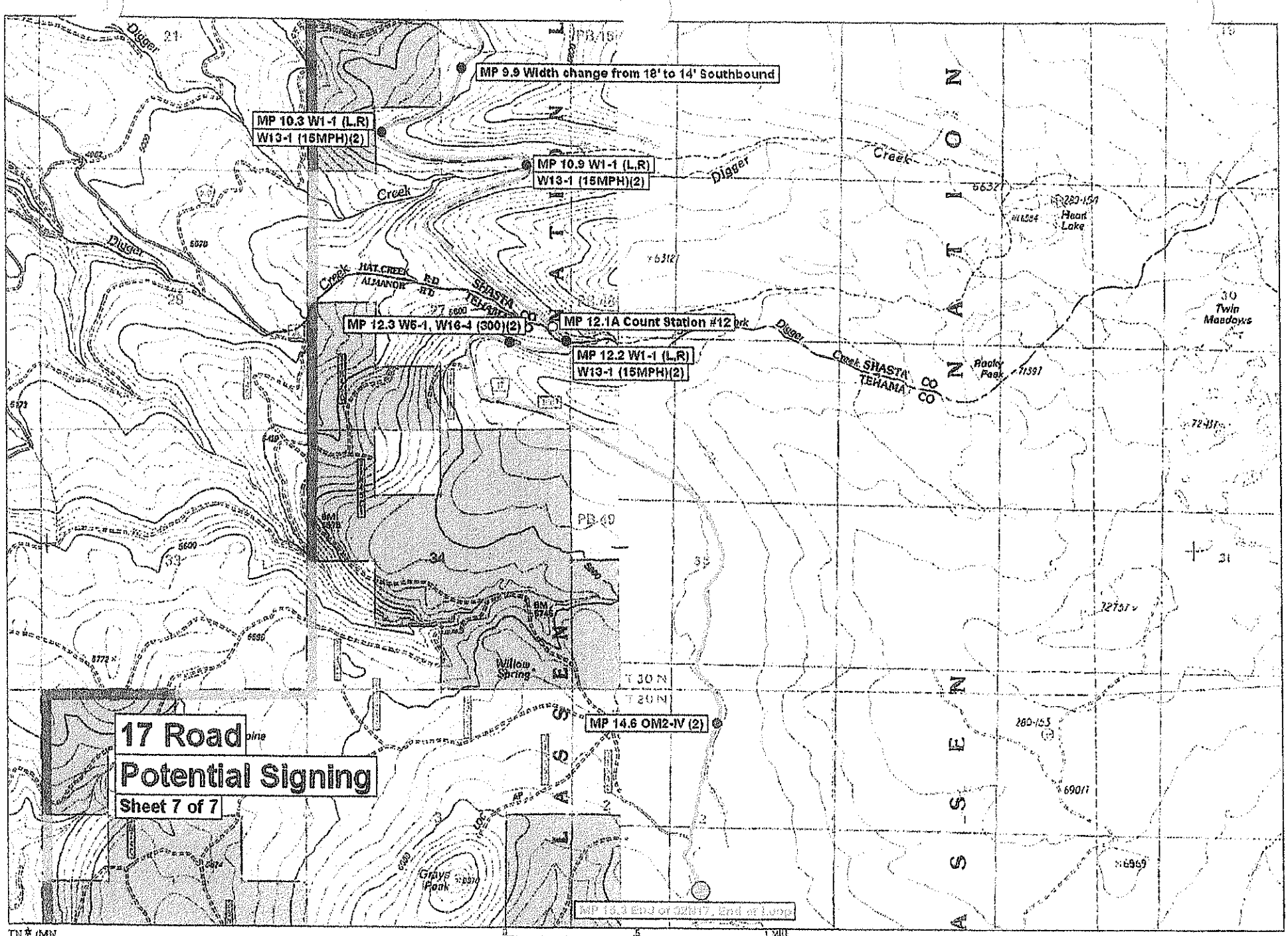

17 Road
Potential Signing
Sheet 5 of 7
MP 0.1 W5-1, W13-1 (10MPH)(Northbound)
MP 0.4 W1-1 (L,R)
W13-1 (15MPH)(2)
MP 0.9 W1-1 (L,R)
W13-1 (15MPH)(2)
MP 4.8 W1-1 (R) W13-1 (15MPH)(Southbound)
MP 4.9 W1-1 (L) W13-1 (15MPH)(Northbound)
Interagency Fire & Visitor Center
Gaging Station
Deep Hole
The Plantation
Spring
Onion Springs
North Fork
Creek
TN
MN
16°
1000 FEET
500
1000 METERS
Map created with TOPO! © 2003 National Geographic (www.nationalgeographic.com/topo)



TN 14° MN 15¼°

1 MILE
1000 FEET 0 500 1000 METERS

Map created with TOPO!® ©2003 National Geographic (www.nationalgeographic.com/topo)



Map created with TOPO!® ©2003 National Geographic (www.nationalgeographic.com/topo)

Appendix G

Recommended MUTCD Signing

- Regulatory
- Object Markers (Warning)
- Other Warning
  - Alternative A
  - Alternative B
- Share The Road
- Trail Sign (BCDT-3B Logo)

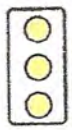
Appendix E

Examples of Recommended MUTCD Signs

Regulatory

R1-1

Object Markers
(Warning)



OM2-1V

OM-3L

OM-3R

Other Warning

Alternative A

W16-2

with option?

W7-3a

OR

Alternative B

W1-1 L/R

W1-5

W13-1
Advisory Speed Plaque

W7-3a

Alternative B (continued)

W5-1

W5-2

W16-4

Allow OHV

W16-1

With option?

W7-3a

As appropriate

10-128

10-117

10-111

10-115

10-109

10-121

10-107

10-113

Symbols from Rockart, Inc. catalog

BCDT-3B LNF

H. R. Tatman, Jr.

BCDT-3B Logo

Back
Country
Discovery
Trails

3
B

Appendix H

Study Volunteers

The entire BCDT-3B Share-the-Dream Loop traffic study was accomplished by volunteers from the following ten OHV Clubs located in Northern California:

Recreation Outdoor Coalition
Volcano Riders Snowmobile Club
Shasta Rock Rollers
Backcountry 4X4s
Sierra-Cascade Snowmobile Club
Redding Snow Riders
Shasta County Sportsman Club
Redding 4WD Club
Lake Almanor Snowmobile Club
Redding Dirt Riders

The following 60 individuals from these clubs contributed 2,140 hours of labor and 16,714 miles of travel. Their hours include travel time from home as well as observation time at their assigned count station.

Appendix H

Study Volunteers

Name	Home Town		Hours	Miles
Dick* & Bobby Tatman	Janesville CA		662	3048
Sylvia and Delbert Milligan	Anderson CA	250	2000	
Bethel & Jack Parker	Elk Grove CA		149	1456
Paul & Juli Tatman	Red Bluff CA		112	865
Peggy, Vernon & Troy Bullock	Mineral CA		88	904
Pat & Bob Murphy	Bella Vista CA		71	455
Vic Cook	Orland CA		68	796
Judy Freeman	Rocklin CA		66	1230
Ralph & Chris Pettis	Redding CA	63	360	
Brendon Tatman	Salem OR		49	1020
Lorrraine & Don Forrester-Hansen	Lake Almanor CA		28	56
Kathy & Danny Kelly	Redding CA		27	240
Janet & Tom Brower	Shingletown CA	28	56	
Pat & Forrest Henderson	Redding CA		10	160
Jenni & Rich Cesarin	Chester CA		14	60
Roberta Worth	Mineral CA		5	2
Miky Shaw	Rohnert Park CA		27	196
Debra Tatman	Pollock Pines CA		22	400
Seth Tatman	Reno NV	18	240	
Steven Tatman	Salem OR		31	930
Liz Norton	Susanville CA		18	275
Laura Roberts & Richie Mattos	Susanville CA		26	80
Shirley Wheeler	Mineral CA		13	0
Steven Gamsby	Redding CA		16	166
Norman Sutherland	Mineral CA		7	20
Sandra & Vinton Hutchings	Calpine CA		30	270
Michael Smith	Cottonwood CA	30	240	
Anthony & Lisa Bruccheci	Cottonwood CA	30	237	
Josh Berradas	Anderson CA		16	130
Doug Smith	Mineral CA?		23	204
Joel Gooch	Redding CA		9	120
Jim Harris	Red Bluff CA		9	134
Robert Rardin	Redding CA		9	120
M. Hollinshead	Mineral CA		7	30
Claudia Barnhart	Rocklin CA		22	0
Gayle Gilbert	Mineral CA		8	4
Richard Maxwell	Cottonwood CA	7	134	
Pam Begram	Mineral CA		5	2
Carl Bailey	Mineral CA		5	2
Steve Warner & Cindy Wright	Susanville CA		26	72
Tom Campbell			14	50
Ted Holderegger			14	50
Steve Bates			8	60
60 Volunteers			2,140	16,714

*Team Leader Qualifications—H.R. Tatman, Jr.

Professional Experience

Graduate Civil Engineer with post graduate work in Traffic Flow Theory, Fundamentals of Traffic Engineering and Network Analysis.
California Registered Traffic Engineer
34 Years with USFS Engineering
- 1963-1967 Asst. FE–Road Operations & Maintenance
- 1967-1971 PSW RO Engineering
  - 1.5 years assigned to the WO's Transportation Analysis Group (TAG) at UC Berkeley
  - Developed Traffic Surveillance Handbook
- 1971-1975 Asst. FE–Transportation System Planning
- 1975-1982 PSW Staff Engineer for Transportation System Analysis
- 1982-1991 Forest Engineer

Volunteer Experience

April 1999–asked to represent LNF on RIGHTS (a California Parks & Recreation BCDT Northern California) Committee and to propose route on LNF
March 2000–Elected Co-chairman RIGHTS Committee
May 2001 to present–Volunteer PSW Regional BCDT Advisor
December 2001–Presented BCDT Program to Regional Recreation Officers and Forest Engineers
1999-2005–Researched, planned and proposed about 440 miles of BCDT, of which 297 have been approved and the remainder expected to be approved in the fall of 2005.

REGISTERED PROFESSIONAL ENGINEER
H. R. TATMAN, JR.
No. 1013
Exp. 12/31/06
TRAFFIC
STATE OF CALIFORNIA

United States Department of Agriculture
Forest Service
Lassen National Forest

Supervisor's Office
2550 Riverside Drive
Susanville, CA 96130
(530) 257-2151 Voice
(530) 252-6624 TDD
(530) 252-6428 Fax

File Code: 7710-2
Route To:

Date: September 29, 2005

Subject: Lassen NF Mixed Use Engineering Analysis

To: Bob Sutton, R5 Director of Engineering

I have enclosed a copy of our Mixed Use Engineering Analysis for the proposed designation of the "Share the Dream" loop to the Lassen Backcountry Discovery Trail. This 100 mile loop is proposed for "shared or mixed use" by non-street legal off-highway vehicles operated by licensed drivers where it is located on Forest Service roads. A portion of the loop is on FS maintenance level 3 or higher roads. The remainder of the loop is on FS maintenance level 2 roads and State or county roads. State and county roads are not being considered for mixed use. The loop is sponsored by the Recreation Outdoor Coalition whose members initially scouted and identified the proposed route, and have now prepared a draft nomination report for my consideration.

Traffic count data was collected from 7:00 am to 7:00 pm on the first Sunday and third Wednesday from June to Labor Day this past summer by 60 dedicated volunteers under the leadership of retired Lassen National Forest Engineer, Richard Tatman. Mr. Tatman compiled the Analysis and rendered his professional judgment regarding the risk for accidents if mixed use was allowed.

Also enclosed is our proposed "Sign Protocol for the Backcountry Discovery Trail". The proposed "Share the Dream" loop will be an addition to our existing 185 mile Lassen Backcountry Discovery Trail. Route markers are essential to orient the visiting public. We requested the approval for a non-standard Directional and Guide Sign, in my letter dated September 21, 2005.

On October 12, I will be meeting with volunteers and my staff to review the Analysis to determine if mixed use could be permitted on all or a portion of the proposed 100 mile loop. The methodology for the traffic count study was peer reviewed by Sue Kocis, who is one of our Agency's leaders for our National Visitor Use Monitoring effort. The enclosed Analysis generally conforms with the August draft of the "Guidelines for Engineering Analysis of Motorized Mixed Use on National Forest System Roads", led by Ed Gililland of the San Dimas Technology Development Center. We will also discuss the Sign Protocol.

I would appreciate your review and comments on our Analysis and Sign Protocol prior to October12. Rich Farrington, Bill Fodge, and Gary Barnett have indicated they will be attending our meeting that day in Susanville. Their advice and counsel will assist me in reaching a decision regarding mixed use on our maintenance level 3 or higher roads. Thank you.

/s/ Jeff Withroe, for
LAURIE TIPPIN
Forest Supervisor

cc: Ed Gililland
Rich Farrington
Bill Fodge
Gary Barnett
Robert W Andrews
Rhonda Barnhart
Alfred G Vazquez
Jack Walton
Jess J Bengoa
Terrie Veliotes

Enclosure: Lassen National Forest Mixed Use Engineering Analysis, Sign Protocol for the Backcountry Discovery Trail

United States Department of Agriculture
Forest Service
Lassen National Forest
Supervisor's Office
2550 Riverside Drive
Susanville, CA 96130
(530) 257-2151 Voice
(530) 252-6624 TDD
(530) 252-6428 Fax

File Code: 7710
Route To:

Date: September 29, 2005

Subject: Lassen NF Mixed Use Engineering Analysis

To: Vaughn Stokes, WO Director of Engineering

I have enclosed a copy of our Mixed Use Engineering Analysis for the proposed designation of the "Share the Dream" loop to the Lassen Backcountry Discovery Trail. This 100 mile loop is proposed for "shared or mixed use" by non-street legal off-highway vehicles operated by licensed drivers where it is located on Forest Service roads. A portion of the loop is on FS maintenance level 3 or higher roads. The remainder of the loop is on FS maintenance level 2 roads and State or county roads. State and county roads are not being considered for mixed use. The loop is sponsored by the Recreation Outdoor Coalition whose members initially scouted and identified the proposed route, and have now prepared a draft nomination report for my consideration.

Traffic count data was collected from 7:00 am to 7:00 pm on the first Sunday and third Wednesday from June to Labor Day this past summer by 60 dedicated volunteers under the leadership of retired Lassen National Forest Engineer, Richard Tatman. Mr. Tatman compiled the Analysis and rendered his professional judgment regarding the risk for accidents if mixed use was allowed.

On October 12, I will be meeting with volunteers and my staff to review the Analysis to determine if mixed use could be permitted on all or a portion of the proposed 100 mile loop. The methodology for the traffic count study was peer reviewed by Sue Kocis, who is one of our Agency's leaders for our National Visitor Use Monitoring effort. The enclosed Analysis generally conforms with the August draft of the "Guidelines for Engineering Analysis of Motorized Mixed Use on National Forest System Roads", led by Ed Gililland of the San Dimas Technology Development Center.

I thought you might like to see one of the first Engineering Analyses using the Guidelines. We certainly appreciate and will benefit from this national effort.

/s/ Jeff Withroe, for
LAURIE TIPPIN
Forest Supervisor

Ed Gililland/WO/USDAFS
10/27/2005 01:50 PM

To Elizabeth Norton/R5/USDAFS@FSNOTES
cc
bcc
Subject Re: Motorized mixed use study on Lassen NF

Looks ok to me. I did go through it very quickly so I can't say I did a detailed review. A few things have changed in the Guide since this was started, but I don't see that as a big deal. The only issue this really does not cover is the issue of State Law. I'm not sure this report has to, but it would seem to me that it would be prudent to address that in writing somewhere before a final designation is made.

****
Ed Gililland
San Dimas Technology & Development Center
444 E. Bonita
San Dimas, California 91773
(909)599-1267 Ext 237 Fax (909) 592-2309 egililland@fs.fed.us
****

Elizabeth Norton/R5/USDAFS

Elizabeth Norton/R5/USDAFS
10/22/2005 01:04 PM

To Ed Gililland/WO/USDAFS@FSNOTES
cc
Subject Re: Motorized mixed use study on Lassen NF

Hi Ed - have you had a chance to review the engineering report I sent you. What do you think of it? I welcome your opinions/advice. Thanks.

Elizabeth Norton
Lassen National Forest
2550 Riverside Drive
Susanville, CA 96130
Phone: 530-252-6645
FAX: 530-252-6428
e-mail: enorton@fs.fed.us

Ed Gililland/WO/USDAFS

Ed Gililland/WO/USDAFS
09/06/2005 08:56 AM

To Elizabeth Norton/R5/USDAFS@FSNOTES
cc
Subject Re: Motorized mixed use study on Lassen NF

01/07/07

To: Jack Walton, Bob Sutton, Bill Fodge, Liz Norton, Congressmen Doolittle & Herger, BRC. ROC

The following is in response to Region Five's Division of Engineering's August 22, 2006 review comments by email to Lassen NF Forest Engineer Walton, pertaining to the "Share-the-Dream Loop". Shared Use Engineering Report.

The paragraphs in italics are the questions asked by the Region and the vertical statements are my replies.

1. The report was thorough in its presentation of route location, traffic counts, road conditions. The report also included recommendations on measures that could be taken to lower the risk of crashes, including road maintenance and traffic control devices. Additional work that needs to be completed includes:

The Report adheres very closely to the Forest Services' EM-7700-30 Guidance and the need for additional work to satisfy the intent of the EM-7700-30 Guideline is questionable.

2. Describe the type of mixed use traffic that is being proposed for each road:

A few passenger cars, pickups, SUVs, both government and privately owned, ATVs–you know–Quads, dirt bikes and snowmobiles, in the winter if not plowed. Please note–commercial traffic, i.e., logging or chip trucks, are not included as common sense as well as USFS Handbook Guidance says restrict use during commercial haul. However, you do not haul logs or chips on all of the roads all of the time!

And determine if it is legal under California CVC;

Yes, it is legal as these dirt and gravel roads are not Highways! Ask any CHP officer on the beat if they care what type of vehicle is on the dirt or gravel road. Ask the general public their views of use. And, with out bias, read the second paragraph of CHP Deputy Commissioner's April 7, 2005, letter to Regional Forester Blackwell. If it's posted for shared use it's legal. Also, see CVC #38001, which states in part "For purpose of this division, the term "highway" does not include fire trails, logging roads, service roads regardless of surface composition, or other roughly graded trails and roads upon which vehicular travel by the public is permitted."

CVC also has very specific operator licensing requirements that were considered a part of the study. It is assumed that most people obey the laws. We do not believe it prudent to restrict legitimate use for most people to get after a few bad apples.

3. The basis for the risk ratings were not well explained. Update the risk assessments

with the final EM7700-30 and clarify whether risk ratings are based on current conditions or with proposed mitigation measures in place.

The risk ratings are compatible with the published EM7700-30 Washington Office Guidelines. Further, the bench marks for evaluation were selected following review of criteria used by Region 8, Region 6, Region 4 and Region 3 of the USFS. As a matter of fact, the selected ADT thresholds are very conservative or low as compared to the majority of the other Regions. For example, most use up to 100 ADT as low risk, whereas the subject study used 30 ADT.

It is still my considered judgement that the conditions that existed when the study was done are in the low risk for an accident category. As for the mitigation measures proposed, i.e., signs and brushing, I still recommend MUTCD "yellow caution" signs at the entrance to forest roads that say "No Traffic Signs", No. W16-2. And as for brushing, if the road is open to any use by anyone, including USFS, then the brushing should be done.

I noted recently, late 2006, that the snags identified in the October 2005 report are still standing alongside the roads. One of these days.....

4. *Provide a transportation analysis for the Lassen NF road system. The analysis should show how the roads under study fit into the LNF transportation system and validate the current RMO's or propose revisions to reflect actual needs and budget realities.*

This is a Forest responsibility and beyond the role of any outside group that assists by performing a traffic use study. If the interpretation of the on-line FSM is correct, this should have been done by the Forest several years ago and been available to use in evaluating the proposal that the Engineering Report was done for. In the meantime, use sound judgement.

5. *The report focused on the traffic that was observed during the traffic counts. Consider the risks of crashes for the full range of traffic that can be expected on each road over time.*

What time period would you like this evaluation to cover–50 years or 100 years? This question begs a NO ACTION decision or do not consider mixed use. Is this what the Chief of the Forest Service means by Manage OHV use?

With all due respect, the decision to be made should be based upon what is occurring now and in the immediate future–say 1 to 2 years. If commercial hauling (see #2 above) restricts OHV use, then why include that traffic in the risk analysis, especially when none was observed on the randomly selected counting days and no hauling was occurring in the "heavy" use times.
If traffic volume or vehicle types change over time then the risk may need to be evaluated again when the change becomes obvious or if reportable accidents begin to

accumulate in specific places.

According to specific sections of FSM 7700 and FSH 7709, if an unacceptable number of vehicle accidents occur at a specific site on a road, then additional evaluation is triggered and additional mitigation measures considered.

6. Describe proposed mitigation measures and how they will be effective at reducing risk. Address other mitigation measures that will reduce risk for the full range of traffic that may be on the road. Other mitigation can include alternate routes, time restrictions for mixed use when commercial traffic is present, speed limits, etc.

Logical mitigation measures were listed that seem to best fit current conditions and needs.

The Clubs listed in the Report, that did the original traffic study, had agreed at the time to do the required hand labor work required to accomplish the mitigation work identified in the Report. A lot of time has gone by and folks are very discouraged now. Some USFS Engineering/Recreation outreach might get the job done for the Forest.

As stated above in No. 5, why play "what if" games? Use the best available judgement given existing conditions and then monitor results for accidents. No one wants to see anyone hurt, but on the other hand, people have to take some responsibility for their own actions. The desire for OHV experiences is growing rapidly and the proposal and Report have been prepared in good faith to promote safe and managed use of the Forest Roads.

7. Document how the Forest will maintain mitigation measures that are selected as part of the designation for mixed use.

Establish an MOU and/or an Adopt-a-Route package with a responsible private entity such as the Recreation Outdoor Coalition (ROC), non-profit group of motorized and non-motorized recreationists.

8. Document coordination with other public road agencies, local law enforcement agencies, or cooperators that may be affected by the proposed use on NFS roads.

ROC has a lot of existing documentation for the 3B Loop from all of the County Boards of Supervisors surrounding the Forest, Congressmen Herger's and Doolittles's offices, etc. These are the "Bosses" of the road agencies, law enforcement and Federal Agencies. A current CHP officer is president of one of the clubs that belong to ROC and he is very supportive of the 3B Loop plan, including OHV mixed use.

9. The report was thorough in regards to the location of the route, traffic counting strategy and methods, The need for additional traffic counts can not be determined from the report. The Forest will have to determine whether the counts were representative of

actual traffic or if add'l counts are needed. Some indications that add'l counts are needed are: lack of commercial traffic component in the counts, intuitive judgement on traffic volumes, times and vehicle mix that differ from the counts, other traffic data that disagrees with the results of the counts.

The need for additional counts to justify the "published Traffic Study" results must be left to others. The volunteers can count each vehicle that goes past them and make a mark on a piece of paper. We all wanted factual information. The books were not cooked!

Summary–the use that the Share-the-Dream Loop proposal is asking to be supported already exists. The study provided a snapshot of the extent of non-commercial activity on 75 miles of Maintenance Level 3 and 4 roads.

Acknowledge the existing use and set up an accident reporting procedure that is rigorously followed for 5 years to evaluate the adequacy of the traffic study.

This response took a couple of hours to consider and write. Add that to the 2000 hours devoted to the study in 2005.

/s/ Dick Tatman

H. R. (Dick) Tatman, Jr, PE, Study Team Leader
Traffic Engineer TR 1013 through 12/31/08
707-620 Wingfield Rd
Janesville CA 96114
530-253-3054

United States Department of Agriculture
Forest Service
Lassen National Forest

Supervisor's Office
2550 Riverside Drive
Susanville, CA 96130
(530) 257-2151 Voice
(530) 252-6624 TDD
(530) 252-6428 Fax

File Code: 2350
Date: October 14, 2005

Dear Lassen National Forest Traffic Count Volunteers:

In spring 2005, the Recreation Outdoor Coalition (ROC), a non-profit group representing diverse recreational interests in the Lassen area, met with me regarding their proposal to designate a 100 mile addition to the Lassen Backcountry Discovery Trail, called the Share the Dream route. This addition would establish a scenic off-highway vehicle (OHV) route, looping around Lassen Volcanic National Park. The route is located on mostly National Forest System roads. ROC also wanted the route to be designated for mixed use by both street-legal and non-street legal (OHV) vehicles such as quads and dirt bikes.

Because some of the route is on higher standard Forest Service roads, we needed to conduct a traffic study to determine the risk for accidents if mixed use was permitted. Retired Forest Engineer H.R. Tatman and volunteer Sylvia Milligan immediately launched the traffic study and recruited volunteers. Counts were conducted from June 5 through Labor Day.

Traffic count data was collected from nine stations along the proposed loop. The count involved 60 members representing 9 OHV clubs and ROC from all over northern California and Oregon, including yourself. Our volunteers contributed 2,140 hours of labor and provided 16,714 miles of personal vehicle use – all at no cost to the Forest Service. The value of all your volunteer service was $59,300. Mr. Tatman then used this data to prepare an engineering report and road risk assessment. Based on this report, I am proposing to allow mixed use on the entire route. The Forest Service is still gathering additional information. We expect to present our proposal to the public next spring for public review and comment in accordance with our environmental analysis procedures.

Volunteers have sponsored the proposed Share the Dream route from the beginning – starting with an idea while sitting around a lunch table, then scouting out the proposed route, preparing the nomination report and roadway sign plan, and conducting the recent traffic counts. Your efforts have saved the Forest Service considerable time and thousands of dollars. It will result in an unparalleled OHV driving opportunity on the Lassen NF when the route is officially designated.

I know your hard work will not stop with the designation. Volunteers have already expressed their continued commitment to maintaining the route, installing road signs, and patrolling. This level of dedication by so many volunteers is unmatched in our partnership programs.

Thank you for your time, your many hours of service, and your dedication.

Sincerely,

Laurie Tippin

LAURIE TIPPIN
Forest Supervisor

Lassen Backcountry Discovery Trails

Alternate 3B
Share-the-Dream Loop

ROC
Recreation Outdoors Coalition

Recreation Outdoors Coalition

U.S. Department of Agriculture
Forest Service

Backcountry 4X4s

Forest Supervisor
Lassen National Forest
2550 Riverside Drive
Susanville CA 96130

September 14, 2005

Dear Ms Tippin,

Enclosed is the 2005, Back Country Discovery Trail Alternate Route 3B, Share-the-Dream Loop Motorized Shared (mixed) Use engineering analysis for your consideration.

The analysis was performed essentially as presented to you on April 26, 2005. As data gathering began, some recording procedures were modified to best reflect conditions. Contacts were maintained with the development of the national "Guidelines for Analysis of Mixed Use on NFS Roads". This analysis adheres very closely to the WO's August 23, 2005 draft.

To date, no accidents have been reported on the roads evaluated in the study.

Based upon the analysis and my professional judgement, I believe the risk for accidents will be low if you allow continued use of non-street legal vehicles on these unpaved roads of the Share-the-Dream Loop.

For the 72 miles, the average daily traffic for all count stations was 12 vehicles, with a high of 27 and a low of 5. Of the 895 vehicles counted, 83% were street legal and 17% were non-street legal. And they carried, on average, 1.6 people per vehicle. Of the 83% that were street legal, only 10% were passenger cars, suggesting that maintenance levels could be lowered. Also, there were 26% SUVs, 47% pickups, 3% dirt bikes and 14% quads.

Finally–this project involved 60 members representing nine OHV Clubs and the Recreation Outdoor Coalition from Northern California. These people contributed 2,140 hours of labor and provided 16,714 miles of personal vehicle use. We all sincerely hope this analysis gives you the information you need for making the decision to continue "shared use" on these roads.

We look forward to your decision.

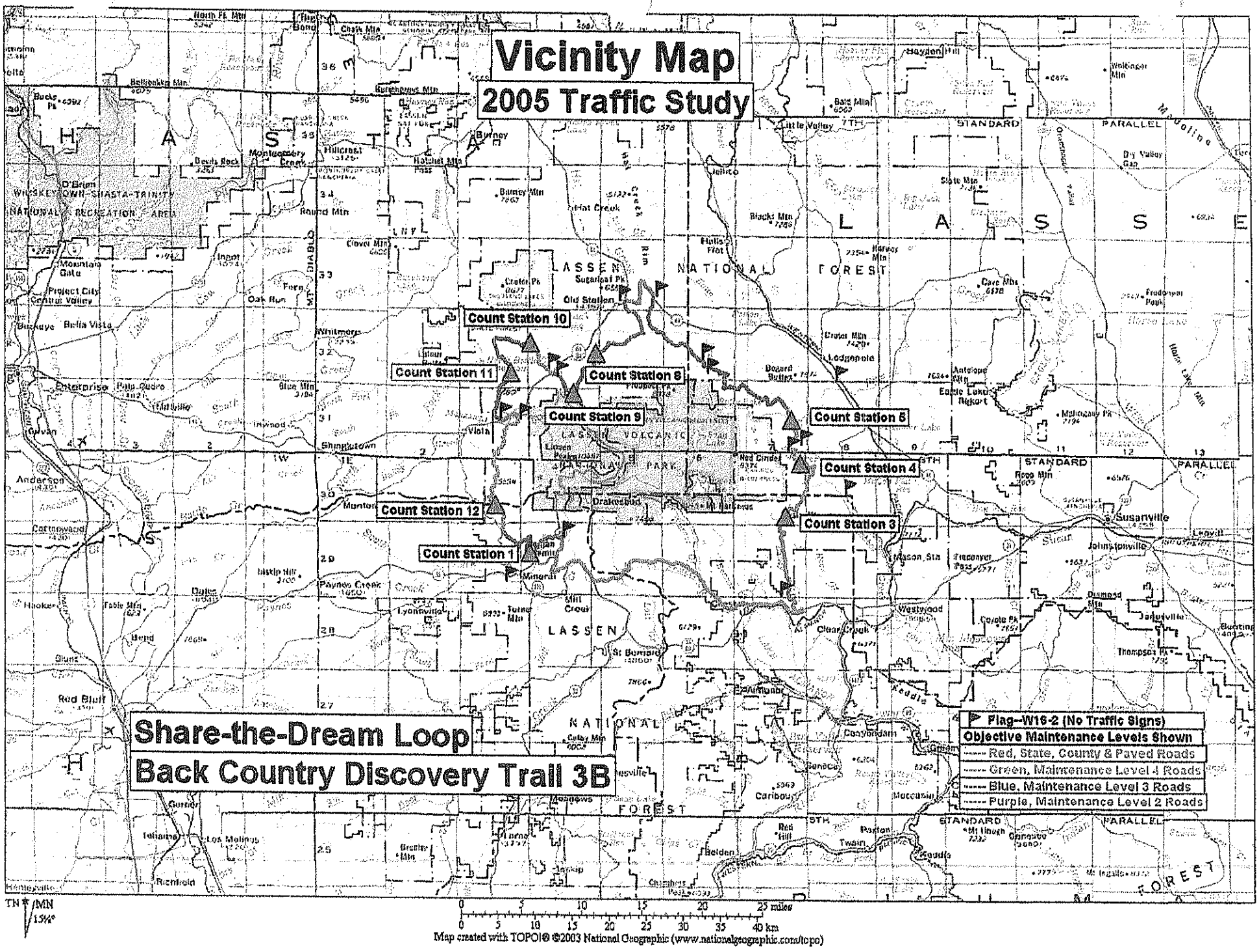
Sincerely,

H. R. Tatman, Jr., PE, Team Leader
707-620 Wingfield Rd
Janesville CA 96114
530-253-3054

cc: Sylvia Milligan, Chairperson ROC
E. Vaughn Stokes, Director of Engineering, WO

Vicinity Map
2005 Traffic Study

Share-the-Dream Loop
Back Country Discovery Trail 3B



Map created with TOPO!® ©2003 National Geographic (www.nationalgeographic.com/topo)

CONTENTS

Engineering Report
Lassen National Forest
Back Country Discovery Trail–Alternate 3B
Analysis of Share-the-Dream Loop (BCDT–3B)
for Motorized Mixed Use Designations

Summer 2005

Introduction

Some people own and enjoy riding their OHVs, primarily dirt bikes and quads in the summer. Some operators go to developed OHV parks, use private lands and/or use public lands.

The expanding availability of OHVs and the growing population has dramatically increased the demand for riding opportunities and unfortunately increased the conflicts.

The Forest Service is in the process of adopting procedures to restrict OHV travel to designated roads, trails and a few small open areas. Some staff in the Pacific Southwest Region oppose OHV use on ML 3, 4, or 5 NFS roads.

Forest Service directives and handbooks, prepared before the large increase in demand for OHV riding, has resulted in varying agency interpretations of what roads can be used by non-street legal OHVs. Maintenance Level (ML) 2 roads are generally considered open, ML3, 4 and 5 are open sometimes. ML2 roads typically are short dead end roads.

This analysis addresses the risks for accidents if street-legal and non-street legal vehicles share the existing 72 miles of ML3 and 4 roads on the Share-the-Dream Loop, BCDT-3B.

Issue Statement

Which unpaved road segments, under US Forest Service jurisdiction, of the Share-the-Dream Loop (BCDT-3B) may relatively safely have shared (mixed or combined) use between street legal and non-street legal vehicles?

Constraints

All vehicles and operators using the roads now and in the future are assumed to be licensed and outfitted (personal protection gear) to fully meet State of California, Department of Motor Vehicle Code (CVC) requirements, current editions. See Glossary for CVC codes.

Roadway Characteristics: The following information was obtained in June 2005, on about 72 miles of ML 3 and 4 NFS roads by the engineer:

- Surface Type
- Average Travel Speed
- Cross Section Changes
- Surface Type Changes
- Curvature Irregularities
- Road Widths
- Clearance from Roadside Hazards
- Alignment and Stopping Sight Distance
- Radical Speed Change
- Typical Season of Use

Traffic Flow Data: The following information was observed periodically during the summer and recorded by a team of technicians:

Number and type of vehicle and people per vehicle.

Traffic observation sites and counting days and hours for recreation were selected by the engineer following guidance from "Fundamentals of Traffic Engineering", Institute of Transportation and Traffic Engineering, University of California, Berkeley, 6th edition and other literature.

Following a training session, observations were made by the technicians from 7:00 AM until 7:00 PM on the first Sunday and third Wednesday of June, July and August, 2005. Observations were also made, by Forest request, on September 4 but those results are not included in the analysis. Two people occupied each count site for each 12 hour count period.

Observations classified the vehicles as to type of vehicle and the number of occupants per vehicle.

Vehicles were not stopped and drivers not interviewed to assess the User Knowledge or if they were operating legally. By observation, the drivers appeared to know where they were going, appeared to be legal, and were driving reasonably.

Average daily traffic (ADT) was calculated by the engineer using the formula from the Bureau of Public Roads (now Federal Highway Administration) "Guide for Traffic Volume Counting Manual", 2nd edition.

Summary of Findings and Recommendations

Road # *	Length Miles	Summer 2005 OBSERVATIONS						Accident Assessment Rating		Recommend-ation Shared Use Yes/No
		Count Sta. # **	ADT	Ave. Speed MPH ***	% Street Legal	% Non-Street Legal	People per Vehicle	Probability of Accident	Severity of Accident	
30N16	6.56	1	5	15	42	58	1.6	Low	Low	Yes
29N22*	2.96	1	5	15	42	58	1.6	Low	Low	Yes
32N1010	14.30	3,4,5 *****	16	20	88	12	1.7	Low	Low	Yes
32N09	7.73	5	11	20	87	13	1.5	Low	Low	Yes
32N21	0.36	Est.****	±30	20	±95	±5	±2.0	Low	Low	Yes
32N12	0.24	8,9	16	10	83	17	1.5	Low	Low	Yes
32N13*	7.49	8,9	16	20	83	17	1.5	Low	Low	Yes
32N16	3.40	10	14	24	76	24	1.5	Low	Low	Yes
32N24	7.90	11	14	18	77	23	1.5	Low	Low	Yes
32N13	0.30	11	14	25	77	23	1.5	Low	Low	Yes
32N17	5.21	11	14	20	77	23	1.5	Low	Low	Yes
31N17	15.30	12	8	27	85	15	1.6	Low	Low	Yes

* 29N22 and 32N13 are signed on the ground as ML 2
**ADT for road is average of indicated count stations
***Based on speed by prudent driver
****Butte Lake Road access to LVNP is estimated only, not counted. A Public Lands Highway Project is proposed with adjacent OHV trail.

Maintenance and/or Mitigation Needs and Photographs

General—This study had it's on the ground beginning in May 2005. There was still a lot of snow on the roads, so numerous trips were made to find out if we could get to the nine count sites in time to start the count on the first Sunday in June. In other words, team members were some of the first to travel the roads. We did a lot of tree and rock removal as we went. As of the end of the counting on the first Sunday in September, no USFS road maintenance of any kind appeared to have been done. These are all ML 3 or 4 roads.

At a recent public meeting, the Forest announced that in 2004 16% of LNF roads were maintained and only 13% met road management objectives. It may be even worse in the next few years.

Consideration needs to be given to reducing operational ML of these ML 3 and 4 roads to ML 2 and concentrate your dollars on drainage. Observed conditions, summer 2005, are best described as meeting Level 2 (ML2) as shown in Exhibit 01, Section 12.6 FSH 7709.58 effective 9/4/92. It will cost a lot more to bring these roads back if they wash out.

Grading—It appears from the debris in the ditches, ruts, pot holes and washouts, that the drainage has not been touched for a number of years. Traffic has created numerous large washboards that can cause any vehicle to loose control.

The ditches need to be cleaned to keep run-off in the ditch. When pulling the ditches with a grader, keep the break point between the road surface and ditch slope flat enough to safely allow a vehicle to drive into the ditch to avoid an accident.

And remove the berms that have accumulated since 1991. This will enhance the dispersal of water and can provide from one to six feet of additional accident avoidance space.

The drainage work is needed to protect the road investment as well as the adjacent resources.

Vegetation Removal—Given the amount of vegetation growth that has encroached on the travel way, it's been at least 5 years since any major vegetation removal effort was made.

Minimum removal work has been listed on a map for each road in Appendix F. It is also listed by milepost and GPS coordinates under notes for each road in Appendix E. A Garmin GPS76CS with a 15 meter accuracy was used. Coding use is as follows:

Consider Alternative A; Page 5C-6 of MUTCD states:

> *"Section 5C.12 NO TRAFFIC SIGNS Sign (W16-2)*
>
> *Option:*
>
> *A warning sign (W16-2) with the legend NO TRAFFIC SIGNS may be used only on unpaved, low volume roads to advise users that no signs are installed along the distance of the road. If used, the sign may be installed at the point where road users would enter the low-volume road or where, based on engineering judgment, the road use may need this information.*
>
> *A supplemental plaque (W7-3a) with the legend AHEAD, XX METERS (XX FEET) or NEXT XX KM (NEXT XX MILES) may be installed below the W16-2 sign when appropriate."*

Install one of the W16-2 signs at each State or County road intersection. By doing this the agency is advising the traveling public that no further warning signs are posted along the road. This should, in my opinion, protect the agency in the event of a tort claim resulting from an accident where the claimant says they were not warned about a curve, for example.

Or, consider Alternative B;

After traveling along these roads several times, a few specific signs to warn drivers about uncommon conditions along the way may be in order to help reduce the risk of an accident. The recommended MUTCD signs are listed in Appendix E and F by mile post, GPS coordinates and catalog number and on maps. The MUTCD provides location criteria for different travel speeds.

Recommendation—After much thought about the A and B Alternatives, I have concluded the best approach, given today's conditions, is Alternative A–No Traffic Signs. This will be the least costly way, the easiest to monitor for longevity of sign life and should minimize tort claims. Needed W16-2 signs are shown on the vicinity map at the beginning.

The Forest and Region, as a whole, may wish to adopt this system for all NFS roads where they intersect with State and County Roads. OGC could be consulted.

Share The Road—If the decision is made to allow non-street legal OHV on the ML 3 and 4 roads, then Share The Road (W16-1) signs need to be installed. See Chapter 3A, EM-7100-15 Signs and Poster Guidelines OHV Chapter and/or use MUTCD W16-1 signs with the appropriate white on brown vehicle symbols.

September 26, 2005

Below is the log of the photographs in the 2005 Traffic Study on the Share-the-Dream Loop, LNF BCDT 3B.

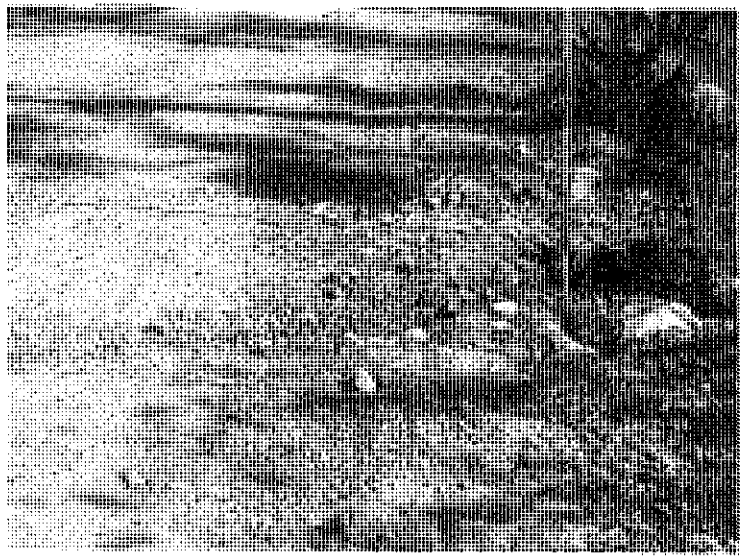
All photographs were taken by H. R. Tatman, Jr.

Some of the photographs were edited to lighten the shadows. Where these are used, both versions of the photographs are included on the CD.

Photograph Log, 9/6/2005 Continued

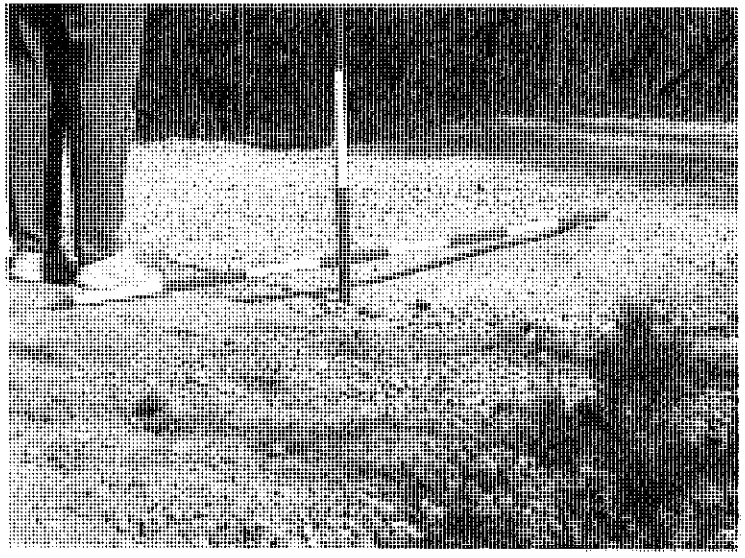
Road Number	WP	MP	Lat/Lon	Comments, Hazard, Mitigation, Etc.
32N61	24	2.13	N40°36.013, W121°17.759	Photo 05-0704
32N17	26	0.32	N40°35.163, W121°36.457	Photo 05-0706
32N17	27	1.01	N40°34.736, W121°36.969	Photo 05-0707
32N17	28	3.96	N40°32.683, W121°38.027	Photos 05-0708, 05-0709
32N17	29	4.96	N40°32.092, W121°37.478	Photos 05-0710, 05-0711
32N17	30	5.15	N40°30.015, W121°37.268	Photos 05-0712

05-0672 Plugged culvert



05-0673 Shoulder washed 1.5 Feet

culvert



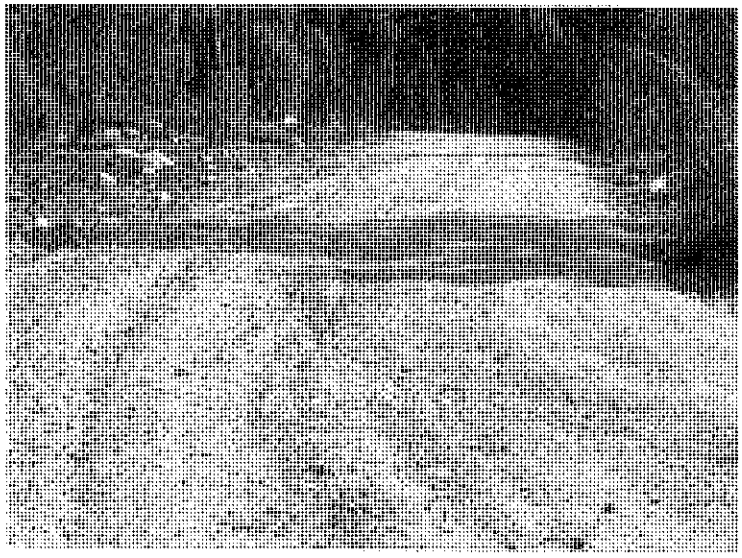
05-0674 Culprit

05-0676 Each color is 12" long on range pole

Photos by H.R. Tatman Jr.

September 6, 2005

05-0677 Results of plugged ditch



05-0678 Plugged ditch

05-0679

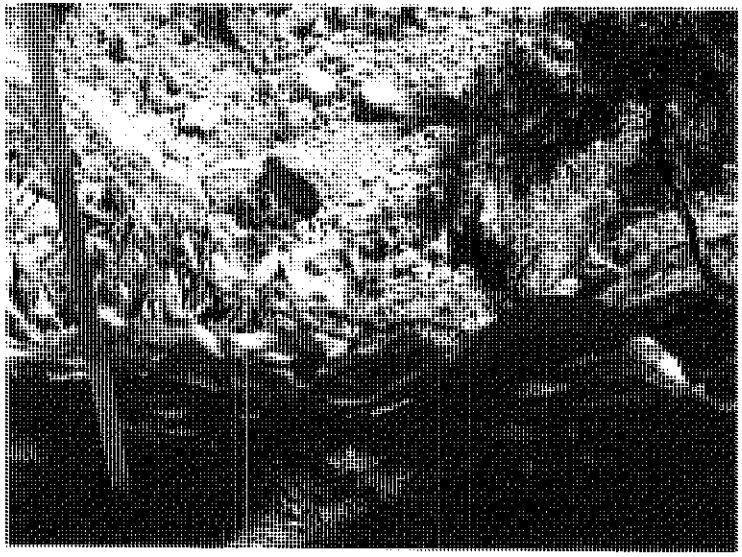
Accumulated berm and vegetation

05-0682 OK Obj. ML4 road-except for berm in fill area

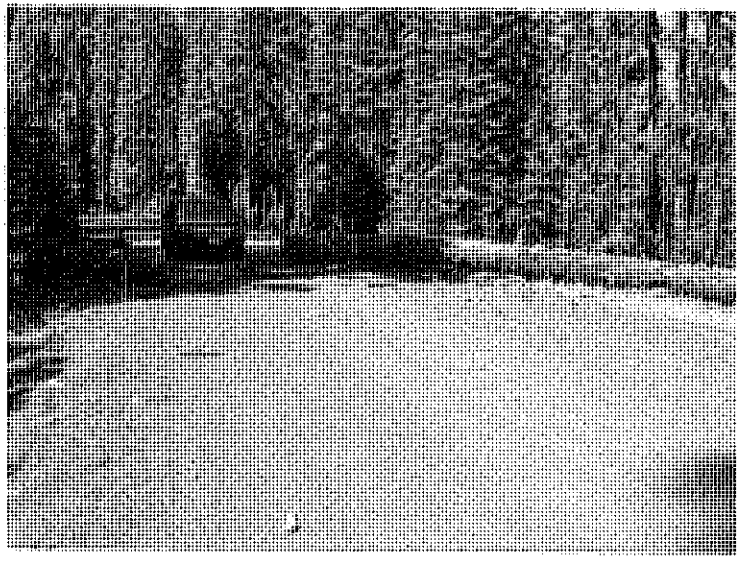
Photos by H. R. Tatman, Jr.

September 6, 2005

05-0680 Short CMP (SCMP)



05-0681 Hole to fall into



between 8/17/05 and 9/4/05

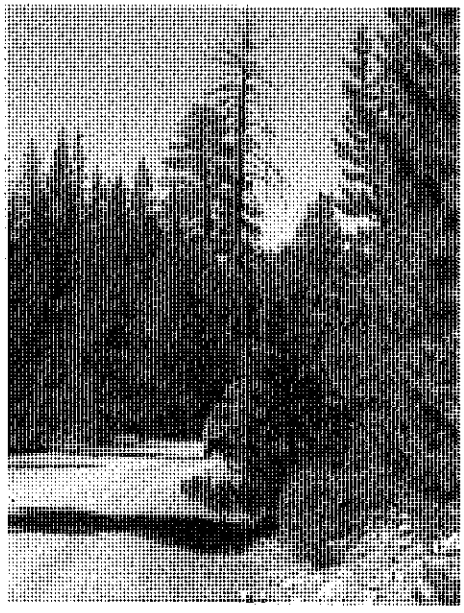
05-0683 Fell
05-0684 Same tree

Photos by H.R. Tatman Jr

September 6, 2005

05-0686 Widow maker and veg. encroachment

05-0687 Widow maker and berm on fill

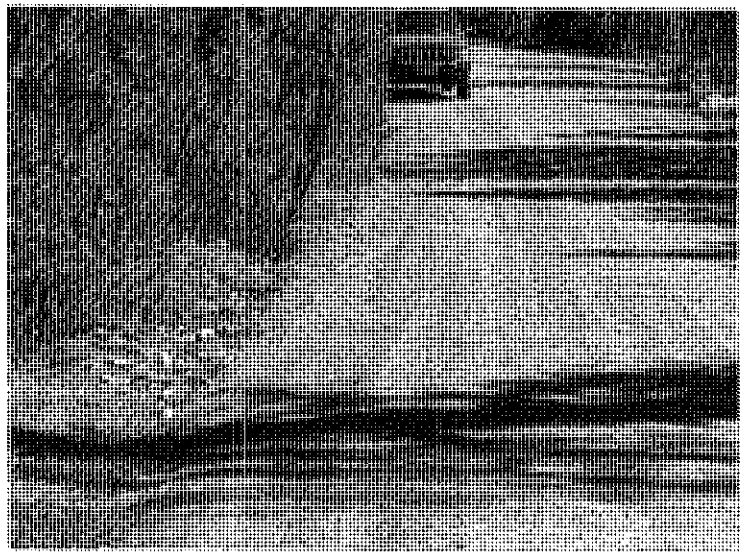


05-0685 Widow maker

Photos by H.R. Tatman Jr

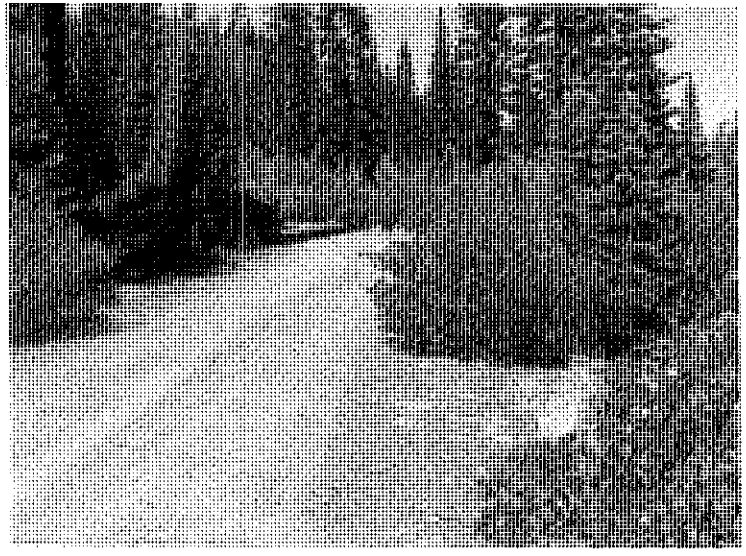
September 6, 2005

05-0688 Imported surface material left in berm Rock beginning to show in surface



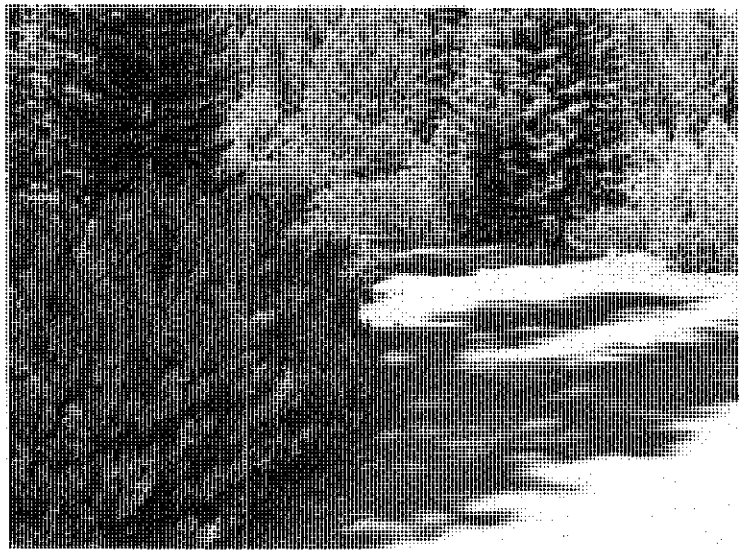
05-0689 Pieces of dead limbs from widow maker on roadside.

05-0690 Fallen tree

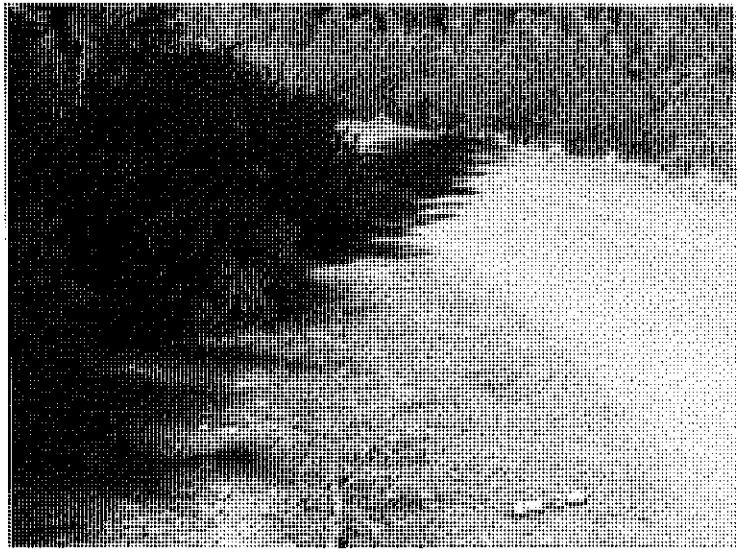


05-0691 Vegetation encroachment

05-0692 SDC



05-0693 SDC



05-0694 SDC

05-0695 SDC

Photos by H.R. Tatman Jr

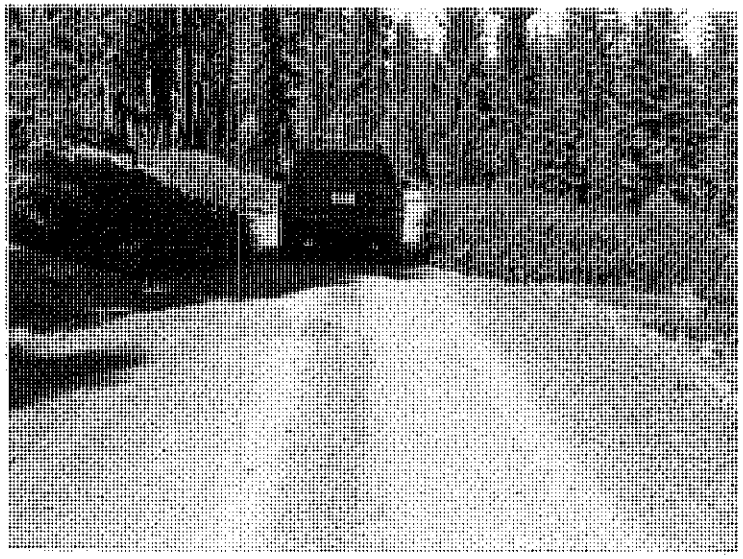
September 6, 2005

05-0696 Brush encroachment

05-0697 Maintenance

encroachment

05-0698 Brush



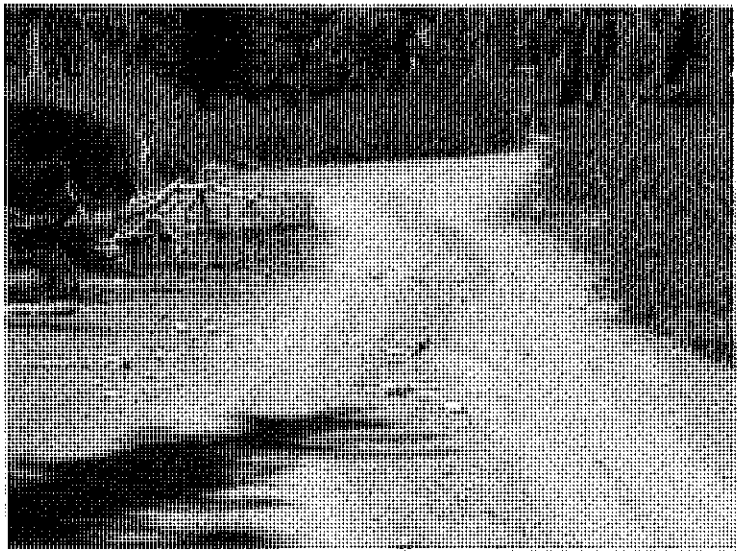
05-0699 Brush encroachment

Photos by H.R. Tatman Jr

September 6, 2005

05-0702 Previously damaged meadow

05-0703 Some signs of 2 year old damage



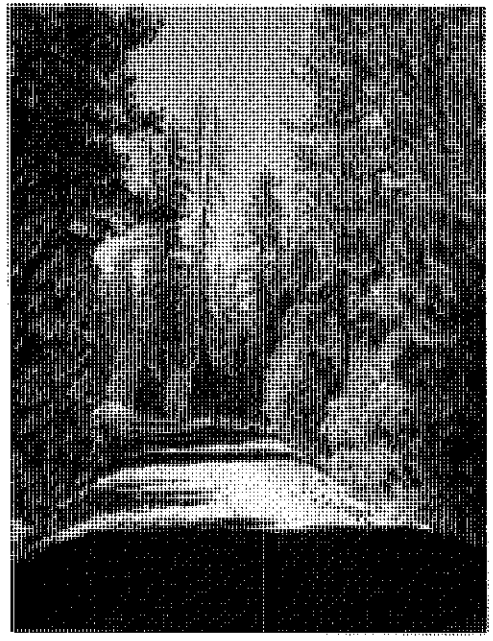
05-0701 Maintenance

Photos by H.R. Tatman Jr

September 6, 2005

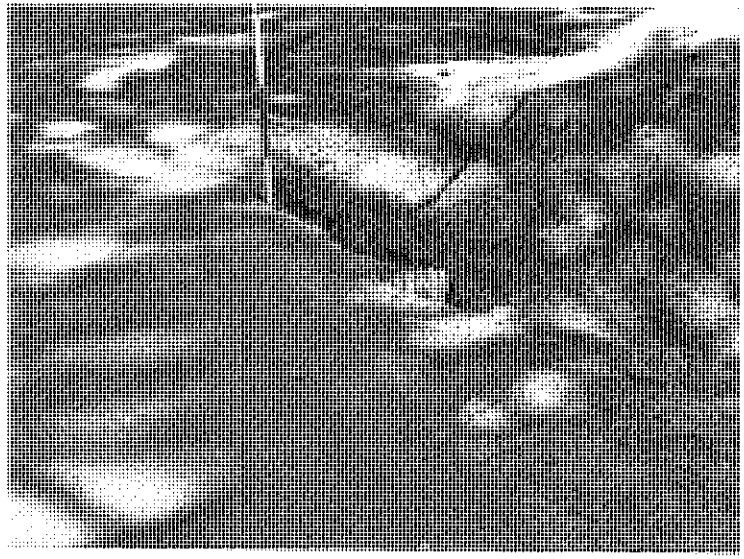
05-0706 Rutting

05-0707 Surface erosion



05-0704 More widow makers

05-0708 SCMP



05-0709 SCMP

holes

05-0710 Pot

05-0711 Pot holes

Photos by H.R. Tatman Jr

September 6, 2005

05-0712 Pot holes

Estimated
Maintenance–Signage Needs & Costs

Road #	Maintenance		Regulatory Signs	Warning Signs		Object Markers
	SDC	RBE		Alt. A	Alt. B	
30N16	12	1			6	2
29N22	2					
10(32N10)	3	1	2		12	8
23N09	4	7			16	
32N21						
32N12	1				2	
32N13	6	3				4
16(32N16)	1					
32N24	5				4	6
32N13						
32N17	3				8	2
17(31N17)	20	1	2		30	2
Totals	57	13	4	15 or	78	24
Cost	$18,500	$7,700	$1,000	$3,750 or	$19,500	$3,000

$30,200 + $3750 or + $19,500 = $33,950 or $49,700

SDC & RBE 4 person crew @ $45.00/Hour + 150 mi/day @ $0.405 = $1500/day
Power pole saw @ $350.00 & chain saw @ $300.00 = $650
SDC 5 curves/day = 12 days = $18,000 + 12/17ths ($650) = $18,500
RBE 3 sites/day = 5 days = $7500 + 5/17 ($650) = $7,700

Regulatory & Warning Signs @ $250 each

Object Markers @ $125 each

Appendix

A - Glossary

B - Forestwide 2005 Accident History

C - State Laws Preempted

D - Traffic Flow Data by Count Site

E - Roadway Characteristic Notes and Slope Maps by road

F - Shared Use Assessment, Maps and Maintenance and/or Mitigation Tasks by road

G - Recommended MUTCD Signing

H - Study Volunteers

February 3, 2005

Elizabeth Norton
Lassen National Forest

OHV use on NF system roads

I fully understand the liability and concerns to allowing non-street legal vehicles on level 3-5 roads! Please consider this proposal to minimize the risk.

I have in hand R-6 Supplement 7709.59-92-1 effective May 6, 1992, R-6 Supplement 7730-2003.1 effective April 10, 2003, an eastern forest's ATV Evaluation for FR 2231 documentation, the San Dimas Pre-project proposal for a July 2006 publication, my May 2004 Issue paper, and my 2004 Backcountry Discovery Trail Signing protocol.

Enclosed is a proposed methodology to evaluate and document the risk of allowing non-street legal vehicles to share use with street-legal vehicles on individual FS System roads.

Further, I propose that the Lassen NF evaluate the appropriateness of this methodology by applying it to BCDT 3B (Share-the-Dream) route around Lassen Volcanic National Park as a test effort during the 2005 field season. This will allow time for further feedback to San Dimas in their efforts to document a National process, due in July 2006.

And, finally, if this proposal is acceptable to the Lassen and Region, I will work with the Backcountry 4X4s Club in 2005 to perform the field data gathering to formally document an evaluation for use on BCDT 3B. The snow is already melting!

"Shared" terminology is already used on signs shown in the current MUTCD manual. When shared use is approved then the "shared use" signing protocol will need to be developed and could be made a part of the BCDT Signing Protocol for trial testing.

Dick Tatman
530-253-3054

Enclosure

cc: Laurie Tippen
Jack Walton
Rich Farrington
Bob Sutton
Ed Gililland, San Dimas
Sylvia Milligan

Forest Supervisor

Laurie A
Tippin/R5/USDAFS
03/16/2005 11:37 AM

To Jack Walton/R5/USDAFS@FSNOTES, Elizabeth Norton/R5/USDAFS@FSNOTES
cc
bcc
Subject Share the Dream Loop/Mixed Use traffic study

It's in our best interest to have volunteers from ROC assist us in a traffic study this field season to determine whether mixed use is appropriate on some or all of the Share the Dream Loop. Dick Tatman has submitted to us a methodology used elsewhere in the agency to figure out traffic use on our road system. Having this type of info will be useful in making a mixed use determination.

Prior to initiating any volunteer agreement w/ ROC, I want the two of you to jointly discuss, determine, & agree upon:

- the info we want ROC to collect for us using the methodology submitted by Dick
- the specific roads we want the info collected, create a priority list of roads
- what equipment or supplies we'll provide
- who the Forest Service contact will be and the critical check points where ROC needs to provide us updates
- the time frame in which we want the data collected
- the format that needs to use ROC to submit the summary data
- any other pertinent info you deem appropriate

I don't want to walk away from ROC's offer to assist us in gathering data this field season, which means your collaboration on this is extremely important. Thanks for your attention to this.

Laurie Tippin
Forest Supervisor
Lassen NF

(530) 252-6600 office
(530) 252-6463 fax
ltippin@fs.fed.us

April 19, 2005

Forest Supervisor
Lassen National Forest
2550 Riverside Drive
Susanville, CA 96130

Ref: Share-the-Dream Loop Traffic Study

Dear Ms Tippen,

Enclosed for your consideration is a proposed Traffic Study to assist in deciding if non-street legal OHVs could relatively safely share use with street legal vehicles on the maintenance level 3 and 4 roads needed for the Share-the-Dream Loop (BCDT 3B). The study to be done by the Regional Office will not adequately cover this Loop.

The Back Country 4X4s Club (affiliated with ROC) agreed to take on the task of doing the surveillance work in June, July and August, 2005. We need to tie down dates to put a work party together. I will serve as Team Leader for this study.

We would appreciate your earliest decision so that logistics can be developed to have a work party training session on June 4, 2005 and start surveillance on June 5, 2005.

Sincerely,

Dick T.

H. R. (Dick) Tatman, Jr.
President, Back Country 4X4s
and California Licensed Traffic Engineer, TR1013, 12/31/06
707-620 Wingfield Rd.
Janesville, CA 96114
530-253-3054 dick@team-tnt.com

Enclosure

cc: Elizabeth Norton
Sylvia Milligan, Chairperson, ROC

Traffic Study

BCDT–3B Share-the-Dream Loop

Summer 2005

Problem: (Question) Which unpaved road segments of the proposed BCDT-3B Share-the-Dream Loop may have shared (mixed or combined) use between street legal vehicles and non-street legal OHVs?

Given: The unpaved road segments to be evaluated in this study are identified as coded A and 1(a) on pages 17 and 18 of the March 5, 2004 "Proposal for Alternate 3B through the Lassen National Forest".

There are 12 separate unpaved segments for 3B, two of which are County roads. In addition, there are 2 segments of BCDT 3 to complete the loop around Lassen Volcanic National Park. And this involves (or portions of) 17 classified forest development roads (FDRs).

Transportation inventory records need to be researched to obtain management and historical information to include on the Traffic Study Results form for each segment.

Data Collection:

Roadway Characteristics – data needs to be collected along each road segment to complete the Road's Characteristics form. This task will involve at least two vehicles driving together along each segment to gather the required data.

Traffic Flow – data needs to be collected at each of twelve (12) specified counter stations. One or two people must occupy each station from 7:00 AM until 7:00 PM on count days. Teams can work in 4 or 6 hour shifts, also, as long as continuous coverage is provided for the 12 hour count day. The resulting sample count will represent about 80 percent of the ADT for that day. The recording will determine the total number of vehicles, by class, that passes the station in either direction. Data is to be recorded on the Traffic Flow Data form.

Count days will be on the first Sunday and third Wednesday of June, July and August and first Sunday of September.

Data Analysis:

After the data is collected, the annual (seasonal) average daily traffic is calculated per FHWA definition and is recorded on the Traffic Study

Results form. The percent by class is calculated and added to the Results form. Average speed in miles per hour (MPH) is transferred to the Results form from the Roadway Characteristics form.

Finally, judgement comes into evaluating the information collected and assigning an accident probability and consequences.

If the decision is made to allow street legal–non-street legal shared use, then a closer look at roadway characteristics is needed to determine what, if any, spot work is needed to further reduce accident potential. Share use signing is required.

Enclosures

- Traffic Flow Data form with detailed instructions
- Roadway Characteristics form with detailed instructions
- Traffic Study Results form with detailed instructions
- Traffic Study Methodology Documentation.

Copies of selected cited references available by request.

Coding Instructions

Traffic Study Forms

Traffic Flow Data

The study team leader will complete the location information on the form prior to field work. The recorder is to note who he/she is, the date of the count and the weather conditions.

Weather can be clear, partly cloudy, cloudy, rain and temperature cool, warm, hot.

Depending upon the amount of traffic in a four hour period, there are a couple of ways to record when a vehicle passes the station in either direction. Use ~~THL~~ or ⁘ or the numeral for the time period. Use the same format for the entire counting period.

Vehicles are classified as follows:

Vehicle Class	Characteristics	Record
1	Street Legal** 2WD or 4WD** Motorcycles**	Passenger Car SUV Pickup Motorcycle
2 OHV Non-street Legal <50" wide	2 wheels/tires 3 or more wheels/tires 2WD or 4WD (Dirt bikes, quads or ATVs)	Dirt Bike Quad
3 OHV Non-street Legal >50" wide	4 or more wheels/tires 2WD or 4WD ("Jeeps" or dune buggies)	
4 OHV Non-street Legal	Snowmobile	

** State licensed with metal plates for use on "highways".

For example, a state licensed highway motorcycle is to be coded in the Class 1 block.

Record vehicle Class 1 traffic as either passenger car, sport utility vehicle, pickup or motorcycle. See Traffic Flow Data Form.

Record any unusual things you happen to see about traffic and traffic flow.

Totals may be done by the recorder or team leader.

Roadway Characteristics

The study team leader will work with the recorder(s) to ensure consistency in the collection of data.

Mileposts will be by vehicle odometer and logged to the nearest tenth of a mile (528 feet). If a specific point, such as a hazard, needs a closer measurement estimate, *264 feet or one hundredth of a mile, i.e., 3.25.*

- Start the mile post log at the beginning of the segment and record it as MP 0.0. Use your trip odometer if you have one, set to 0.0.

Coding

• Surface type	
- Native material	N
- Processed aggregate	A
• Travel-way width	
- Average usable width	Feet
- Minimum width	Feet
- Driveable shoulder width, clear space	Feet
• Adjacent hillside slope–downhill	
- Using clinometer or abney determine *average slope for sections*	<40% or >40%
• Average Travel Speed	
- While driving the road to gather roadway characteristics, record your average travel speed for the section.	MPH
• Sight Distance* (measure ~~5~~ 4½ feet above roadway)	
- Horizontal Curve	Feet by Milepost
- Vertical Curve	Feet by Milepost

*Measured and recorded *if less than* the following stopping sight distances:

MPH	USFS Sign Placement Guide, pg. 32 (feet)	USFS Sign Placement Guide, pg 44 (feet)	Calif. DMV	FSH 7709.56 -4.25 SL (feet)		MEAN (feet)
20	90	–	150	210	Trucks	150
30	130	193	215	360		225
40	180	309	290	540		330
50	220	444	360	–		341

The feet listed as the mean or average of the various sighted sources will be used.

A procedure needs to be developed.

- Specific Hazards

  As you travel the road note the milepost and type of unusual hazard along the travel way, i.e., rock outcrop, short culvert, tight/narrow turn, tree or stump, that encroaches on the travel way.

  Milepost and hazard identity

- Signing

  Again, as you travel the road, note the milepost and type of warning sign (MUTCD) that you believe is really needed.

  Milepost and MUTCD sign number

Traffic Study Results

The study team leader will compile the date to complete this form.

- Functional Classification
  - Arterial — A
  - Collector — C
  - Local — L

- Traffic Service Level
  - Free flowing, mixed traffic — A
  - Congested during heavy traffic — B
  - Interrupted traffic flow — C
  - Traffic flow is slow — D

- Objective and Existing Maintenance Level
  - Closed more than 1 year — 1
  - High-clearance vehicles — 2
  - Passenger vehicles, surface not smooth — 3

- Passenger vehicles, surface smooth 4
- Passenger vehicle–dust free, possibly paved 5

- Accident History last 5 years Year by Milepost
  Review accident report and list mileposts

- Based upon local knowledge, record the probable inclusive months that use will occur.

- Calculate the annual or seasonal ADT using the FHWA definition.

- If the calculated ADT exceeds the following, then install mechanical traffic counters to record traffic flow over a minimum of two weeks at a time, twice per season.

Maintenance Level 3	30 ADT
Maintenance Level 4	90 ADT
Maintenance Level 5	120 ADT

- Estimated Accident Ratings, Potential and Severity

Reference: *FSH 7709.59, Chap. 50, Section 52.2"*

It needs to be said that accidents–even single vehicle ones–happen! Risk can not be totally eliminated!

The following are proposed to help evaluate the potential and severity of an accident.

Additional Guidance to Consider from May 2004 Issue Paper

Maintenance Level	Ave Basic* Speed (MPH)	Average Daily ** Traffic (ADT)	Surface Type
3	30	15	Native/Agg
4	40	45	Aggregate
5	50	60	Paved

*Estimated *basic speed as defined VC 38305.*
**Estimated average annual daily traffic.

Probability of Accidents

	High	Medium	Low
Mix Vehicle Classes 50% Class 1 and 50% Class 2			
Speed exceeds basic by:	150%	75%	50%
ADT exceeds daily by:	300%	200%	100%

Consequences of Accidents

High – Results in potentially disabling injury or death (FSH 7709.59-51.3
Medium – Property damage exceeding $4000 or bodily injury requiring professional medical assistance.
Low – An accident that is not a Reportable OHV Accident (VC 16000.1)

OR from R6 Supplement 7709.59-92-1 (5/6/92)

Low Probability exists where there is a combination of factors such as:

- no known accidents
- lower ADT (30 or less)
- users are well acquainted with the situation
- lower speeds of ~~1~~2 5 mph or less generally associated with maintenance level 2 roads
- abrupt changes in roadway cross section are not present
- little or no impairment of visibility
- changes in roadway curvature are smooth and do not require rapid deceleration

High Probability exists where there is a combination of factors such as:

- history of several accidents
- ADT in excess of 150
- users are present who may not be familiar with this type of road or driving
- speeds in excess of 40 mph generally found on maintenance level 4 and 5 roads

- changes in road width, shoulder or surface type occur
- some abruptness of either vertical or horizontal curvature are present and changes in speed and maneuvering are required

Low Severity – A combination of factors such as:

- slower speeds (~~1~~2 mph or less)
- adequate clearance from hazards, limited obstacles, and shallow streams or other bodies of water.
- lesser slope steepness
- fair alignment and visibility
- single or family passenger vehicles
- travelway is relatively clear of fog, snow, or ice

High Severity – A combination of factors such as:

- higher speeds (40 mph or more)
- little clearance for roadside hazards, intrusions in roadway, deep, or fast water
- steep grades (over 12%)
- steep side slopes or drop-offs
- radical change in user speed or alignment
- buses or other similar multiple passenger vehicle
- fog, snow, or ice are common during use

Estimate the probability and severity ranking for the road and show the coding on the Traffic Study form.

Probability H, M, or L
Severity H, M, or L

After completion of the ranking for probability and severity, determine the most cost-effective method of managing the accident risk. Reduction of

risk needs to be balanced against the investment required to reduce the risk. At some locations the cost to eliminate most or all accidents may not be cost effective. A less costly treatment which allows a medium accident frequency may be the most cost-effective solution if the accident severity can be reduced to a lower accident risk for the average driver.

This is the part of the study that must rely on common sense and sound judgement.

Allow OHV shared use when both ratings are medium or low or combination of medium and low. Evaluate economically feasible mitigation measures to reduce one high rating to medium or low. If both ratings are high and mitigation not feasible, then do not allow shared use, thus, code the Traffic Study form. Y or N

If feasible mitigation measures can be accomplished, then list what and where and include on Traffic Study form.

Traffic Flow Data

Count Station #_____

_____Traffic Study

Study Segment #_____ GPS Coord.: Lat_____ Lon_____Field Data Collected by_____

Location Narrative_____ Date and Weather_____

Forest_____ Road No_____Normal Season Use Period_____to_____

Milepost	Vehicle Classification							Total Traffic Numeric
	1 Street-legal				2 OHV		3 OHV	
	std Passenger car	SUV	Pickup	Motorcycle	Dirt Bike	Quad		
7AM – 11 AM								
11 AM – 3 PM								
3 PM – 7 PM								
Total Count for Day								
% Traffic by Class								

People per Vehicle (any class)					
1	2	3	4	5	6 or more

Site Photo

Roadway Characteristics _____ Traffic Study Page_____ of _____

Road No_____ Field Data Collected by_____

Study Segment No_____ Date_____

Milepost	Surface	Travel-way		Shoulder/Clear		Downhill Slope %	Average Speed	Sight Distance		Hazard	Sign Needs
		Average	Minimum	Left	Right			Horiz.	Vertical		

Traffic Study Methodology

Given: Traffic as used in this study is any motorized vehicle used for the purpose of travel. Traffic, or vehicle classification, are defined variously by Executive Order 116-44, 36CFRS, FSM and FSH. There is no clear, simple definition that would be easily understood by the public at large.

FSM and FSH do not specify any specific average daily traffic (ADT) linked to road standards or maintenance levels. FSH 7709.56 - 4.2 does discuss vehicles per hour (VPH) and mixed use to relate traffic service levels, turnout spacing and operational constraints, and states:

"Traffic Service level

A	Mixed use up to 25 VPH	≈ 600 ADT
B	Mixed use up to 25 VPH	
C	Some Mixed use up to 20 VPH	≈ 480 ADT
D	Not intended for mixed use 0-10 VPH."	≈ 240 ADT

According to the Roads Analysis, Report FS-643, 1999:

Road Classifications in Current Use

Functional Class	Traffic Service Level	Maintenance Level
Arterial: Provides service to large land areas. Connects with other arterials or public highways. **Collector**: Serves smaller land areas than arterials. Connects arterials to local roads or terminal facilities. **Local**: Single purpose road. Connects terminal facilities with collectors or arterials.	**A**: Free flowing, mixed traffic; stable, smooth surface; provides safe service to all traffic. **B**: Congested during heavy traffic, slower speeds and periodic dust; accommodates any legal-size load or vehicle. **C**: Interrupted traffic flow, limited passing facilities, may not accommodate some vehicles. Low design speeds. Unstable surface under certain traffic or weather. **D**: Traffic flow is slow and may be blocked by management activities. Two-way traffic is difficult, backing may be required. Rough and irregular surface. Accommodates high clearance vehicles. Single purpose facility.	**Level 1** Closed more than 1 year. **Level 2** High-clearance vehicles. **Level 3** Passenger vehicles–surface not smooth. **Level 4** Passenger vehicles–smooth surface **Level 5** Passenger vehicles–dust free; possibly paved.

FSM and FSH are not consistent or clear as to which class of vehicle may use which road. The common understanding is "OHV" can use maintenance Level 2 roads unrestricted and can not use paved roads (normally maintenance Level 5). Use of Maintenance Level 3 and 4 roads by OHV is not absolutely clear. FSH 7709.59-52.2 limits use but also considers the probabilities and consequences of accidents associated with shared (mixed/combined) use. A traffic study is called for but there is no guidance for such a study.

FSH 7709.55 - 31 Area Transportation Analysis, states several things that are pertinent to this study:

31.22 Collect Data

1. Identify Only the Data Needed for the Study.
2. Use Existing Data to the Fullest Extent Possible.

31.23 Interpret Data

2.b,(2)(b). A loop road can be designated for OHV and ATV traffic between periods of commercial use.

OHV/ROADS ISSUE

On April 7, 2004, the Motorized Recreation Program Leader for R5 (Pacific Southwest Region of USFS) asked for help to research the issue. A 68 page issue paper was published in May 2004 and shared with the Region and edited portions sent to Washington in response to Federal Register call for response to first draft policy on OHV use on forests. This research involved detailed study of the California Vehicle Code, Executive Orders, Code of Federal Regulations and the Forest Service Manual and Handbooks, as available on the internet.

Based upon the recommendations made during the preparation of the 5/04 Issue Paper, the following vehicle classes and daily traffic numbers were developed and will be used in this study:

47. For the purposes of Traffic Management (36CFR 212.5 and FSM

7700) the following vehicle classes are recommended for adoption and use:

Vehicle Class	Characteristics
1	Street Legal 2WD or 4WD
2 OHV	Non-street Legal <50" wide 2 wheels/tires 3 or more wheels/tires 2WD or 4WD
3 OHV	Non-street Legal >50" wide 4 or more wheels/tires 2WD or 4WD
4 OHV	Non-street Legal Snowmobile

48. The following estimates are offered and linked to the Maintenance Level System:

Maint.Level	Speed Range (MPH)	Use Speed (MPH)	Daily Traffic Range	Use ADT	Surface Type
2	2-38	20	0-10	5	Native
3	15-45	30	10-30	~~15~~ 25	Native/Agg
4	25-55	40	30-60	45	Aggregate
5	45+	50	60+	60	Paved

Traffic Engineering:

Four documents have been reviewed and applicable statements extracted here for clarification, leading to the study plan. Copies of sections from these documents can be made available.

1. **Fundamentals of Traffic Engineering**, Institute of Transportation and Traffic Engineering, University of California, Berkeley, CA, 1966

a) ADT in vehicles per day used to measure present traffic flow and demand for service.

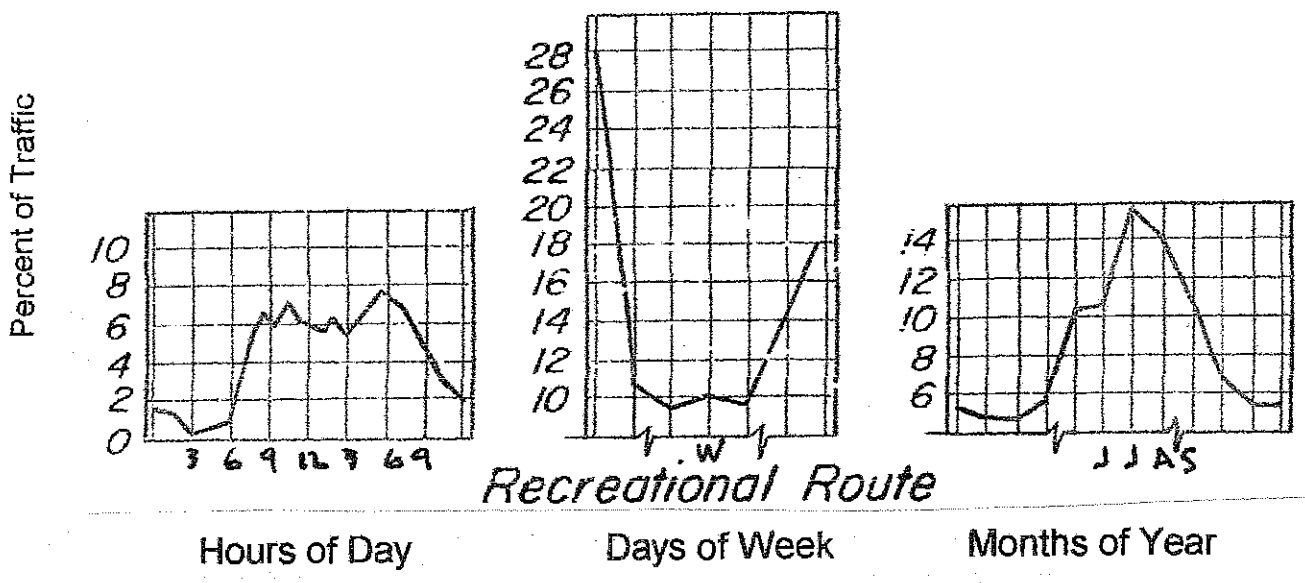
b) Classification counts used in establishing structural and geometric design criteria.

c) Manual counts for light volumes.

d) Counting Periods commonly used–12 hours–7AM to 7PM.

e) Rural Counting Programs vary considerably depending upon type and size of area. Coverage Stations are counted for a 24 or 48 hour weekday period annually or biennially.

f) Rural Characteristics are shown for California roads:



2. **Guide for Traffic Volume Counting Manual**, Bureau of Public Roads (**Now Federal Highway Administration FHWA**), 1965 Guidance for State DOTs.

a) Defines annual average daily traffic (ADT)

ADT - (Annual average daily traffic) Annual average number of vehicles during 24 consecutive hours that pass a particular point on the road over the period of 365 days.

Annual average daily traffic is calculated by averaging the average daily traffic for each of the 12 months. The average daily traffic for the month is calculated using the equation:

Average day of month = $\frac{5 \text{ Av. Weekday} + \text{Av. Saturday} + \text{Av. Sunday}}{}$

Where Av. weekday = average daily volume for all weekdays of month
Av. Saturday = average daily volume for all Saturdays of month
Av. Sunday = average daily volume for all Sundays of month

This procedure is considered the simplest feasible method for providing comparable values when counts for certain days are unusable.

b) Defines coverage count stations.

c) Defines statistical analysis and experience in application of statistically controlled procedures in 30 states.

d) Defines that any count of less than one-year duration must be regarded as a sample.

e) Observations indicate that there are substantial differences in the urban and rural variations of traffic volumes, in terms of time periods.

f) Procedures for highways with ADT volumes between 25 and 500. Percent of ADT error when counting on state wide programs greatly increases under an ADT of 250.

Coverage count stations procedures also apply to low volume (25-500) roads. An exception to this policy is that coverage count stations are not usually located on roads carrying an ADT of 25 or less. Locate coverage count stations at alternate intersections. However, it may not be necessary to locate a

coverage count station at alternate intersections providing the traffic volumes do not vary by more than 25 percent between road sections under consideration.

g) Roads with ADT volumes less than 25. Other sources of information should be used for the estimation of traffic volumes on the extremely low-volume roads.

h) The greater the familiarity with local conditions the better judgement can be exercised in the final decision in estimating traffic volumes.

3. **Traffic Surveillance, FSH 7709.41, PSW (R5), 1969**

a) Each Forest can identify roads or road segments for which information on the traffic is needed now. Therefore, we begin by selecting sites on the basis of urgency for information about a road segment.

b) The reading schedule or observation period will depend only on the accuracy required.

c) Select road segments about which information is necessary now.

d) Keep orderly and systematic records of all data gathered for now and the future.

e) Whatever sample size or reading schedule is chose, it must be periodic, e.g., with respect to the hour of the day, day of the week, and the of the same duration.

f) Manual counts will be done, therefore machine counter malfunctions or errors do not need to be considered.

4. **1988 Traffic Volumes on the California State Highway System**, State of California Division of Traffic Engineering in cooperation with the Federal Highway Administration.

a) Traffic trends are defined. 1988 numbers will be displayed at appropriate places for this study. This document indicates a 5.8% statewide annual average rate increase between 1983 and 1988.

b) Annual ADT, Peak Month ADT and Peak Hour are defined.

Study Methodology:

The problem or question is, what is the level of shared use between street legal vs non-street legal OHV at which the perceived risk of an accident is too great to allow the sharing?

The term shared is used in lieu of mixed or combined primarily because the Manual of Uniform Traffic Control Devices (MUTCD) already has a typical sign that says "Share the Road", #W16-1.

Factors that have a bearing on this question are:

1. How much traffic is moving, ADT
2. What type of traffic is moving, classification
3. Basic speed of traffic, MPH
4. Stopping sight distance
5. Specific roadside hazards

Items 1, 2 and 3, however, are variable and at the whim of the driver. Some risk of an accident is to be expected.

Items 4 and 5 above can be physically mitigated to an acceptable level if they are judged to be a problem. Site specific reconstruction and/or additions of warning signs can be done.

FSH 7709.59 - 52.2 contains some guidance for estimating the potential and severity of an accident. USFS Region 6 also has an R6 Supplement that provides some more insight in how to make a

decision. Further, the May 2004 Issue Paper includes yet another set of criteria.

TATMAN

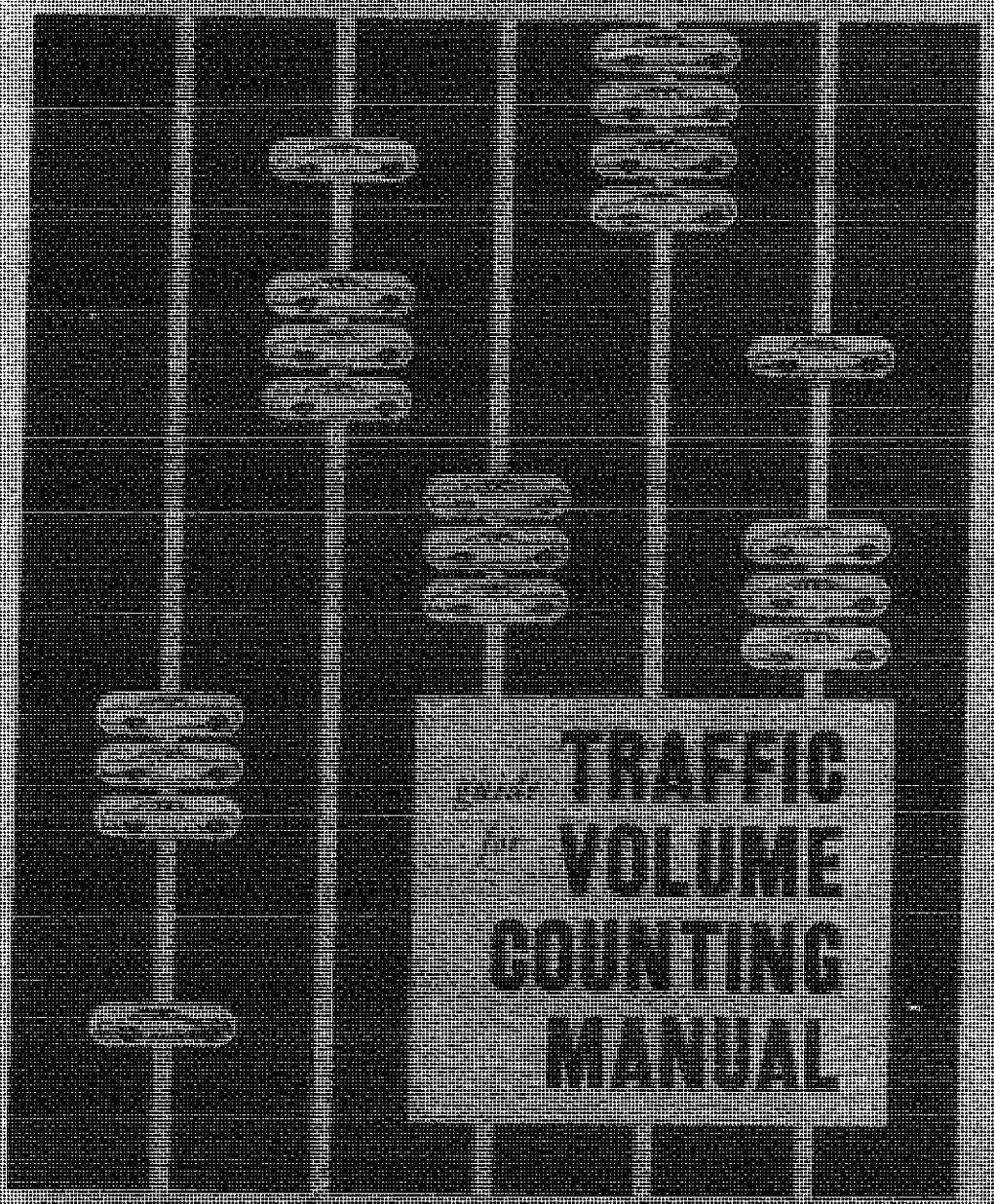
SYLLABUS

Fundamentals of Traffic Engineering - 6th Edition

Norman Kennedy, James H. Kell, Wolfgang S. Homburger

THE INSTITUTE OF TRANSPORTATION
AND TRAFFIC ENGINEERING
UNIVERSITY OF CALIFORNIA

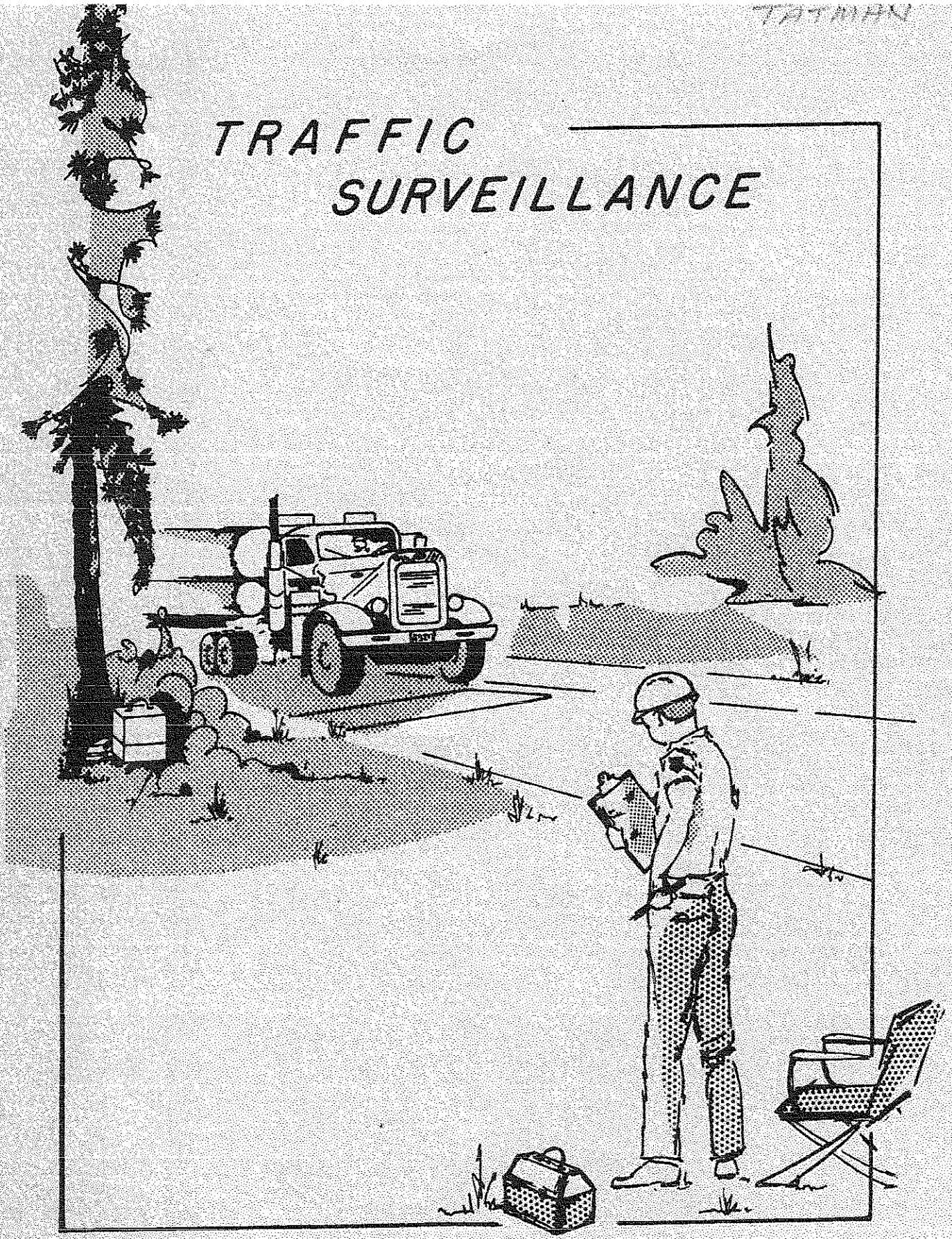
R. R. ITTNER, JR.



TRAFFIC VOLUME COUNTING MANUAL

U.S. DEPARTMENT OF COMMERCE · Bureau of Public Roads

TRAFFIC SURVEILLANCE



CALIFORNIA REGION
DIVISION OF ENGINEERING

7709.41

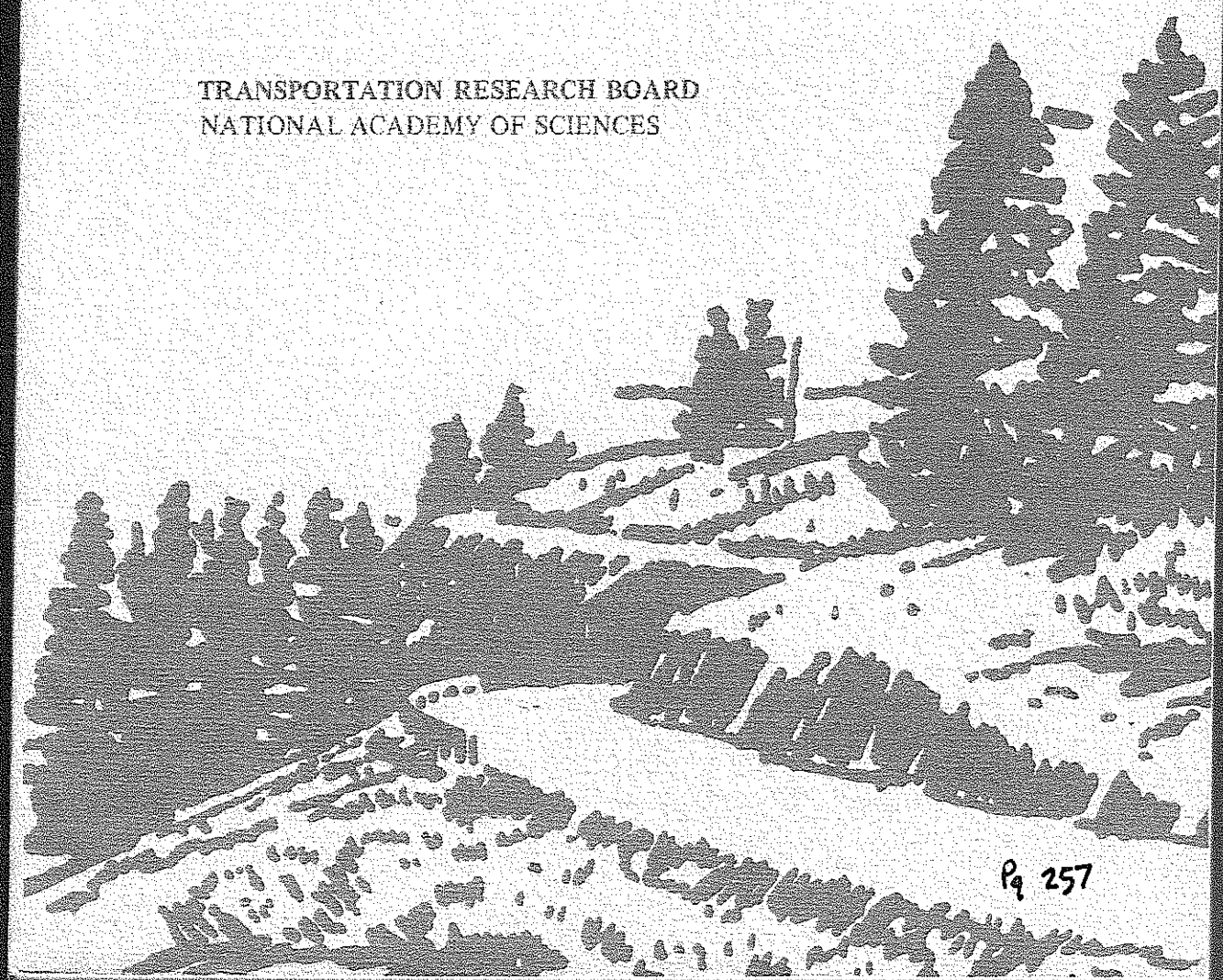
Tatman

H. R. TATMAN, JR.

LOW-VOLUME ROADS

SPECIAL REPORT 160

TRANSPORTATION RESEARCH BOARD
NATIONAL ACADEMY OF SCIENCES



Pg 257

Barbara Tatman

'om: Elizabeth Norton [enorton@fs.fed.us]
nt: Wednesday, May 11, 2005 4:11 PM
'o: Barbara Tatman
Subject: Fw: Traffic Study Paper

Traffic Study 4-20-05.doc (295...

Hi Dick and Bobby - here is Sue's response below. I also like the idea of recording people per vehicle if we can add that to the form. Hopefully, no one is driving that fast so we can get a head count. What do you think of that?

I've also asked Terrie Veliotes for all Caltrans traffic counts in our LNF area since 1988, so I hope to have that soon.

I recommend we reduce the # of sites and focus on just: 1) areas with known Greensticker use along the Share the Dream route (I'll send you a map). We might want to move #8 down to Potato Buttes area; and 2) priority stations that are along ML 3 roads where we're trying to decide if we can safely have combined use.

I'll print another map for you that shows the route by ML level, count stations, and OHV use areas.

Sue's also right that we'll need a JHA. Hopefully the count station we decide on all have a safe pull off area nearby to park and to set up chairs. Also shade!!!

'izabeth Norton
ssen National Forest
550 Riverside Drive
Susanville, CA 96130
Phone: 530-252-6645
FAX: 530-252-6428
e-mail: enorton@fs.fed.us

----- Forwarded by Elizabeth Norton/R5/USDAFS on 05/11/2005 04:55 PM -----

Susan M Kocis/WO/USDAFS 05/10/2005 01:27 PM		To Elizabeth Norton/R5/USDAFS@FSNOTES cc Subject Re: Fw: Traffic Study Paper (Document link: Elizabeth Norton)

Hi Elizabeth,
I finally reviewed the traffic study you sent me several weeks ago. erall it looks fine to me. The purpose and methods are clear. I have only a few mments- 1. Make sure safety of observers is addressed in a JHA 2. Might be useful to collect in/out rate as well as ADT. In NVUM we have based all our traffic counts on EXITING ratio so we know we are counting that visitor only once. Many road systems have

Ref #2 — we are only interested in the flow of what kinds of vehicles - we do not care about O&D or number of trips.

particular patterns where traffic flows through or comes from another area so same person going in doesn't come out same way later. Also patterns of in/out change throughout the day. At some point the forest might find this useful (collision potential etc).
3. Observer might want to record people per vehicle (PPV) to link to recreation use information and or compare to NVUM data collected on the forest.

Good luck, and please send me a copy of the report when its completed.
Thanks.

Sue Kocis
USDA Forest Service - Visitor Use Monitoring
1407 S. Harrison Road Suite 220
East Lansing, MI 48823
517. 355-7740 xt. 119
fax: 355-5121

Elizabeth Norton/R5/USDAFS
04/21/2005 12:30 PM

To: Susan M Kocis/WO/USDAFS@FSNOTES
cc:
Subject: Fw: Traffic Study Paper

Hi Sue - here the traffic study protocol we'd like to conduct June-August 2005. Purpose is to determine traffice type and volume on our ML 3 and 4 roads to determine if we can safety allow combined use by ATVs and street licensed vehicles. It will be conducted by volunteers. If you have time to review, we'd appreciate your comments on the methodology, which is based on the 4 documents referenced in this protocol. We are also installing 12 traffic counters on other locations on ML 3 and 4 roads.
Thank you.

Elizabeth Norton
Lassen National Forest
2550 Riverside Drive
Susanville, CA 96130
Phone: 530-252-6645
FAX: 530-252-6428
e-mail: enorton@fs.fed.us
----- Forwarded by Elizabeth Norton/R5/USDAFS on 04/21/2005 09:20 AM -----

"Barbara Tatman" <barbara@team-tnt.com>
04/20/2005 07:46 AM

To: <enorton@fs.fed.us>
cc:
Subject: Traffic Study Paper

Share-the-Dream Trail
Traffic Flow Data
Team Instructions
6/4/05

Why

The Share-the-Dream Trail is being dedicated in September of 2005 for use by street legal vehicles. The Recreation Outdoor Coalition (ROC) wants the trail to also be available to non-street legal vehicles.

The US Forest Service has criteria that must be followed in making a decision to allow sharing the road or mixing street legal with non-street legal vehicles. The Lassen National Forest has indicated that if a formal engineering study indicates acceptable risks of mixing the use on certain roads, then they may allow that use, following adequate signing.

ROC has embarked on performing the study for the Lassen.

Engineering Study

The study process being utilized involves four major steps"

1. Traffic Flow Data
2. Roadway Characteristics
3. Data evaluation and summarization
4. Accident Risk Analysis and Recommendations

The study assumes that all vehicles and operators are legally licensed and equipped to safely operate.

Step 1 involves observing all traffic passing a given point during a specific time frame to provide a statistical sample of what traffic is using the system.

Step 2 involves recording the surface type, travel way width, shoulder or clear area width for accident avoidance maneuvers, the average travel speed (basic speed) stopping sight distance at curves, roadside hazards and adjacent down hill slopes to assess physical conditions.

Step 3 involves calculating the average daily traffic, the percentage of traffic by vehicle class, the number of people per vehicle and a cataloging of physical conditions that fall below and acceptable minimum.

And step 4 takes the data obtained and using sound judgement, assigning a risk or potential for an accident and assessment of the severity of an accident, and recommendations.

Your Role–Step 1

As a team member, you will sit beside the road at an assigned location and time period to observe the traffic as it passes you.

Your responsibility is to determine the class or type of vehicle, the number of individual persons per vehicle, and the time period of the passing and record the data on the Traffic Flow Data form. Coding instructions follow.

If people stop to ask you what you are doing and why, you're free to share that you are a volunteer from ROC assisting the Lassen National Forest in gathering traffic flow data for the purpose of travel management for the Share-the-Dream Loop. You also may show them the recording form to clarify that no individual specific information is being gathered or recorded if that is a concern.

At the end of each count day send the data form to the team leader in the furnished envelopes.

Job Hazard Analysis (JHA)

The Forest Service has asked that a JHA be prepared for this activity. Their concern is for your personal safety while you perform a service for them. Therefore, consider the following:

1. While traveling from your home to the assigned count location and return in your personal vehicle–don't have an accident!
2. The count location is along an existing road that may have traffic traveling at various speeds.
3. The count location was selected with the following in mind:
    a.. A place to safely park your personal vehicle off the travel way (out of harms way).
    b. A safe place to sit, in the shave, to be available to record all traffic that passes. (Or in the sun if you desire.)
4. You have been notified to bring sweaters, coats, hats, sunscreen, water, lunch, and lawn chairs and to carry a first aid kit, shovel and toilet paper in your vehicle.
5. Two people are to be available at each location for the following reasons:
    a. Company to pass the time.
    b. At least one person awake.
    c. Afford time for one person to attend to the "call of nature".
    d. Personal safety in numbers.
6. If you have children or pets along, be extra alert to where they are when you hear traffic coming. None of us want to have a child or pet hurt while playing.

Timekeeping

The Forest maintains and reports on the number of volunteer hours contributed during the year. After your last day on this project, please provide, in writing, your hours and personal vehicle mileage for each of the days you helped, along with the final form. If you are a couple and cover a station from 7AM to 7PM, then show 24 hours.

8/29/05

Jack W. ___

Liz N. ___

Traffic Study
Liz returned comments 9/1/05
incorporated 9/2

Here is the current draft of the report.

I still have to add 9/4 data to the record – BUT – the analysis is based only on June, July & August observations. And I will be adding some photographs to the final printing.

Please review and provide any changes you feel are needed for my consideration by 9/9. My goal is to distribute the final +/- 9/14.

Write your comments in the report if you wish & return to me. Give me a call @ 253-3054 & I will be happy to come pick them up – Save snail mail time.

Thanks

Dick

P.S. Detailed notes, assessment & mitigation included for only 32 NOG. Some of the other maps not ready.

Exhibit 5

Modoc National Forest

Engineering Reports

on Four Proposed Motorized Mixed Use Roads

Final Environmental Impact Statement
for Motorized Travel Management

November 12, 2009

Appendix M: Mixed Use

Mixed use on ML 3 roads for Alternative 5 – Modified has been approved by the Regional Forester for roads over 3 miles in length, see below. Mixed use for ML 3 roads less than 3 miles in length has been approved by the California Highway Patrol, see below.

Regional Forester's approval letter:

File Code: 7700 Date: August 26, 2009
Route To: (2350)
Subject: Approval of Mixed Use Analysis on the Modoc National Forest
To: Forest Supervisor, Modoc National Forest

I have received your April 24, 2009, 7700/2350 memo regarding Motorized Mixed Use on roads maintained for passenger cars and your detailed individual Mixed Use Analysis reports. Based on the recommendations of the Director of Engineering and in concurrence with the Office of General Council (OGC), I am approving the 51 roads proposed for Mixed Use as requested. In all cases, the Mixed Use Analysis for each road indicated there is a low probability of a moderate severity crash.

Prior to opening these roads to mixed use, the Forest shall develop and implement a sign plan, specifically addressing Mixed Use. The Forest shall use the Manual of Uniform Traffic Control Devices approved "Share the Road" warning sign, with an appropriate yellow diamond warning sign showing an ATV, as part of your signing safety plan. These warning signs shall be placed at strategic points throughout the Forest, so the recreating public has a clear understanding of where they can operate ATV's and where they cannot. The Forest should strongly consider adding additional regulatory signing for routes, where mixed use is specifically not allowed, to avoid confusion. All signing shall be in conformance with the latest addition of the Manual of Uniform Traffic Control Devises.

The Forest Supervisor shall inform the Regional Forester of any accidents on this road involving off-highway vehicles. The Regional Forester's approval for Mixed Use will be reconsidered if there are accidents on roads involving mixed use.

If you have any questions regarding mixed use, please contact George Kulick, Director of Engineering at 707-562-8841.

/S/ ANGELA V. COLEMAN (FOR)
RANDY MOORE
Regional Forester

California Highway Patrol's approval letter:

State of California **Business, Transportation and Housing Agency**

Memorandum

Date: July 22, 2009

To: Northern Division

From: **DEPARTMENT OF CALIFORNIA HIGHWAY PATROL**
Assistant Commissioner, Field

File No.: 002.A9293.09-0672.051

Subject: PROPOSED COMBINED-USE ROADWAY DESIGNATION - MODOC NATIONAL FOREST

The Modoc National Forest has requested combined-use highway designations for specific Maintenance Level 3 roadway segments within the Forest. It is understood that the proposed combined-use roadways are within the jurisdictional boundaries of Alturas, Redding, and Yreka Areas. All of the Areas have agreed the proposed segments will not pose significant safety-related concerns provided the Alturas Area's recommendations for signage are completed.

The request has been reviewed and is approved contingent upon completion of the following signage recommendation:

> Alturas Area recommended that information/cautionary signs be posted at the entrance to the improved campgrounds which include: Ash Creek, Big Sage, Cave Lake, C Reservoir, Cedar Pass, Jane's Reservoir, Patterson, Pepperdine, Plum Valley, Upper and Lower Rush Creek, Soup Springs, and Stowe Reservoir campgrounds.
>
> Additionally, Alturas Area recommends a sign be posted at the entrance to Lily Lake day use, due to limited sight distance and moderate use.

Alturas Area provided a thorough analysis of the proposed plan and I'm satisfied upon the completion of the recommended signing, public safety will be ensured.

If you have any questions, please contact Captain Paul Congi or Ms. Sue Barsanti of our Research and Planning Section at 916-657-7237.

T. J. CLARK
Assistant Commissioner

Safety, Service, and Security

CHP 51WP (Rev. 11-86) OPI078

08/11/2009 TUE 14:28 FAX 530 241 1590 101_LR3380_Clerical --- Alturas Area 002/002

The individual engineering reports for the ML 3 roads to be included for mixed use are in the project record; these files are very large and not presented here.

Table M-1. Crash Probability and Crash Severity for Mixed Use on ML3 NFTS Roads

ID	miles	ID	miles	ID	miles	ID	miles	Crash Probability	Crash Severity
42N10A	0.78	44N77	5.41	43N24	0.63	43N24B	0.18	Low	Medium
38N54	7.31	39N01	1.12	40N33	0.49	48N81	0.44	Low	Medium
38N54	0.19	39N01	1.73	40N33	3.92	48N08E	0.52	Low	Medium
42N03	12.41	39N01	0.51	40N33	4.31	45N04	0.26	Low	Medium
38N46	6.88	39N01	1.83	40N25	0.30	47N11	0.37	Low	Medium
42N56	5.56	39N01	3.67	39N15	0.95	47N11	2.84	Low	Medium
38N54	9.02	39N01	0.08	39N15	0.57	43N14	0.65	Low	Medium
43N07A	0.10	39N01	1.92	43N48	2.27	40N13	2.97	Low	Medium
38N54	3.13	48N08	4.46	41N44	0.43	48N08E	0.08	Low	Medium
42N56	5.90	48N08	4.65	42N05	12.97	40N05A	0.11	Low	Medium
38N04	10.15	44N77	3.58	42N31	1.49	40N05	1.65	Low	Medium
42N10	2.73	46N30	0.18	42N31	4.87	45N04	1.39	Low	Medium
38N54	0.50	46N30	7.74	42N31	4.67	39N50	7.78	Low	Medium
38N46	3.48	46N30	2.06	41N44	0.15	39N50	1.42	Low	Medium
42N56	5.75	46N30	3.04	41N44	6.37	43N24A	0.29	Low	Medium
38N54	0.28	46N30	6.84	41N44	0.10	40N37	5.92	Low	Medium
42N56	7.59	46N30	0.25	40N11	7.64	40N22R	0.02	Low	Medium
42N68	0.16	46N30	4.65	40N11	0.35	40N12	1.48	Low	Medium
44N77	1.09	46N30	2.42	40N05B	0.13	43N12	3.48	Low	Medium
48N70	0.51	43N54	3.64	39N01	2.85	40N25AA	0.05	Low	Medium
48N70	6.43	46N10	7.17	48N80	0.14	42N79	0.69	Low	Medium
48N7	0.2	46N10	1.9	42N4	0.1	38N54	0.1	Low	Mediu

ID	miles	ID	miles	ID	miles	ID	miles	Crash Probability	Crash Severity
0	3		9	6	7	E	5		m
45N35	1.72	46N10	1.59	42N46	0.09	43N47B	0.35	Low	Medium
45N35	1.41	46N10	7.87	42N46	3.00	39N12	2.91	Low	Medium
41N11	5.15	46N10	0.90	42N31	7.33	43N21	2.47	Low	Medium
45N35	2.68	46N10	10.97	44N59	0.22	43N17	1.11	Low	Medium
45N35	0.11	44N02	8.25	46N63	2.95	43N17	1.92	Low	Medium
45N35	0.35	46N06	8.42	44N19	1.37	39N28	0.16	Low	Medium
37N07	0.07	46N06	0.23	48N11	2.50	40N24	8.27	Low	Medium
44N03A	0.50	46N06	2.07	48N11	3.71	38N07	3.98	Low	Medium
48N28	2.43	47N16	0.22	40N27	6.24	38N07	0.71	Low	Medium
44N11	8.27	47N16	0.04	44N60	0.19	40N12	1.48	Low	Medium
44N11	6.48	44N01	0.30	44N32	0.70	40N12	3.55	Low	Medium
43N42	1.08	44N01	1.38	47N37	3.49	40N41	1.19	Low	Medium
43N99	1.33	44N01	7.61	40N25A	0.02	41N11	2.12	Low	Medium
43N99	1.23	44N01	1.51	46N09	0.06	41N11	4.84	Low	Medium
43N99	3.17	44N01	2.16	46N08	1.46	41N11	5.55	Low	Medium
43N42	0.69	37N11	0.87	46N06A	1.62	41N06	0.22	Low	Medium
46N10	0.10	39N28A	0.23	45N35A	0.25	47N06	12.33	Low	Medium
42N23	7.41	39N01C	0.52	45N04	4.81	47N06	0.62	Low	Medium
37N11	4.04	38N47	0.24	43N36	1.26	48N70	3.26	Low	Medium
41N34	0.19	43N14	3.65	43N36	5.57	48N70	1.94	Low	Medium
40N22	4.89	46N14B	0.05	42N24	1.57	45N09A	5.54	Low	Medium
40N22	1.60	46N14A	0.10	40N01	0.32	43N48	0.31	Low	Medium
40N2	2.6	38N30	0.0	40N4	0.2		0.4	Low	Mediu

ID	miles	ID	miles	ID	miles	ID	miles	Crash Probability	Crash Severity
2	0	AB	6	6A	3		0		m
40N22	10.93	48N19A	0.23	41N47	4.26		0.38	Low	Medium
				47N97	0.77		0.19	Low	Medium
				45N09	5.68		2.27	Low	Medium
							1.90	Low	Medium
							7.09	Low	Medium

Further analysis for each of the roads can be found in the mixed use analysis document in the project record. The other factors considered were 1) Operator considerations 2) Crash history 3) Traffic volume and type 4) Speed 5) Road surface type 6) Intersections with other roads and trails 7) Other roadway factors and 8) roadside conditions.

There is no crash history on these roads on the Forest. The roads are all crushed aggregate and the speed is 35 mph or less. Use is very low and there is not an expectation that population or use will grow in the near future.

Engineering Report

Modoc National Forest

Warner Mountain Ranger District

Analysis of Road # 40N24

for Motorized Mixed Use Designation

Prepared by:

_____

Forest Engineer Date: _____

Concurred by:

_____

Forest Supervisor Date: _____

Forest: **Modoc** District: **Warner Mountains**

Road Number: **40N24** Name: **Cherry Creek (also called Soup Springs Loop)**

Beginning Mile Post: 0.0 Ending Mile Post: 8.3

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: 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: None (does not cross private lands)

Subject to Highway Safety Act? ☒ Yes ☐ No

Non-highway-legal vehicles currently permitted? ☒ Yes ☐ No

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

The California Vehicle Code OHV Provisions [38001(a)] includes a statement that says "For the purposes of this division, the term "highway does not include fire trails, logging roads, service roads regardless of surface composition, or other roughly graded trails and roads upon which vehicular travel by the public is permitted".

Local Officials including the Modoc County Sheriff and others do not consider these roads to be highways for this purpose.

In a letter dated February 10, 2009, the Modoc County Board of Supervisors stated "We appreciate the extra effort put forth by the Forest to designate additional miles for mixed use. We recognize there was significant pressure to do otherwise. The vehicle usage on the vast majority of the Forest roads is minimal and allowing passenger vehicles and ATVs to share the roads is appropriate. Additionally there is no history of accidents or injuries to warrant restricting use.

The County supports all efforts to prohibit mixed use where there are valid safety concerns."

Description of road management objectives, existing use, and proposed use: The goal for recreation (including motorized mixed use of vehicles) in the Forest Plan is that the over all management of the Forest results in a full range of recreation opportunities, ranging from primitive to modern recreation settings. Provide and manage a Forest Transportation System (roads and trails) to accomplish resource management objectives (including opportunities) while protecting resource values. This road is currently open to all motor vehicles. The primary use is recreation. Other uses include logging, fuelwood cutting, grazing, hunting and fishing. It is not feasable to reduce the maintenance level of this road, due to the terrain, the existing horizontal and vertical alignments, and the road width and surfacing type. No changes are proposed for the use of this road.

Summary of Findings:

Motorized mixed use currently occurs on all of this road. There is no accident history. Traffic volumes are low. Sight distances are generally long. This road is wide with adequate runout space in the ditches or shoulders. Anticipated average speeds are 35 mph or less. These factors lead to the conclusion that the probability of a crash is low, and the severity of a crash is likely to be moderate

Factors Considered:

1. Operator considerations:

Prudent operators in compliance with the California Vehicle Code and other applicable laws and regulations is assumed.

2. Crash history:

There is no crash history available for 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:
☒ Passenger cars ☒ Commercial vehicles ☒ Recreation vehicles (RV's)

Traffic on the Cherry Creek Road 40N24 comes off from the West Warner Road 42N05. No traffic counts were done on the Cherry Creek Road specifically. However traffic will be less than on the West Warner Road.

Traffic counts were done at the intersection of the West Warner Road 42N05 and the Parker Creek Road 42N31. Almost all of the traffic using the roads in this area enter or leave the area through this intersection. Traffic was also counted on the Deep Creek Road at the Forest Boundary. Traffic was counted during ten separate periods of 1 to 4 hours. The time periods counted included mornings and evenings, and weekdays and weekends. Traffic was counted for a total of 22 hours. 33 vehicles were counted, for an average of less than 1.5 vehicles per hour at the Parker Creek location and less than one vehicle per hour in Deep Creek. Of the 33 vehicles counted there was one motorcycle, 1 bicycle, and the remainder were cars, pickups, or SUV's. See traffic count summary in

Appendix B & details in Appendix C traffic count log.

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

Anticipated average speeds on this roads is 35 mph or less.

5. Road surface type:

This road is surfaced with crushed aggregate.

6. Intersections with other roads and trails:

Numerous intersections along the route. See attached map.

7. Other roadway factors:

This road is relatively wide. It was constructed as single lane roads, and is shown on our inventory as a single lane road. However past maintenance practices have widened this road to approximately 18 to 20 feet. Sight distance is adequate for the anticipated average speed on this road.

8. Roadside conditions:

This road has an inside ditch that can be driven into with most vehicles in an emergency.

9. Risk without mitigation:

Crash probability: ☐ High ☐ Med ☒ Low

Crash severity: ☐ High ☒ Med ☐ Low

Mitigation Measures:

A sign plan will be developed after the travel management decision is made on the Forest. Share the Road signs may be appropriate at entry points to the Forest.

Conclusion:

The Modoc National Forest has the lowest recreation use of any National Forest in the National Forest System. We receive much lower motor vehicle use on our Maintenance Level 3 (ML3) and 2 (ML2) roads than any other Forest in Region 5. This is due primarily to our sparse population (Modoc County has 9000 people in the entire county), long distance to population centers and a long distance to popular interstate road systems.

Both the Modoc County Sheriff and the local California Highway Patrol (CHP) are not aware of any OHV accidents that have occurred on the Forest. The CHP does not patrol on our ML3 roads and only responds if there has been an accident.

OHV use on this Forest has not grown nearly as fast as other locations in California as demonstrated by our survey. Therefore it is reasonable to continue to provide this opportunity.

Currently mixed use is allowed on this road. Nothing found during this analysis indicates that a change to the current use is needed.

Engineering Report

Modoc National Forest

Doublehead Ranger District

Analysis of Road # 44N77

for Motorized Mixed Use Designation

Prepared by:

_____

Forest Engineer Date: _____

Concurred by:

_____

Forest Supervisor Date: _____

Forest: **Modoc** District: **Doublehead**

Road Number: **44N77** Name: **Bench**

Beginning Mile Post: 0.0 Ending Mile Post 10.5

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: 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: 0.5 miles on the south end of this route crossed private land without a right of way. This section will not be designated on the Motor Vehicle Use Map.

Subject to Highway Safety Act? ☒ Yes ☐ No

Non-highway-legal vehicles currently permitted? ☒ Yes ☐ No

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

The California Vehicle Code OHV Provisions [38001(a)] includes a statement that says "For the purposes of this division, the term "highway does not include fire trails, logging roads, service roads regardless of surface composition, or other roughly graded trails and roads upon which vehicular travel by the public is permitted".

Local Officials including the Modoc County Sheriff and others do not consider these roads to be highways for this purpose.

In a letter dated February 10, 2009, the Modoc County Board of Supervisors stated "We appreciate the extra effort put forth by the Forest to designate additional miles for mixed use. We recognize there was significant pressure to do otherwise. The vehicle usage on the vast majority of the Forest roads is minimal and allowing passenger vehicles and ATVs to share the roads is appropriate. Additionally there is no history of accidents or injuries to warrant restricting use.

The County supports all efforts to prohibit mixed use where there are valid safety concerns."

Description of road management objectives, existing use, and proposed use: The goal for recreation (including motorized mixed use of vehicles) in the Forest Plan is that the over all management of the Forest results in a full range of recreation opportunities, ranging from primitive to modern recreation settings. Provide and manage a Forest Transportation System (roads and trails) to accomplish resource management objectives (including opportunities) while protecting resource values. This road is currently open to all motor vehicles. The primary use is recreation. Other uses include logging, fuelwood cutting, grazing, hunting and fishing. It is not feasable to reduce the maintenance level of this road, due to the terrain, the existing horizontal and vertical alignments, and the road width and surfacing type. No changes are proposed for the use of this road.

Summary of Findings:

Motorized mixed use currently occurs on all of this road. There is no accident history. Traffic volumes are low. Sight distances are generally long. This road is wide with adequate runout space in the ditches or shoulders. Anticipated average speeds are 35 mph or less. These factors lead to the conclusion that the probability of a crash is low, and the severity of a crash is likely to be moderate

Factors Considered:

1. Operator considerations:

Prudent operators in compliance with the California Vehicle Code and other applicable laws and regulations is assumed.

2. Crash history:

There is no crash history available for 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:
☒ Passenger cars ☒ Commercial vehicles ☒ Recreation vehicles (RV's)

Traffic counts were done at the 5 different locations at the main entry points to the analysis area that includes this road. The time periods counted included mornings and evenings, and weekdays and weekends. Traffic was counted for a total of 85 hours, in 27 different counting periods. 259 vehicles were counted, for an average of less than 3.5 vehicles per hour. Of the 259 vehicles counted there was 7 motorcycles, 6 Truck/Tractors, the remainder were cars, pickups, or SUV's. See traffic count summary in Appendix B & details in Appendix C traffic count log. If traffic on the Medicine Lake road is excluded (it is a paved road not proposed for mixed use) then there were 120 vehicles in 62 hours of counting for average of less than 2 vehicles per hour.

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

Anticipated average speeds on this road is 35 mph or less.

5. Road surface type:

This road is surfaced with crushed aggregate.

6. Intersections with other roads and trails:

Numerous intersections along the route. See attached map.

7. Other roadway factors:

This road is relatively wide. It was constructed as single lane roads, and is shown on our inventory as a single lane road. However past maintenance practices have widened this road to approximately 18 to 20 feet. Sight distance is adequate for the anticipated average speed on this road. See attached Photo.

8. Roadside conditions:

This road has an inside ditch that can be driven into with most vehicles in an emergency.

9. Risk without mitigation:

Crash probability: ☐ High ☐ Med ☒ Low

Crash severity: ☐ High ☒ Med ☐ Low

Mitigation Measures:

A sign plan will be developed after the travel management decision is made on the Forest. Share the Road signs may be appropriate at entry points to the Forest.

Conclusion:

The Modoc National Forest has the lowest recreation use of any National Forest in the National Forest System. We receive much lower motor vehicle use on our Maintenance Level 3 (ML3) and 2 (ML2) roads than any other Forest in Region 5. This is due primarily to our sparse population (Modoc County has 9000 people in the entire county), long distance to population centers and a long distance to popular interstate road systems.

Both the Modoc County Sheriff and the local California Highway Patrol (CHP) are not aware of any OHV accidents that have occurred on the Forest. The CHP does not patrol on our ML3 roads and only responds if there has been an accident.

OHV use on this Forest has not grown nearly as fast as other locations in California as demonstrated by our survey. Therefore it is reasonable to continue to provide this opportunity.

Currently mixed use is allowed on this road. Nothing found during this analysis indicates that a change to the current use is needed.

Engineering Report

Modoc National Forest

Warner Mountain Ranger District

Analysis of Road # 46N06

for Motorized Mixed Use Designation

Prepared by:

_____

Forest Engineer Date: _____

Concurred by:

_____

Forest Supervisor Date: _____

Forest: **Modoc** District: **Warner Mountains**

Road Number: **46N06** Name: **Cold Creek**

Beginning Mile Post: 0.0 Ending Mile Post: 12.2

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: 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: Unrestricted Government Use ROW's over private lands that the road crosses.

Subject to Highway Safety Act? ☒ Yes ☐ No

Non-highway-legal vehicles currently permitted? ☒ Yes ☐ No

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

The California Vehicle Code OHV Provisions [38001(a)] includes a statement that says "For the purposes of this division, the term "highway does not include fire trails, logging roads, service roads regardless of surface composition, or other roughly graded trails and roads upon which vehicular travel by the public is permitted".

Local Officials including the Modoc County Sheriff and others do not consider these roads to be highways for this purpose.

In a letter dated February 10, 2009, the Modoc County Board of Supervisors stated "We appreciate the extra effort put forth by the Forest to designate additional miles for mixed use. We recognize there was significant pressure to do otherwise. The vehicle usage on the vast majority of the Forest roads is minimal and allowing passenger vehicles and ATVs to share the roads is appropriate. Additionally there is no history of accidents or injuries to warrant restricting use.

The County supports all efforts to prohibit mixed use where there are valid safety concerns."

Description of road management objectives, existing use, and proposed use: The goal for recreation (including motorized mixed use of vehicles) in the Forest Plan is that the over all management of the Forest results in a full range of recreation opportunities, ranging from primitive to modern recreation settings. Provide and manage a Forest Transportation System (roads and trails) to accomplish resource management objectives (including opportunities) while protecting resource values. This road is currently open to all motor vehicles. The primary use is recreation. Other uses include logging, fuelwood cutting, grazing, hunting and fishing. It is not feasable to reduce the maintenance level of this road, due to the terrain, the existing horizontal and vertical alignments, and the road width and surfacing type. No changes are proposed for the use of this road.

Summary of Findings:

Motorized mixed use currently occurs on all of this road. There is no accident history. Traffic volumes are low. Sight distances are generally long. This road is wide with adequate runout space in the ditches or shoulders. Anticipated average speeds are 35 mph or less. These factors lead to the conclusion that the probability of a crash is low, and the severity of a crash is likely to be moderate

Factors Considered:

1. Operator considerations:

Prudent operators in compliance with the California Vehicle Code and other applicable laws and regulations is assumed.

2. Crash history:

There is no crash history available for 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:
☒ Passenger cars ☒ Commercial vehicles ☒ Recreation vehicles (RV's)

Most of the traffic on the Cold Creek Road enters off from the PlumbValley Road 45N35. Traffic counts were done on the Plumb Valley Road 45N35 and the Dismal Swamp Road 48N21. These are two of the highest use roads within the analysis area. Traffic was counted during eight separate periods of 1 to 4 hours. The time periods counted included mornings and evenings, and weekdays and weekends. Traffic was counted for a total of 27 hours. 43 vehicles were counted, for an average of less than 2 vehicles per hour on the Plumb Valley Road and less than one vehicle per hour at Dismal Swamp. Of the 43 vehicles counted there was one Recreational Vehicle, the remainder were cars, pickups, or SUV's. See traffic count summary in Appendix B & details in Appendix C traffic count log.

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

Anticipated average speeds on this road is 35 mph or less.

5. Road surface type:

This road is surfaced with crushed aggregate.

6. Intersections with other roads and trails:

Numerous intersections along the route. See attached map.

7. Other roadway factors:

This road is relatively wide. It was constructed as single lane roads, and is shown on our inventory as a single lane road. However past maintenance practices have widened this road to approximately 18 to 20 feet. Sight distance is adequate for the anticipated average speed on this road. See attached Photo.

8. Roadside conditions:

This road has an inside ditch that can be driven into with most vehicles in an emergency.

9. Risk without mitigation:

Crash probability: ☐ High ☐ Med ☒ Low

Crash severity: ☐ High ☒ Med ☐ Low

Mitigation Measures:

A sign plan will be developed after the travel management decision is made on the Forest. Share the Road signs may be appropriate at entry points to the Forest.

Conclusion:

The Modoc National Forest has the lowest recreation use of any National Forest in the National Forest System. We receive much lower motor vehicle use on our Maintenance Level 3 (ML3) and 2 (ML2) roads than any other Forest in Region 5. This is due primarily to our sparse population (Modoc County has 9000 people in the entire county), long distance to population centers and a long distance to popular interstate road systems.

Both the Modoc County Sheriff and the local California Highway Patrol (CHP) are not aware of any OHV accidents that have occurred on the Forest. The CHP does not patrol on our ML3 roads and only responds if there has been an accident.

OHV use on this Forest has not grown nearly as fast as other locations in California as demonstrated by our survey. Therefore it is reasonable to continue to provide this opportunity.

Currently mixed use is allowed on this road. Nothing found during this analysis indicates that a change to the current use is needed.

Engineering Report

Modoc National Forest

Devils Garden & Doublehead Ranger Districts

Analysis of Road # 46N10 for Motorized Mixed Use Designation

Prepared by:

_____

Forest Engineer Date: _____

Concurred by:

_____

Forest Supervisor Date: _____

Forest: **Modoc** District: **Doublehead**

Road Number: **46N10** Name: **Mowitz**

Beginning Mile Post: 0.0 Ending Mile Post: 30.7

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: 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: None (does not cross private property)

Subject to Highway Safety Act? ☒ Yes ☐ No

Non-highway-legal vehicles currently permitted? ☒ Yes ☐ No

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

The California Vehicle Code OHV Provisions [38001(a)] includes a statement that says "For the purposes of this division, the term "highway does not include fire trails, logging roads, service roads regardless of surface composition, or other roughly graded trails and roads upon which vehicular travel by the public is permitted".

Local Officials including the Modoc County Sheriff and others do not consider these roads to be highways for this purpose.

In a letter dated February 10, 2009, the Modoc County Board of Supervisors stated "We appreciate the extra effort put forth by the Forest to designate additional miles for mixed use. We recognize there was significant pressure to do otherwise. The vehicle usage on the vast majority of the Forest roads is minimal and allowing passenger vehicles and ATVs to share the roads is appropriate. Additionally there is no history of accidents or injuries to warrant restricting use.

The County supports all efforts to prohibit mixed use where there are valid safety concerns."

Description of road management objectives, existing use, and proposed use: The goal for recreation (including motorized mixed use of vehicles) in the Forest Plan is that the over all management of the Forest results in a full range of recreation opportunities, ranging from primitive to modern recreation settings. Provide and manage a Forest Transportation System (roads and trails) to accomplish resource management objectives (including opportunities) while protecting resource values. This road is currently open to all motor vehicles. The primary use is recreation. Other uses include logging, fuelwood cutting, grazing, hunting and fishing. It is not feasable to reduce the maintenance level of this road, due to the terrain, the existing horizontal and vertical alignments, and the road width and surfacing type. No changes are proposed for the use of this road.

Summary of Findings:

Motorized mixed use currently occurs on all of this road. There is no accident history. Traffic volumes are low. Sight distances are generally long. This road is wide with adequate runout space in the ditches or shoulders. Anticipated average speeds are 35 mph or less. These factors lead to the conclusion that the probability of a crash is low, and the severity of a crash is likely to be moderate

Factors Considered:

1. Operator considerations:

Prudent operators in compliance with the California Vehicle Code and other applicable laws and regulations is assumed.

2. Crash history:

There is no crash history available for 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:
☒ Passenger cars ☒ Commercial vehicles ☒ Recreation vehicles (RV's)

Traffic counts were done at the 7 different locations at the main entry points to the analysis area, that includes this road. The time periods counted included mornings and evenings, and weekdays and weekends. Traffic was counted for a total of 175 hours, in 53 different counting periods. 223 vehicles were counted, for an average of less than 1.5 vehicles per hour. Of the 213 vehicles counted there were four OHV's, the remainder were cars, pickups, or SUV's. See traffic count summary in Appendix B & details in Appendix C traffic count log.

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

Anticipated average speeds on this road is 35 mph or less.

5. Road surface type:

This road is surfaced with cinders.

6. Intersections with other roads and trails:

Numerous intersections along the route. See attached map.

7. Other roadway factors:

This road is relatively wide. It was constructed as single lane roads, and is shown on our inventory as a single lane road. However past maintenance practices have widened this road to approximately 18 to 20 feet. Sight distance is adequate for the anticipated average speed on this road. See attached Photo.

8. Roadside conditions:

This road has an inside ditch that can be driven into with most vehicles in an emergency.

9. Risk without mitigation:

Crash probability: ☐ High ☐ Med ☒ Low

Crash severity: ☐ High ☒ Med ☐ Low

Mitigation Measures:

A sign plan will be developed after the travel management decision is made on the Forest. Share the Road signs may be appropriate at entry points to the Forest.

Conclusion:

The Modoc National Forest has the lowest recreation use of any National Forest in the National Forest System. We receive much lower motor vehicle use on our Maintenance Level 3 (ML3) and 2 (ML2) roads than any other Forest in Region 5. This is due primarily to our sparse population (Modoc County has 9000 people in the entire county), long distance to population centers and a long distance to popular interstate road systems.

Both the Modoc County Sheriff and the local California Highway Patrol (CHP) are not aware of any OHV accidents that have occurred on the Forest. The CHP does not patrol on our ML3 roads and only responds if there has been an accident.

OHV use on this Forest has not grown nearly as fast as other locations in California as demonstrated by our survey. Therefore it is reasonable to continue to provide this opportunity.

Currently mixed use is allowed on this road. Nothing found during this analysis indicates that a change to the current use is needed.

State of California—Business, Transportation and Housing Agency ARNOLD SCHWARZENEGGER, Governor
DEPARTMENT OF CALIFORNIA HIGHWAY PATROL
P. O. Box 942898
Sacramento, CA 94298-0001
(916) 657-8048
(800) 735-2929 (TT/TDD)
(800) 735-2922 (Voice)

December 19, 2007

File No.: 001.A9293.07-1662-1.051

Mr. Randy Moore
Regional Forester
USDA Forest Service
Pacific Southwest Region
1323 Club Drive
Vallejo, CA 94592

Dear Mr. Moore:

We are in receipt of your letter dated November 28, 2007, memorializing the August 7, 2007, meeting between your staff and our Planning and Analysis Division staff wherein your process for designating your maintenance level (ML) 3 U.S. Forest Service (USFS) routes as "mixed use" was discussed.

Since the August 2007 meeting, the California Highway Patrol (CHP) has received inquiries from recreational groups and other interested individuals regarding this issue and after reading your letter, I believe clarification of the CHP's position and the April 2005 letter is necessary.

When Mr. Blackwell contacted the CHP in January 2005, he asked specific questions without providing any history/background to the issues. Our response was accurately drafted to answer his specific questions, but it was not intended to apply to all of the national forest system roads; the USFS roadways are too diverse in their composition, especially the ML 3 roadways.

It was never our intent to imply that the USFS could not designate their ML 3 roadways for legal off-highway vehicle (OHV) use. Therefore, with our new knowledge of the history and background of the issues, we will once again answer the 2005 questions.

1. Are your ML 3 roadways considered "highways" under Section 38001 of the California Vehicle Code (VC)?
2. Do the "combined use" regulations (Section 38026 VC) apply to your roadways?

The VC has to be general in nature so it may apply to different situations and interpretations. Section 38001 VC states:

> "For purposes of this division, the term "highway" does not include fire trails, logging roads, service roads regardless of surface composition, or other roughly graded trails and roads upon which vehicular travel by the public is permitted."

We are not familiar with all the ML 3 Forest Service roadways, but if they are gravel or other dirt or unpaved roads that have been operating as mixed use roadways for years, it is our belief these roads would fall under the "roughly graded trails and roads upon which vehicular travel by the public is permitted" portion of Section 38001 VC and would, therefore, be eligible for your mixed-use definition.

Additionally, I think it is important to point out that "mixed use" and "combined use" are two different functions. "Mixed use" is a USFS term and applies to USFS roads and does not require the CHP's approval before designation. Combined use is more restrictive than the USFS mixed use category as it requires OHV riders to be licensed operators as well as to have current vehicle insurance.

"Combined use" is defined in the VC and is intended for roadways that are included in the definition of "highway," but which do not qualify for the Section 38001 VC exception for purposes of allowing registered off-highway vehicle use. These have generally been paved roads that are part of a local or state designated street and highway system.

Combined use segments are up to three-mile portions of a highway (constructed so as to safely permit the use of regular vehicular traffic as well as OHVs) that serve as a connecting link between:

- ✓ Off-highway motor vehicle trail segments, or
- ✓ An off-highway motor vehicle recreational use area and necessary service facilities; or
- ✓ Lodging facilities and an off-highway motor vehicle recreational facility.

These types of proposals do require the CHP's approval and require erection of Department of Transportation-approved signs.

It is unfortunate that our first letter has, at times, been misinterpreted and resulted in unintended consequences. If you have any questions, you may contact Chief Jim McLaughlin of my Planning and Analysis Division at (916) 657-4098.

Sincerely,

J. A. Farrow

J. A. FARROW
Deputy Commissioner

cc: Angeles National Forest
Cleveland National Forest
El Dorado National Forest
Inyo National Forest
Klamath National Forest
Lake Tahoe Basin Management Unit
Lassen National Forest
Los Padres National Forest
Mendocino National Forest
Modoc National Forest
Plumas National Forest
San Bernardino National Forest
Sequoia National Forest
Shasta-Trinity National Forest
Sierra National Forest
Six Rivers National Forest
Stanislaus National Forest
Tahoe National Forest

R5 Mixed Use Accidents For the last 15 years
By Safety Year 7/1-6/30

Here if the definition of Mixed-Use as stated directly out of the EM-7700-30 "Guidelines for Engineering Analysis of Motorized Mixed Use on National Forest System Roads".
National Forest System (NFS) roads are designed primarily for use by highway-legal vehicles (motor vehicles that are licensed or certified for general operation on public roads within the State) such as a passenger car or log truck. Some NFS roads also provide recreational access for all-terrain vehicles and other non-highway-legal OHVs. For the purpose of this document, motorized mixed use is defined as designation of a NFS road for use by both highway-legal and non-highway-legal motor vehicles. Designating NFS roads for motorized mixed use involves safety and engineering considerations.

Forest	How Many Accidents?	Comments	Reports
ANGELES	0		
CLEVELAND	0		
ELDORADO	0		
INYO	0		
KLAMATH	0		
LASSEN	0		
LOS PADRES	2	(SY05) 8/19/05 Forest service pick up VS an ATV. both driving 10 MPH on a curved brushy road. ATV had a rifle mounted in a rifle rack on the front end of the ATV and the rifle stock scraped the section of the left side of the Forest Service pick up. (SY97) 9/22/96 Law Enforcement officer had a head on with a Motorcycle on Gold Hill Road Near Old Gold Hill Campground. We have no records. They were destroyed after 10 years. If it was a FS related vehicle accident, possibly Ray would have some old record. There is nothing for us to provide. The convenience of WildCAD, is we would still have those records electronically on file, but WildCAD didn't come on line with LPF until 2000. Linda Lowe/R5/USDAFS	SF-91- 8/19/05 # 956

MENDOCINO	**3**	1. (SY04) 1/17/04 Vehicle VS. motorcycle head on into pick up truck. Forest road 17N04 Fatality to Motorcycle rider. 2. (Sy 05) 5/14/05 Motorcycle came into middle of the road and hit pick up truck. No Hospitalization required. 3. (Sy05 5/29/05 Tired to miss motorcycle. Right front tire went over the bank, Truck turned and went over. No Hospitalization.	1/17/04- 7374204 5/14/05- 7937074 5/29/05- 7943552
MODOC	**0**		
SIX RIVERS	**0**		
PLUMAS	**1**	(Sy09) 7/18/08 Forest Service employee in Government vehicle had a head on with an ATV.	Claim # 208476002
SAN BERNARDINO	**0**		
SEQUOIA	**0**	There hasn't been a recorded MVA meeting the criteria below by Sequoia Fleet Management for the past nine years. The files for Safety year 1998 and the previous years were destroyed by the previous Fleet Manager. All recorded accidents in my files have been Forest Service vs. highway legal vehicles. The SQF Law Enforcement Officers may have records meeting the criteria that was not reported to Fleet Management due to the fact that a SQF vehicle was not involved. John Silva Fleet & Equipment Specialist	
SHASTA-TRINITY	**0**		
SIERRA	**1**	(SY09) 10/11/08 Motorcycle broke down, was being towed by another motorcycle with a 12 foot tow strap, was struck by oncoming car. Next to 4S81 near fish Creek Campground. Fatality to Motorcycle rider.	SNF-1620
STANISLAUS	**0**		

TAHOE	**4**	1. (SY03) 9/3/02 Meadow lake #86 ATV vs. Vehicle, Non injury. 2. (SY05) 6/24/05 Rd# 07 ATV vs. Vehicle, injury, care flight. 3. (SY06) 7/16/05 Forest Service Road Placer county Sheriff's Deputy hit an ATV head on. 4. (SY 07) 5/31/07 Gaston grade ATV vs. vehicle, Non injury	9/3/02- 7157068 6/24/05- 7083828 7/16/05-7/05-81 5/31/07-?
LAKE TAHOE	**0**		
REGIONAL OFFICE	**0**		
OTHER			

Order No. 06-09-01

USDA Forest Service
Lassen National Forest

MOTORIZED VEHICLE RESTRICTIONS

Pursuant to 36 CFR 261.50(a) and (b), and to protect natural resources, the following act is prohibited within the Lassen National Forest. This order is effective from July 13, 2009 through July 12, 2010.

Possessing or using a motorized wheeled vehicle off National Forest System roads, except for the routes, open areas, and National Forest System trails shown on Exhibit A. For purposes of this order, a wheelchair is not considered to be a motorized wheeled vehicle. 36 CFR 261.56.

Pursuant to 36 CFR 261.50(e), the following persons are exempt from this order:

1. **Any Federal, State, or local officer or member of an organized rescue or fire-fighting force in the performance of an official duty.**

2. **Persons with a permit from the Forest Service specifically authorizing the otherwise prohibited act or omission.**

This prohibition is in addition to the general prohibitions in 36 CFR Part 261, Subpart A.

Executed in Susanville, California, this 27th day of May 2009.

/s/ Kathleen S. Morse_____
KATHLEEN S. MORSE
Forest Supervisor
Lassen National Forest

A violation of this prohibition is punishable by a fine of not more than $5,000 for an individual or $10,000 for an organization, or imprisonment for not more than 6 months, or both. 16 USC 551 and 18 USC 3559, 3571, and 3581.

USDA United States Department of Agriculture
Forest Service

Lassen National Forest

MOTORIZED VEHICLE RESTRICTIONS

Frontcountry Area

Jonesville Area (Map 2 of 6) on Other Side

Exhibit A for Forest Order 06-08-01
Map 1 (of 6)

Possessing or Using a Motorized Wheeled Vehicle Off Lassen National Forest System Roads is Prohibited, Except on the Routes, Open Areas and NFS Trails Shown on this Map

Roads, Trails, Routes, and Open Areas

- 180 J3 — US/State/County Roads
- National Forest System Roads
- National Forest System Trails
- Non-System Routes
- Open Areas (Area is smaller than area represented by map symbol)

Land Management and Facilities

- Lassen National Forest (Forest Order Area)
- Other National Forest
- National Forest System Wilderness Lands
- Non-Forest Service Land
- Federal Facility
- Camp Site
- Trailhead
- Boat Launch

USDA United States Department of Agriculture
Forest Service

Lassen National Forest

MOTORIZED VEHICLE RESTRICTIONS

Westwood Area

Antelope Mountain Area (Map 4 of 6) on Other Side

Exhibit A for Forest Order 06-09-01
Map 3 (of 6)

Possessing or Using a Motorized Wheeled Vehicle Off Lassen National Forest System Roads is Prohibited, Except on the Routes, Open Areas and NFS Trails Shown on this Map

Roads, Trails, Routes, and Open Areas

- 180 J3 — US/State/County Roads
- National Forest System Roads
- National Forest System Trails
- Non-System Routes
- Open Areas (Area is smaller than area represented by map symbol)

Land Management and Facilities

- Lassen National Forest (Forest Order Area)
- Other National Forest
- National Forest System Wilderness Lands
- Non-Forest Service Land
- Federal Facility
- Camp Site
- Trailhead
- Boat Launch

USDA United States Department of Agriculture
Forest Service

Lassen National Forest

MOTORIZED VEHICLE RESTRICTIONS

Burney Mountain Area

Soldier Mountain Area (Map 6 of 6) on Other Side

Exhibit A for Forest Order 06-09-01
Map 5 (of 6)

Possessing or Using a Motorized Wheeled Vehicle Off Lassen National Forest System Roads is Prohibited, Except on the Routes, Open Areas and NFS Trails Shown on this Map

Roads, Trails, Routes, and Open Areas

- 180 J3 — US/State/County Roads
- National Forest System Roads
- National Forest System Trails
- Non-System Routes
- Open Areas (Area is smaller than area represented by map symbol)

Land Management and Facilities

- Lassen National Forest (Forest Order Area)
- Other National Forest
- National Forest System Wilderness Lands
- Non-Forest Service Land
- Federal Facility
- Camp Site
- Trailhead
- Boat Launch

State of California—Business, Transportation and Housing Agency ARNOLD SCHWARZENEGGER, Governor

DEPARTMENT OF CALIFORNIA HIGHWAY PATROL
P. O. Box 942898
Sacramento, CA 94298-0001
(916) 657-4098
(800) 735-2929 (TT/TDD)
(800) 735-2922 (Voice)

February 3, 2009

File No.: 050.A9293.09-0057.051

Ms. Marlene Finley
Regional Director
Recreation, Lands, Wilderness and Heritage Resources
USDA Forest Service
Pacific Southwest Region
1323 Club Drive
Vallejo, CA 94592

Dear Ms. Finley:

Thank you for initiating the January 9, 2009, meeting between your agency and the California Highway Patrol (CHP) to discuss your roadway designation process.

It is understood that you have now determined that your Maintenance Level (ML) 3 roadways are considered "highways" for the purposes of the California Vehicle Code (VC) which would require that any off-highway vehicle access on these ML 3 roads would require a combined-use designation pursuant to Section 38026 VC. We appreciate you inquiring about our policy and guidelines relating to the approval of combined-use roadway designations and agree the information should be provided to your regional foresters to assist them during the process.

As mentioned at the meeting, when one of the foresters determine a 3-mile or less segment of highway in the forest would meet the criteria for a combined-use designation, a proposal should be prepared, and submitted to the local CHP Area office, which includes:

(1) Purpose. The purpose of the combined-use highway. For example: to link off-highway motor vehicle trail segments.

(2) Description. A description of the highway segment, including but not limited to:
- Width;
- Length (cannot exceed three miles);
- Location;
- Type of surface;
- Type of shoulder;
- Number of lanes;

- Speed limit.
- Diagrams and photographs would be beneficial.

(3) Highway Traffic Data. The average daily travel and collision rate (the number of collisions per million vehicle miles traveled).

(4) Land Use. Land use within 100 yards of the proposed combined use highway.

(5) Rules and Regulations. A copy of the rules and regulations required to be adopted for combined-use designation pursuant to Section 38026(a) VC.

(6) Justification. The benefits of the combined-use designation, such as public service(s) performed or problem(s) resolved.

(7) Costs. An estimate of the costs associated with developing, implementing, operating, and maintaining the proposed combined-use highway.

(8) Signing. A description of the California Department of Transportation approved signs to be posted and the location where they will be erected.

As a proposal goes through the CHP's review process, the following factors will be considered:

- Motorist and public safety;
- Traffic volume;
- Types of vehicles using the roadway;
- Property use of adjacent property owners;
- Physical characteristics of the roadway.

Thank you for your efforts to keep us informed of your roadway designation process. If you have further questions, please do not hesitate to contact me at (916) 657-4098, or Captain Paul Congi of Research and Planning Section at (916) 657-7237.

Sincerely,

J. E. McLAUGHLIN, Chief
Planning and Analysis Division

USDA United States Department of Agriculture | Forest Service | Washington Office | 1400 Independence Avenue, SW Washington, DC 20250

File Code: 1300/2350-5/7700
Date: MAR 31 2010

Ms. Sylvia Milligan
Recreation Outdoors Coalition
4000 Beacon Drive
Anderson, CA 96007

Dear Ms. Milligan,

This letter is in response to your Data Challenge Request, dated February 1, 2010, and which was received by this office via email on February 2, 2010. You questioned the accuracy of the information contained in the engineering reports for advising proposed decisions to designate roads for motorized mixed use in the "Motorized Travel Management Final Environmental Impact Statement" (FEIS) and Decision Notice for the Lassen National Forest dated December 14, 2009.

The panel selected to review this Data Challenge concluded the reports meet the requirements of the Data Quality Act pertaining to utility and transparency as well as objectivity and quality. Therefore, we have found no reason to correct the information. In support of this finding, I offer the following explanation.

The references to law, regulations, and policy in your challenge request are not necessarily accurate. For example, definitions applicable to National Forest System (NFS) roads, including the definition "Forest Highway", are found in Section 101 of Title 23 of the United States Code, Section 212.1 of Title 36 of the Code of Federal Regulations (36 CFR 212.1), and Forest Service Manual (FSM) Section 7705. State traffic laws are applicable on NFS roads under regulations at 36 CFR 212.5a. Policies regarding motorized mixed use of NFS roads are found in FSM Section 7715.77 and Forest Service Handbook (FSH) 7709.55 Chapter 30. Policies about maintenance levels and their application on NFS roads are found in FSH 7709.59 Chapter 60 Sections 62.3 and 63.41.

I agree, the USDA guidelines require us to strive to ensure and maximize the quality, objectivity, utility, and integrity of the information that is disseminated to the public. However, these guidelines neither require decisions be delayed to collect data that does not exist nor do they prohibit use of professional judgment to advise decisions that must be made in such situations.

For example, FSM 7715.77 contains the following policy about engineering analysis to foster decisions on proposals for motorized mixed use:

> *4. Where the responsible official proposes to depart from state traffic law or change current travel management direction by authorizing motorized mixed use where it would otherwise be prohibited, that decision must be advised by documented engineering analysis conducted by a qualified engineer.*
>
> *5. Decisions on motorized mixed use, like other travel management decisions, are the responsibility of the responsible official. The role of the qualified engineer is to analyze information on the road and road use and to recommend mitigation of safety risks.*

Under this policy, the role of engineering analysis is neither to propose motorized mixed use nor to make decisions about it. These actions fall under the responsibility of the Forest Supervisor, in this case, of the Lassen NF. The engineering analysis performed by a qualified engineer only analyzes that information which is available and recommends mitigation of safety risks identified. As you correctly point out, there is no traffic count data nor is there any crash data available for the Lassen NF's roads. If such data were available, it would be displayed in the engineering reports under the USDA guidelines. However, as noted above, the guidelines do not require information be collected when none exists.

In interpreting this policy, it is also important to fully comprehend the meaning of "Engineering Report" and "Qualified Engineer." FSM 7705 defines them as follows:

> *Engineering Report. A report that analyzes risk factors pertaining to a proposed designation of a road for motorized mixed use that is signed by a qualified engineer and that is presented to the responsible official. The report may identify alternatives, as well as risks associated with those alternatives, for mitigation of factors contributing to the probability and severity of crashes.*
>
> *Qualified Engineer. An engineer who by experience, certification, education, or license is technically trained and experienced to perform the engineering tasks specified and who is designated by the Regional Office Director of Engineering.*

The qualified engineers who performed the motorized mixed use analysis for the Lassen NF proposals were designated by the regional engineer. In addition, the individual analysis reports received a peer review by the regional engineer.

In your letter, you state that concerns about risk discussions in the engineering reports, "reflects a well-known bias by the Forest's engineering staff against continuing to allow motorized mixed use on unpaved Forest roads that have had no known MMU crashes or other safety problems." My staff was unable to find any evidence of bias on the part of the engineers on the Lassen NF.

In conclusion, the information you provided was carefully considered. After a careful review and discussions I concluded there is no correction of information necessary. If you are dissatisfied with this response, you may submit a Request for Reconsideration (RFR). An RFR filed after the 45-day deadline may be denied as untimely. The RFR should reference this letter. Additional requirements and information for an RFR are listed on the USDA Correction of Information website: http://www.ocio.usda.gov/qi_guide/correction.html. An RFR can be submitted to the Reconsideration Official by mail, facsimile, or email:

USDA Forest Service
ATTN: Data Quality Office
Mail Stop 113, 1SW Yates Building
1400 Independence Avenue, SW
Washington, DC 202050-1143

FAX: (202) 260-3245
EMAIL: gvargas@fs.fed.us

USDA Forest Service
ATTN: Data Quality Office
201 14th Street, SW
1st Floor, SW Wing
Washington, DC 20250

If you should have any administrative procedural questions, please contact George Vargas, Forest Service Information Quality Officer, at (202) 205-0444 or at gvargas@fs.fed.us.

Sincerely,

Richard W. Sowa, P.E.

RICHARD W. SOWA, P.E.
Director of Engineering

RECEIVED
MAY 07 2010

RECREATION OUTDOORS COALITION
4000 Beacon Drive
Anderson, CA 96007
Phone: 530-365-4732
Cell: 530-949-6743

April 7, 2010

USDA Forest Service
ATTN: Data Quality Official
Mail Stop 113, 1SW Yates Building
1400 Independence Ave, SW
Washington, DC 20250-1143

Subject: Request for Reconsideration under the Data Quality Act

Dear Sir/Madame:

I am requesting reconsideration and a Department of Agriculture review of your March 31st response to my Data Quality Act (DQA) request, dated February 1. In requesting this review, I find the following statements in your March 31st letter particularly troublesome:

1) "The panel selected to review this Data Challenge concluded the reports meet the requirements of the Data Quality Act pertaining to the utility and transparency as well as objectivity and quality. There, we have found no reason to correct the information."

Response:
The Lassen National Forest (LNF) had statistically valid traffic count data from a 2005 Engineering Report of forest roads that was conducted by volunteers from the Recreation Outdoors Coalition under the supervision of a retired Forest Service Engineer and licensed State of California Traffic Engineer. In the absence of better data, this information should have been used to prepare the Forest's engineering reports for motorized nixed use (MMU). Instead, LNF engineers chose to disregard the data. The utility, transparency and objectivity standard of the DQA has not been met.

2) "The engineering analysis performed by a qualified engineer only analyzes that information which is available . . . As you correctly point out, there is no traffic count data nor is there any crash data available for the Lassen NF's roads. If such data were available, it would be displayed in the engineering reports under the USDA guidelines."

Response:
Traffic count data and an engineering analysis of crash probability and crash severity using objective benchmarks from the 2005 Engineering Report were available and submitted with our February 1st letter for your review. LNF engineers did not use or even reference this data in their engineering reports and in the Draft or Final Environment Impact Statements (EIS) for travel management. In our comments to the Draft EIS, ROC asked the LNF to establish benchmarks for each risk factor so all roads could be judged in a uniform and objective manner. This was not done and their risk assignments are subjective. Because the LNF's 2009 engineering reports differ significantly from the 2005 Engineering Report, I can only assume the LNF's reports are biased.

3) "in your letter, you state . . . the engineering reports, 'reflect a well-known bias by the Forest's engineering staff against continuing to allow motorized mixed use on unpaved Forest roads that have had no known MMU crashes or other safety problems.' My staff was unable to find any evidence or bias on the part of the engineers on the Lassen NF."

Response:
In addition to the 2005 Engineering Report, I also sent you four engineering reports for maintenance level (ML) 3 roads on the Modoc National Forest, immediately adjacent to the LNF. In November 2009, the Forest Supervisor authorized motorized mixed use on 513 miles of ML 3 roads on the Modoc National Forest. In January 2010, the LNF Forest Supervisor authorized motorized mixed use on only 9.3 miles of ML 3 roads. The other 75.7 miles of proposed motorized mixed use roads were dropped due to safety concerns identified in the LNF's engineering reports. These roads have been safely used by non-highway legal vehicles (OHVs) for decades with no history of mixed use accidents on the LNF – ever! Why is this traditional use unsafe now?

Traffic counts on the Modoc NF were taken over several random days and time periods totaling between 22 to 175 hours/road. LNF engineers counted traffic between 30 minutes to 3 hours/road. At least 12 of the road reports have no date listed so ROC is unsure if the listed traffic counts were actually taken. This reflects sloppy, incomplete work with no scientific validity. Instead, LNF engineers should have used data from the 2005 Engineering Report.

In addition, I sent you documents and resolutions from County Boards of Supervisors and Public Works Directors who manage unpaved county roads that connect with LNF roads. The LNF's engineering reports for motorized mixed use contradict the conclusions of experienced County Public Works Directors and mixed use decisions on similar unpaved county roads that flow into the LNF's road system. Findings in the LNF's engineering reports also conflict with motorized mixed use recommendations for ML 3 roads on the Modoc National Forest. This is further evidence of bias.

After reviewing the conclusions in the 2005 Engineering Report, the previous LNF Forest Supervisor proposed to allow motorized mixed use on all the ML 3 and ML 4 roads that were

sampled, comprising 72 miles of roads. Data collected in the 2005 Report is representative of all the Forest's unpaved ML 3 and 4 roads. The 2009 LNF engineering reports now disagree with the 2005 data.

4) Your March 31st response did not discuss the California Vehicle Code. Region 5 and Region 6 have different interpretations of the California Motor Vehicle Code. The Region 5 Regional Forester's motorized mixed use policy contradicts the opinion of the California Highway Patrol (CHP), the regulatory agency in charge of interpreting and enforcing the California Vehicle Code. CHP says unpaved national forest system roads do not meet the definition of a "highway" per Section 38001(a), California Vehicle Code. The Region 6 Regional Forester concurs with CHP. This conflict needs to be resolved.

5) The same failings in the LNF 2009 engineering reports are evident in your March 31st letter. LNF engineering reports do not reflect the kind of professional judgment or scientific accuracy we expect to meet DQA standards. Data in the engineering reports are missing or inaccurate, vehicle classes are not described, speed data is inconsistent with data in the Forest Service INFRA Roads database, traffic counts are meaningless, and other County or Forest Service engineers allow motorized mixed use on the roads they manage, contrary to LNF engineering recommendations. Most of the "data" is not even data, it is an engineer's opinion. The LNF did not attempt to collect valid data.

Your March 31st letter does not respond to the specific flaws ROC found in the LNF engineering reports. You did not address the following:

a. The LNF's failure to use vehicle count and vehicle class data from the 2005 Engineering Report or to collect their own statistically valid data.
b. The LNF's failure to use objective benchmarks to assess the risk of crash probability and severity for each road (such as those found in the 2005 Engineering Report).
c. The LNF's assignment of traffic speeds that conflict with LNF INFRA Roads database and prudent driver speeds from the 2005 Engineering Report.
d. How you considered the engineering reports from the Modoc National Forest and County resolutions that allow motorized mixed use on their unpaved road systems.
e. How you considered the application of the California Vehicle Code, and the conflicting interpretations between Region 5 and the California Highway Patrol, and between Region 5 and Region 6.
f. How you considered the fact the LNF has had a long history of motorized mixed use on forest roads without a single mixed use accident. How do you reconcile this with LNF engineering reports that conclude these roads are now unsafe for continued non-highway legal vehicle travel? What factual data support these conclusions?

Your letter states: "In conclusion, the information you provided was carefully considered. After a careful review and discussions, I concluded there is no correction of information necessary." To support this finding, the letter references the Code of Federal Regulations and

Forest Service Manual direction. It does not respond to the specific Data Quality Act concerns we raised in our February 1st letter (items a-f above).

Under the Freedom of Information Act, I am requesting all of the documentation related to your careful review, including the names of the review panel, their job titles and credentials, and the panel's specific findings (notes, e-mails, meeting discussions, reports, etc.) in response to my DQA request. I understand you have 20 days to provide this information.

I am disappointed you consider the LNF's engineering reports to be quality work under the DQA and Forest Service policy. They do not reflect the professionalism I expect from Forest Service employees or prudent use of taxpayer dollars. If a contract engineer performed this kind of substandard work, the contract would be terminated.

I request all LNF engineering reports be re-written using the best available data and with coordination with our local counties and adjacent national forests to ensure each agency's road management strategies for motorized mixed use are considered and integrated. I also request this work be contracted out to a professional traffic engineer to reduce the perception of agency bias.

Thank you.

Sincerely,

/s/ Sylvia Milligan

SYLVIA MILLIGAN
Recreation Outdoors Coalition

cc:
Mr. Harris Sherman
Under Secretary for Natural Resources and Environment
US Department of Agriculture
1400 Independence Ave., SW
Washington, DC 20250

USDA Forest Service
Freedom of Information Act Service Center
ORMS/RIS
201 14th Street, SW
1st Floor, SW Wing
Washington, DC 20250

USDA United States Department of Agriculture | Forest Service | Washington Office | 1400 Independence Avenue, SW Washington, DC 20250

File Code: 1300/2350-5/7700
Date: May 17, 2010

Ms. Sylvia Milligan
Recreation Outdoors Coalition (ROC)
4000 Beacon Drive
Anderson, CA 96007

Dear Ms Milligan,

This is an acknowledgment of your Request for Reconsideration to the Forest Service response to your original Data Challenge to the Lassen National Forest Final Environmental Impact Statement for a Motor Vehicle Travel Management Plan. We received the full set of documents, via UPS, for the Reconsideration on May 7, 2010.

We are now in the process of developing our response. In accordance with USDA guidelines, agencies will respond within 60 calendar days of receipt. If the response requires more than 60 calendar days to resolve, the agency will inform the complainant that more time is required and indicate the reason why and an estimated decision date.

If you have any administrative questions, please contact the Information Quality Officer, George Vargas at 202-205-0444 or via email at gvargas@fs.fed.us.

Sincerely,

Lorrie S. Parker

LORRIE S. PARKER
Acting Director, Office of Regulatory and Management Services

Exhibit 1

ROC's Review of the Lassen National Forest Engineering Reports for Proposed Motorized Mixed Use Roads

A. Introduction Section to the Engineering Reports (page 1)

The "Introduction" section to the engineering reports should comply with Forest Service Manual and Handbook direction, and also be consistent with factual data from the:

- 2005 Traffic Study on the Lassen National Forest,
- LNF INFRA Roads Database,
- LNF 2000 and 2005 National Visitor Use Monitoring (NVUM) data,
- LNF Land and Resource Management Plan,
- California 2000 Census data,
- County road management direction,
- California Vehicle Code, and
- long-standing, permitted OHV use on the LNF.

Without it, the descriptions in this section for each road are incomplete and misleading.

1. To set the context for the discussion that follows, some background information is helpful.

National Forest System (NFS) roads are not public roads in the same sense as roads that are under the jurisdiction of State and county road agencies. NFS roads are not intended to meet the transportation needs of the public at large. Instead, they are authorized only for the use and administration of national forest lands. Although generally open and available for public use, that use is at the discretion of the Secretary of Agriculture. Through authorities delegated by the Secretary, the Forest Service may restrict, control or allow traffic to meet specific management direction. NFS roads are categorized by five maintenance levels (1-5) with 5 being the highest standard of maintenance and 1 being a closed road.

A maintenance level 2 road is open for use by high-clearance vehicles, including non-highway legal vehicles. Standard passenger car traffic is allowed, but discouraged.

The Forest Service calls ML 3-5 roads "passenger car" roads. A maintenance level 3 road is:

"Assigned to roads open and maintained for travel by prudent drivers in a standard passenger car. User comfort and convenience are low priorities. Roads in this maintenance level typically are low speed, single lane with turnouts, and spot surfacing. Some roads may be fully surfaced with either native or processed material. These roads have the following attributes:

- Subject to the Highway Safety Act and MUTCD.
- Roads have low to moderate traffic volumes.
- Typically connect to arterial and collector roads.
- A combination of dips and culverts provide drainage.
- May include some dispersed recreation roads.
- Potholing or washboarding may occur."

A maintenance level 4 road is defined as:

"Assigned to roads that provide a moderate degree of user comfort and convenience at moderate travel speeds. Most roads are double lane and aggregate surfaced. However, some roads may be single lane. These roads have the following attributes:

- Subject to the Highway Safety Act and MUTCD.
- Roads have moderate traffic volume and speeds.
- May connect to county roads
- Culverts provide drainage.
- Usually a collector.
- May include some developed recreation roads."[8]

A maintenance level 5 road provides a high degree of user comfort. These roads are normally double lane paved roads or aggregate surfaced with dust abatement.

Section 38001(a) of the California Vehicle Code (CVC) states:

"For the purposes of this division, the term 'highway' does not include fire trails, logging roads, service roads regardless of surface composition, or other roughly graded trails and roads upon which vehicular travel by the public is permitted."

According to the California Highway Patrol (CHP) and CVC, unpaved ML 3 and 4 roads are not "highways." Non-highway legal vehicle (OHV) travel is legal on these roads.[9]

Forest Service Region 5 direction in 2006 and 2007 states NFS roads maintained for passenger cars (ML 3-5) are not considered roughly graded; therefore the operation of non-highway legal vehicles on these roads is not consistent with State traffic law. Further, Regional direction implies that vehicles on ML 3-5 roads must be highway legal and operated by licensed drivers. All ML 3-5 roads are considered "highways" under the CVC by Region 5. This conflict in each agency's interpretation of the CVC has a profound effect on OHV recreation in California.

2. Local County Boards of Supervisors and Public Works Directors do not consider unpaved county roads to be "highways" and non-highway legal vehicle travel is legal under State traffic law (County Resolutions and statements from County Public Works Directors found in Exhibit 3).

3. County and national forest road systems are intertwined and should operate as a seamless network for the public to use. The LNF's engineering reports and mixed use conclusions stand in stark contrast to what is authorized on unpaved county roads.

4. The LNF is a rural forest with no nearby population centers of any size within 80 miles (CA 2000 Census).

---

[8] "Guidelines for Road Maintenance Levels," 0577 1205-SDTDC, December 2005.

[9] Letter from CHP Deputy Commissioner J.A. Farrow to Regional Forester Randy Moore, 12/19/07 (Exhibit 6).

5. Traffic volumes on LNF unpaved ML 3 and 4 roads are generally less than 30 average daily traffic (ADT) and not likely to increase any time soon (2005 Traffic Study, 2006 LNF Roads Analysis Process, 2009 LNF Engineering Reports, and NVUM).

6. Non-highway legal vehicle travel on unpaved LNF ML 3 and 4 roads is extremely low (2005 Traffic Study, 2009 LNF Engineering Reports, and NVUM).

7. Visitor use on the Forest is declining according to LNF 2000 and 2005 NVUM surveys (from 656,000 national forest visits in 2000 to 607,000 visits in 2005).[10] Total OHV participation on the Forest is also declining from 6.9 percent in 2000 to 4.6 percent. In the 2000 NVUM, 11,376 visitors identified OHV use as the primary recreation activity for their stay, compared to 9,796 visitors in 2005.[11]

8. Traffic speeds on ML 3-4 roads are low (generally 25 mph or less) due to rough surfaces, dust and road hazards (2009 INFRA and 2005 Traffic Study).

9. All LNF unpaved roads are currently open to all motor vehicle classes, including non-highway legal vehicles. (This information was omitted in the engineering reports. A discussion of traffic volume and type including a history of OHV use on the roads is required (FSH 7709.55, Chapter 32.11, item 4, and EM-7700-30, pages 3-4.)

10. OHV operators assume paved roads are not open to OHV travel. They do not know or understand the distinction between unpaved ML 2, ML 3 and ML 4 roads or similar intersecting county roads. This situation is exacerbated by the difficulty in maintaining road signage in many areas of the LNF.

11. Decades of OHV use have resulted in no documented mixed use accidents on the LNF – ever! In the past 15 years, there have only been 11 mixed use accidents reported in California's national forests, 3 of which involved Forest Service employees and 1 involved a Deputy Sheriff crashing into an OHV (see Exhibit 7). OHV use on LNF unpaved ML 3-4 roads is a long-standing, accepted practice and common knowledge among users and LNF law enforcement officers.

12. LNF law enforcement officers have permitted OHV use on unpaved ML 3-4 roads unless operators failed to comply with Division 16.5, California Vehicle Code, and FS regulations.

13. The LNF can issue temporary forest orders (road closures) to prohibit OHV use on selected roads whenever there is commercial haul or for other reasons (FSH 7709.59, 23).

14. Appropriate road signs and maps in the future will alert the public that mixed use is authorized on these roads and increase driver safety (FSH 7709.59, 52.4). Although no signs exist now, there has never been a reported mixed use accident on the LNF.

---

[10] FEIS, page 117.
[11] FEIS, page 120-121

15. Proposed mixed use roads on the LNF will meet the following goals in the Forest's Land and Resource Management Plan (pages 4-24 to 4-25).

> "Provide a wide range of outdoor recreation opportunities to meet public demand by furnishing different levels of access, service, facilities, and information."
>
> "Provide diverse opportunities for off-highway vehicle (OHV) recreation."

16. Prohibiting mixed use in the future on LNF unpaved ML 3-4 roads will significantly limit OHV opportunities for long distance touring on intersecting unpaved county roads and the LNF's ML 2 road system. It will not be possible to use ML 3-4 connectors.[12]

Specific comments on the Forest's engineering analysis of road number 31N17 (a 1.9 mile segment) follows. These comments reflect ROC's concerns with <u>all</u> the proposed mixed use roads in the engineering reports that accompany the FEIS in Exhibit 2. The attached spreadsheet summarizes our analysis of the data on the other roads analyzed. None of the engineering reports meet the requirements in Section 38026, CVC for proposed combined-use highways as described in CHP's letter to the Regional Director of Recreation, Lands, Wilderness and Heritage Resources.[13]

B. Specific Comments on the Engineering Report for Road # 31N17

31N17, Page 2, Introduction:

Lines 7, 8 and 9–We question why the 17 road is even on forest highway list when the criteria in the Forest Service Manual are not met (FSM 7740.5, 7741.1, effective 8/24/2000 and FSM 7703.3, effective 1/8/09).

Forest Service Manual 7741.1 states:

> "Forest highways are a special classification of forest roads. They are specifically designated <u>State or local government roads</u> that meet the criteria listed in 23 CFR 660.105. The designation of forest highways is not intended to form a 'system' of roads. Instead, the purpose of the designation is to identify <u>State and local government roads</u> that qualify for construction and reconstruction funding under the forest highway program. (Underlining added for emphasis.)

Forest Service Manual 7740.5 defines a forest highway as:

> "A designated forest road under the jurisdiction of, and maintained by, a public authority that is subject to the Highway Safety Act."

In reference to "forest highways," Forest Service Manual 7703.3 says:

> "Wherever possible, transfer jurisdiction over an NFS road and associated forest transportation

---

[12] FEIS, page 121.

[13] CHP letter to Marlene Finley, Regional Director of Recreation, Lands, Wilderness and Heritage Resources, dated February 3, 2009 (Exhibit 9).

facilities (FSM 7705) to the appropriate public road authority when the road meets any of the following criteria:

a) More than half of the traffic on the road is not related to administration and use of NFS lands.
b) The road is necessary for mail, school, or other essential local governmental purposes.
c) The road serves yearlong residents within or adjacent to NFS lands."

31N17 meets none of the above criteria and has less than 10 ADT according to the 2005 Traffic Study.

R5 Regional Engineer George Kulick confirmed the description of "highways" in the Forest Service Manual:

> "In California, we have about 3,000 miles of Forest Highways officially identified. These highways are generally state or county roads that serve to connect National Forests."[14]

The Lassen NF has no written agreement from Caltrans, Shasta or Tehama County that they will assume jurisdiction and maintain this road when re-constructed to forest highway standards. This is 22 miles of road. All three agencies have told ROC that they will not add this road to their systems. **The LNF must justify their continued designation of 31N17 as a forest highway or delete these statements.**

Lines 11 and 12. The Engineering Report says: "The entire road is currently managed by LNF as open only to highway-legal vehicles." **This statement is incorrect.** It should say: This road has had consistent OHV use for decades with no record or knowledge of mixed use crashes. It is a popular connector route to other LNF roads for Mineral residents. The summer 2005 Traffic Study reported non-street legal vehicles were traveling on the road. The local FS law enforcement officer was not citing OHV operators.

31N17, Page 3:

Line 7 - Traffic Service Level. Given the average daily traffic reported in 2005 and traffic observed by LNF staff as reported in Exhibit 2, we believe the traffic service level should be "C" based on FSH 7709.56, Chapter 4 (effective 5/87). A road with a traffic service level of "B," as is the case of 31N17, has the capacity to accommodate up to 25 vehicles per hour. Vehicle counts on 31N17 are far below this at 8 ADT.

Line 8 - Objective Maintenance Level. Again, based upon ROC's observations for the past 5 years, we believe the <u>objective</u> maintenance level should be a 3 per FSM 7732.1 (effective 10/7/08). <u>If</u> and when a forest highway is constructed, it will be a two lane paved highway maintained by others and under their jurisdiction.

Line 9 - Operational Maintenance Level. Based upon the roadway conditions found during the 2005 Traffic Study, the <u>operational</u> maintenance levels ranged from 2 to 3 depending upon the road segment.[15] **The operational ML should be no more than a 2 now based on travel demand**

---

[14] E-mail from George Kulick to Elizabeth Norton, dated April 6, 2009.
[15] USDA Forest Service, "Guidelines for Road Maintenance Levels," #0577 1205-SDTDC.

and the LNF's constrained budget to maintain 3,278 miles of system roads. See further discussion on page 4, Box 2, Line 16.

Line 13 -"Any road use agreements . . . ?" **The checkbox should be No.** According to three different years of LNF INFRA roads data (2/14/07, 4/28/08 and 7/9/09), there were no agreements listed for 31N17. Also see comments for Box 1, Line 14 below.

Box 1, Line 14 under Description of Agreements or Encumbrances. When the 2005 study was conducted, LNF engineering staff said there was commuter traffic on the road. Therefore, ROC canvassed the Mineral and Viola areas to identify the extent of commute traffic. We found none. We contacted the Caltrans Maintenance Yard, the National Park Service Headquarters, and the US Postal Service in Mineral. None had any commuters (see Exhibit 4, Appendix D, last page). We obtained written confirmation of this and gave copies to the Forest. Viola is not a community with businesses, thus no commuters. During the traffic counting period of June-September 2005, we recorded one Park Service vehicle. **There is no encumbrance to the road; at least it certainly is not typical.**

Line 15 - Subject to the Highway Safety Act. This determination should be made based on a road's operational maintenance level. According to the ML definitions above, we believe many segments of 31N17 are actually ML 2 (not subject to the Highway Safety Act). See photos in Exhibit 4, Appendix D, count station 12. According to the FEIS, the Forest's road maintenance funds are not likely to increase in the near future to maintain the entire 22 miles of this road to ML 4 standards.[16]

Line 16 - Non-highway legal vehicles permitted? **The "No" checkbox is incorrect.** Non-highway legal vehicle (OHV) travel is a long-standing, accepted practice on 31N17 and all unpaved roads on the Lassen NF. OHV use is permitted by LNF law enforcement officers (barring violations of Division 16.5, California Vehicle Code, and FS regulations). The current Temporary Forest Order No. 06-09-01 (Exhibit 8) prohibits the use of motor vehicle travel off NFS roads, motorized trails, and unauthorized routes as shown in Exhibit A of the Order. The Order does not prohibit non-highway legal vehicle travel on any NFS road. **Therefore, the correct box to check is Yes.** This is consistent with the Modoc NF's interpretation in their engineering analyses (Exhibit 5).

Line 17 - Would motorized mixed use be consistent with State and local laws. **The "No" checkbox is incorrect.** Section 38001(a), California Vehicle Code says:

> "For the purposes of this division, the term 'highway' does not include fire trails, logging roads, service roads regardless of surface composition, or other roughly graded trails and roads upon which vehicular travel by the public is permitted."

The Regional Forester's motorized mixed use policy contradicts the opinion of the California Highway Patrol, the regulatory agency in charge of interpreting and enforcing the California Vehicle Code. CHP says unpaved national forest system roads do not meet the definition of a "highway" per Section 38001(a), California Vehicle Code. In reference to highways, "These have

[16] FEIS, page 79.

generally been paved roads that are part of a local or state designated street and highway system."[17] LNF roads were originally constructed as fire, logging or service roads.

Regional Forester Moore's mixed use policy also directly opposes the Region 6 policy, which concurs with CHP's interpretation for Region 6 national forest lands in California (Rogue River-Siskiyou National Forests). **By the best available authority, OHV travel on unpaved ML 3 and 4 roads is legal under the CVC. Region 5's mixed use policy should reflect this. Forest travel management plans should be consistent with the CVC.**

31N17, Page 4:

Box 1–**Again, the discussion in this box conflicts with CHP's interpretation of Section 38001(a), California Vehicle Code.** The Deputy Commissioner of the California Highway Patrol sent a letter to the R5 Regional Forester on December 19, 2007, which said in part:

> "We are not familiar with all the ML 3 Forest Service roadways, but if they are gravel or other dirt or unpaved roads that have been operating as mixed use roadways for years, it is our belief these roads would fall under the "roughly graded trails and roads upon which vehicular travel by the public is permitted" portion of Section 38001 VC and would, therefore, be eligible for your mixed-use definition." (Underline added for emphasis.)

The Agency has always called routes in the national forest system (NFS) "roads" unless they specifically meet the definition of a "forest highway" in Forest Service Manual 7741.1 (effective 8/24/2000). "Road" is the only term used throughout the FS directives. By its own Manual direction, the Forest Service manages roads, not highways. **Any link to the CVC term "highway" is incorrect.** Only State and local agencies manage highways. The Region is trying to create a new reality by now calling these roads "highways." The Region's mixed use policy has no basis in federal law or regulation, State traffic law or national FS policy that we can find.

The Regional Forester has "now determined"[18] (not CHP) that State traffic law applies to NFS ML 3-5 roads in California's national forests, and they are "highways." **Again, as the designated law enforcement agency regulating and enforcing the CVC on public roads, the Region's mixed use policy must comply with CHP's interpretation.** If not, the Region's policy should not cite the CVC for prohibiting long standing mixed use on unpaved ML 3 and 4 roads.

Box 2–Lines 3 and 4, under Description of road management objectives (RMOs). Only about 1,600 feet of 31N17 is used for access to the Brokeoff Meadows subdivision. Shasta County Road 3P001 provides access to the subdivision from Viola and that is the proper way this should be managed (FSM 7703.3). The principle connector roads between State Route 44, Viola and Mineral are on paved county roads via Paynes Creek, Manton, and Shingletown. **Lines 3 and 4 should be deleted.**

Because of the light amount of traffic that uses the road, we suspect it will be many years before forest highway funding would be available (if ever). The environmental analysis alone will take

---

[17] Letter from CHP Deputy Commissioner J.A. Farrow to Regional Forester Randy Moore, 12/19/07 (Exhibit 6).

[18] CHP letter to Marlene Finley, Regional Director of Recreation, Lands, Wilderness and Heritage Resources, dated February 3, 2009.

years. In the mean time, we recommend the LNF assign an operational maintenance level that is commensurate with the actual travel demand and manage it that way.

Box 2–Lines 11 & 12–At times, there will be vegetation management projects that will create the need for commercial hauling. During actual haul, the LNF can and should issue the appropriate temporary road use order to protect the traveling public (FSH 7709.59, 23). Cancel the order when hauling is complete. **Include this discussion here to correctly state the Forest Supervisor can issue temporary orders for public safety.**

Box 2–Line 13–As noted in ROC's previous comments, **the Regional Forester's interpretation of the CVC is incorrect.** This road is not a "highway" under the CVC.

Box 2–Line 16–The engineering report states: "Most of the year, it is currently managed as open only for highway legal vehicles." **This statement is incorrect.** The LNF has permitted non-highway legal vehicle travel on 31N17 for decades with no safety issues. The current Forest Order (No. 06-09-01) also allows OHV use on all LNF roads. We understand the Forest visitor map has, for years, indicated OHV use only on ML 2 roads that have vertical route markers. However, there has never been a NEPA decision to prohibit OHV travel on ML 3-5 roads. Until the Region's mixed use policy letters were issued, starting in 2006, there was no prior regional policy that said ML 3-5 roads are "highways" and that OHV use on "highways" is in conflict with State traffic law. OHV use on unpaved LNF roads is a well-established and permitted practice.

31N17, Page 5:

Page 5, Box 1–Lines 5, 6, 7 and 8 under General Considerations. The engineering report says: "The LNF currently manages this road as a highway, in accordance with the Highway Safety Act." Please note, roads subject to the Highway Safety Act (HSA) have to meet certain safety standards as defined in FSM 7733 and Forest Service Handbook (FSH) 7709.59, 40. They are not "highways" under the CVC definition and the HSA does not prevent the LNF from designating these roads for mixed use. **The inference that 31N17 is a "highway" per the CVC is incorrect.** Does a judge have to resolve this?

The reference to 36 CFR 212.5 leaves out important information: The Rule states:

> "Traffic on roads is subject to State traffic laws where applicable except when in conflict with designations established under subpart B of this part or with the rules at 36 CFR 261."

This means:

> "On NFS roads, designations for motor vehicle use take precedence over conflicting State traffic laws. The Forest Service may designate some NFS roads under Title 36, Code of Federal Regulations, section 212.51 as open to a vehicle class that would normally be precluded from public roads under State law (for example, NFS roads could be designated for all motor vehicles, where State law allows only highway-legal vehicles)."[19]

[19] Forest Service Manual 7731.2, #1 and #3 (effective 10/07/2008).

Box 2–Lines 8 and 9, under Summary of Findings. The LNF's description that 31N17 is a "forest distinctive route, a category used for significant, highly traveled routes through the Forest" **is not substantiated by any vehicle count data** that ROC is aware of. The average daily traffic or ADT on 31N17 from the summer 2005 Traffic Study was 7.86 vehicles with a high of 14 vehicles counted on July 3 (July 4th weekend). The 2005 Study was based on guidance from the UC Berkeley, Institute of Transportation and Traffic Engineering. Manual counts were made between 7 AM and 7 PM on the first Sunday and third Wednesday in June, July, August, and on Labor Day weekend. Recordings were by four hour blocks of time and distinguished between standard passenger cars, SUVs, pickups, highway legal motorcycles, dirt bikes and quads. The protocol statistically measured 85 percent of total traffic flowing.

LNF staff counted 4 vehicles during one traffic count for 90 minutes on June 25, 2008 – 1 administrative vehicle (presumably FS), 2 fire engines (also presumably FS), and 1 other vehicle. **This, obviously, is not a statistically valid traffic count.** Non-commercial use over the last five years does not support the LNF's statement that this is a "highly traveled" road. The LNF's 2006 Roads Analysis says 31N17 has an ADT of 40 although no statistically valid traffic counts were taken to support this number. **The statement in lines 8-9 should be deleted.**

Box 2–Line 13–The 1.9 mile segment of # 31N17 may have an average travel speed of 35 MPH on the straightaway. However, based upon GPS recordings while driving the entire 22 miles between SR 36 and SR 44, several prudent drivers averaged between 22 to 27 MPH. In the LNF's INFRA roads database (7/9/09), the design speed for this road is 20 mph.[20] The average speed for all other roads in the 2005 Traffic Study compared to the 2009 engineering reports is displayed in Table 3. **Although different road segments were studied, speeds in the 2009 LNF engineering reports are consistently higher than those recorded in 2005. They are overstated for the road conditions (rough surface, dust, occasional road hazards, etc.) that cause prudent drivers to be careful and cautious.**

Box 2–Line 16– The crash potential and crash severity factors listed on page 68 of the Forest's FEIS for Travel Management were not individually ranked against a set of benchmarks in any of the engineering reports as ROC suggested in our comments on the Draft EIS. **As a result, all the reports lack scientific objectivity and are not credible.** How is the public to understand what risk factors were assigned and whether or not the same criteria were used on other roads? These risk factors were individually rated for each road to determine crash probability and crash severity in the 2005 Traffic Study. For 31N17, the Study concluded the probability of an accident was low and crash severity was also low. The previous Forest Supervisor proposed to accept mixed use (in Exhibit 4).

31N17, Page 6:

Page 6, Box 1–Lines 7, 8 and 9 under Operator Considerations. This statement does not add any significance to the "considerations" section except imply a bias against non-highway legal

[20] Forest Service Handbook 7709.56, Chapter 4.25, 1 (effective 5/87). "Design speed is the speed determined for the design and correlation of the physical features of a road or road segment that influence vehicle operation. It is the maximum safe speed that the design vehicle can maintain over a specified segment of road when conditions are so favorable that the design features of the road, rather than operational limitations of the vehicle, govern." The most commonly used design vehicle was an 18 wheel logging truck.

vehicles and children under 18 years of age. Lines 10-14 restate the law per the CVC and are factual and supportable. **Delete lines 7-9.**

Box 1–Lines 15 and 16–The analysis says: "The current use on 31N17 appears to be consistent with State law and Forest Service policy for operational maintenance level 4 roads." **This is incorrect. OHV use is occurring on this road and, according to R5 policy, this is <u>inconsistent</u> with the CVC.**

Given the ADT, vehicle class and mix or composition of traffic on 31N17, we seriously question the Forest's decision to keep this road at an operational ML 4 and prohibit continued OHV travel. During the summer 2005 Traffic Study, 54 vehicles were counted of which only 2 were standard passenger cars (4%). The rest were street legal, high clearance vehicles (81.5%) or non-highway legal vehicles (15%). Consider the factors listed in FSH 7709.59, 62.31 when selecting maintenance levels. It makes little sense to keep roads at a higher maintenance level if standard passenger cars are a minor component of the traffic. ROC believes "prudent drivers in standard passenger cars" with P-rated tires almost always stay on paved roads. The primary vehicle class using the road should drive the assignment of <u>operational</u> road maintenance levels and not vice versa.

Box 2 under Crash History–We also found no record of motorized mixed use accidents on this road. We did note the LNF included two accident references on the other roads evaluated in these reports. **These should be deleted.** Neither one of them was a motorized mixed use accident. A motorized mixed use accident is when a street-legal and a non-street legal vehicle crash together. There have only been 11 of these documented in the entire Region (California) in the past 15 years and four of these were caused by government operators (Exhibit 7).

31N17, Page 7:

Page 7, Box 1 under 3. Observed traffic volume and type. **The form's use of the term "passenger car" is misleading.** Does it mean passenger carrying vehicles? The photographs show a high clearance pickup; we assume that is the one administrative vehicle LNF staff listed. The pickup is a passenger carrying vehicle, but not a standard passenger car. It is a high clearance vehicle. Two fire engineers were observed; these are not standard passenger cars. FSM 7705 definitions under "Road Subject to the Highway Safety Act" refer to standard passenger cars, i.e., Ford Taurus, Chevrolet Malibu, Chrysler 300, Toyota Camry, etc. Pickups and SUVs are high clearance vehicles. Most of the vehicles observed by LNF staff in the engineering reports appeared to be high clearance vehicles, not standard passenger cars. **The LNF's survey form should be amended to record vehicle class similar to the form used in the 2005 Traffic Study.**

The traffic count data LNF staff collected during the preparation of these engineering reports are really meaningless as all were sampled for ½ to three hours only on one random day of the year (except for 32N22). At least 12 of the road reports have no date listed so ROC is unsure if the listed traffic counts were actually taken. No vehicles were recorded at 15 road stations (out of 32 or 47%) during the count day. Vehicles classes were not consistently counted and the descriptions varied widely. Monitoring road traffic should be based on scientific (traffic engineering) procedures.

In 2005, the Lassen National Forest Supervisor asked ROC to perform a summer long traffic study and prepare an Engineering Report for certain roads on the Forest. **LNF staff should have considered this traffic count data for those same roads.**

For # 31N17, LNF staff observed 4 vehicles during 90 minutes (3 of which appear to be administrative vehicles). The 2005 count (ADT of 7.86) was conducted using a statistical random sampling method for the major summer travel season, including two holidays, when vehicle use would be highest. ROC believes that, if anything, traffic is slightly lower due to the economic recession and higher gas prices. Less than 10 vehicles per day, in our opinion, do not justify an operational maintenance level of 4 or a traffic service level of "B."

Box 2 under Speed. The LNF's INFRA roads database (7/9/09) indicates 31N17 is a single lane, gravel road with a design speed of 20 mph. The existing surface condition of the roadway is the controlling factor related to speed. Many sections of 31N17 are roughly graded with exposed rocks, potholes and wash boarding. Operators know this and drive accordingly. Engineering judgment and common sense tells us no person or operator wants to be hurt or to do damage to their motor vehicle. **The LNF's recorded speed of 35 mph is overstated and needs to be corrected.** As indicated above, estimating how fast one can go on a straightaway is not a scientific way to establish travel speed, especially when two vehicles approach each other. When this happens, the human reaction is for operators to reduce their speed or even pull over and stop to allow one vehicle to slowly pass due to dust (and out of courtesy). **Two vehicles do <u>not</u> pass each other at 35 mph.** Note: several Modoc NF engineering reports documented average speeds of 35 mph or less with low crash probability and low crash severity.

Box 3–under Road Surface Type. The 2005 Traffic Study used an average width of 16 feet for the entire road. The LNF engineering report shows 15-20 feet for the 1.9 mile surveyed road segment. Consider the safety situation of two vehicles approaching each other on a 15-20 foot wide road. A pickup, passenger car or FS fire engine are about 7-8 feet wide. A quad is 4 feet wide. Put them side by side and you need 11 or 12 feet. Prudent drivers (synonymous with "cautious driver in the INFRA data dictionary) can safely pass each other on a 15-20 foot wide road. Prudent drivers also slow down and pull over or stop when approaching another vehicle on dusty NFS roads. And they generally drop back if someone is preceding them and creating dust. **Based on the road's reported widths, mixed use can safely continue.**

Box 5–under Other Roadway Factors. What about stopping sight distance due to curve radii, vegetation encroachment and surface conditions? **These are measurable safety factors and should be discussed** (FSH 7709.56, Chapter 4.25). **All the roadway factors listed here indicate mixed use can safely continue.**

31N17, Page 8:

Page 8, Box 1–Second sentence. This road is closed by snow as much as or for an even longer period in a year than is SR 89 through the National Park. The Park plows SR 89 and the FS does not plow # 31N17. **This statement is erroneous and should be deleted.**

Box 3 under 9. Risk without mitigation if designating the roadway "open to all motor vehicles." **The assignment of probability and severity is subjective.** Several factors are listed to assess

MMU risk. In our response to the Draft EIS, ROC asked the LNF to establish benchmarks for each factor (between low and high) so all roads could be judged in a uniform way as shown in the 2005 Traffic Study. We have no way to objectively assess the LNF's assignments. **They differ significantly from the documentation in the 2005 study. We can only assume they are biased. Each factor should be rated against measurable benchmarks.**

31N17, Page 9:

Box 1 under Alternatives and mitigation measures. The engineering report states: "For all situations, the following mitigation measures apply: Coordinate with other agencies to improve enforcement consistency." There was no coordination with County Boards of Supervisors or Public Works Directors to ensure compatible road management direction. The LNF's road engineering reports and mixed use conclusions stand in stark contrast to what is currently authorized on unpaved county road systems that connect to LNF roads (Exhibit 3). This will be an enforcement nightmare. **The LNF should coordinate with county officials to have consistent road management strategies on their connecting road systems.**

Box 1 under Alternative 1: The engineering report says: Continue to manage the road in accordance with maintenance level 4 standards. As of February 14, 2007, 31N17 had an operational maintenance level of 3 (LNF INFRA Roads database). By April 18, 2008, the road's operational maintenance level in INFRA was upgraded to ML 4. Between this timeframe, there must have been considerable road improvements along the road's entire 22 mile length to raise the operational maintenance level from a 3 to a 4. ROC is requesting this information as our observations on the ground do not support the increase in operational maintenance level for the entire road. **There is certainly no travel demand to maintain 31N17 as a ML 4 even during short periods when there is temporary log or chip haul.**

31N17, Page 10:

Page 10 under Alternative 2: The engineering report says: Designate the road segment as "open to all motor vehicles', including highway legal and non-highway legal vehicles. Continue to maintain the road in accordance with maintenance level 4 standards."

Page 10 under Alternative 2, Approximate Implementation Cost, the report then states: "This does not account for the additional increase in long-term annual maintenance costs associated with maintaining these critical safety corridors." **The report does not describe nor validate these increased costs and should be deleted.**

The FEIS says: "Mixed use changes that do not involve a change in maintenance level will not affect resources since the change is purely administrative and does not involve any changes to conditions on the ground."[21]

We understand there will be "one time implementation costs" to sign roads open to mixed use and for database updates.[22] The FEIS referenced public comments that said ". . . some types or

[21] FEIS, page 61.
[22] LNF FEIS, page 92 and Table 20 on page 94.

use result in higher maintenance costs due to resource damage caused by such uses and how certain mixes of use, if allowed in the same areas, would increase the need for maintenance and administration of those areas."[23] But the FEIS does not mention any specific long-term annual maintenance costs associated with "maintaining these critical safety corridors." The Modoc NF FEIS said OHV use on ML 3 roads is not expected to have any additional cost.[24]

Page 10 under Alternative 3. The Engineering Report says: "This would require removing culverts and ditches, reconstructing the template and narrowing the roadway." Please provide us with the specific FSM reference or other written FS direction that requires this. **This statement is erroneous. There is nothing in the FSM that requires this that we are aware of.**

Conclusions

1. Region 5's motorized mixed use policy must comply with CHP's explanation of the California Vehicle Code and Region 6 's acceptance of CHP's letter.

2. The roads or road segments in the LNF engineering reports specifically meet Section 38001(a), CVC, exemption for non-highway legal vehicles in three ways: 1) they began existence as logging, fire or service roads; 2) periodic logging traffic is probable in the future; 3) they are considered roughly graded.

3. All of these roads have had some OHV travel for decades and there is no record of any mixed use crashes. Therefore, the statistical probability of a future crash is low. If mixed use is not a problem now, why make it a problem?

4. If the Regional Forester had accepted CHP's interpretation of the California Vehicle Code and complied with Forest Service national direction discussed in FSH 7709.55, 30.3, item #5 and FS EM-7700-30, 12/05, Documentation of Engineering Judgment (page 2), none of these costly engineering reports would have been necessary.

5. Traffic surveillance has not been done on the LNF following FS Handbook direction since the 1970s and 1980s, thus knowledge of actual travel demand is just a guess. See FSH 7709.59, Chapter 51 (effective 2/5/09). LNF road maintenance levels do not sufficiently reflect travel demands today because no statistically valid traffic surveillance has been done for almost 30 years (except in summer 2005).

6. Funding constraints imply good road management decisions must be based upon the LNF's current capability to maintain the road to its identified road management objectives (RMOs). There is no information in the engineering reports if the roads analyzed currently meet their RMOs. The LNF has $182 million in deferred road maintenance backlog according to their Final Environmental Impact Statement.[25] Annual maintenance needs for the Forest's 3,278 mile road system is $14,844,719 compared to an average annual road maintenance budget of $1,089,000.[26] This extreme shortfall

[23] LNF FEIS, pages xix and xx.
[24] Modoc FEIS, page 45.
[25] FEIS, pages xviii, 7 and 93.
[26] LNF FEIS, pages 79 and 93.

prevents the LNF from fully meeting their road management objectives. We have to wonder why 31N17 (and similar roads) has an assigned operational and objective maintenance level of 4 when the traffic volume is so low and the vehicle class is predominantly high clearance.

7. For the 31N17 road, travel demand only justifies an operational ML 2 with an emphasis on resource protection, i.e. cleaning culverts, some brush removal and spot pulling of ditches. Also see FSH 7709.59.62.32, item 2, for signing to alert drivers to the roadway conditions they can expect.

8. When commercial traffic is using a NFS road, the LNF has the option of temporarily raising the operational maintenance level for haul purposes. The LNF Forest Supervisor can also issue a road use order to temporarily prohibit incompatible public travel. Cancel the order upon completion of hauling and lower the operational maintenance level.

9. ROC recommends the LNF and the Region agree on and establish acceptable definitions for vehicles by class, low and high traffic volume, (ADT) and average travel speed and equate these to the maintenance levels and accident risk assessments.

10. Tables 1 and 2 on the next pages reflect the differences between the Modoc and Lassen National Forest Travel Management Plans.

Forest Travel Management Plan Impacts
(1/27/10 Forest Data)

The table below is a snapshot of the proposed changes from the existing condition on the Lassen National Forest. The reduction of OHV recreation opportunities (especially for non-highway legal vehicles) is significant as described in the Lassen NF Final Environmental Impact Statement. The proposed LNF Travel Management Plan is a "minimalist" alternative when compared to the final Travel Management Plan from the adjacent Modoc National Forest.

Table 1 ***Lassen National Forest***	*DEIS, Alt. 1 – No Action (**or Current Status Quo**)*	*FEIS Modified Alt. 5 – Proposed Travel Plan*	*FEIS Modified Alt 5 - Percent of Forest Total from Alt. 1*
Acres available for cross-country travel	1,072,500	0	0%
Acres of open riding areas available	26	0	0%
Miles of unauthorized roads and trails added to the national forest transportation system	1,089	56	5.1%
Number of dispersed recreation sites with motor vehicle access	504	65	12.9%
Miles of unpaved ML 3-4 roads proposed for mixed use (all vehicles)	Mixed use currently occurs on most 693 miles of unpaved ML 3-4 roads 1/	9.3	1.3%
Miles of unpaved ML 3-4 roads converted to high clearance roads to allow mixed use (all vehicles)	Mixed use currently occurs on most 693 miles of unpaved ML 3-4 roads	79.6 2/	11.5%

1/ Maintenance level (ML) 3, 4, and 5 roads are considered "highways" by the Region 5 Regional Forester. Therefore, he says these roads are subject to the CVC. The CHP and Region 6 Regional Forester do not concur with his interpretation.

2/ According to the Lassen NF FEIS, these converted roads segments would not be available for motorized mixed use or displayed on a map until they weather out. The FEIS indicates this could take 10 years or more before the segments look like high clearance roads. In ROC's opinion, these miles are bogus; they will not show up on any maps as open for use by non-highway legal vehicles and may never exist.

The Modoc National Forest Supervisor issued his decision for the Forest's Travel Management Plan on November 12, 2009.

Table 2 ***Modoc National Forest***	*DEIS, Alt. 1 – No Action (**or Current Status Quo**)*	*FEIS – Adopted Travel Plan Decision*	*FEIS Modified Alt 5 - Percent of Forest Total from Alt. 1*
Acres available for cross-country travel	1,609,466	0	0%
Acres of open riding areas	0	0	0%
Miles of unauthorized roads and trails added to the national forest transportation system	491	336	68.4%
Number of dispersed recreation sites with motor vehicle access	1,168	1,154	98.8%
Miles of unpaved ML 3-4 roads proposed for mixed use (all vehicles)	Mixed use currently occurs on most 573 miles of unpaved ML 3-4 roads 1/	513	89.2%
Miles of unpaved ML 3-4 roads converted to high clearance roads to allow mixed use (all vehicles)	0	0	0%

1/ Maintenance level (ML) 3, 4, and 5 roads are considered "highways" by the Region 5 Regional Forester. Therefore, he says these roads are subject to the CVC. The CHP and Region 6 Regional Forester do not concur with his interpretation.

Lassen NF 2009 Engineering Reports for Motorized Mixed Use

Exhibit 1 - Table 3

Road #	*Obj ML*	*Oper ML*	*2008 Traffic Count for Engineering Reports*	*Count Date and Time*	*Lassen NF 2006 Roads Analysis - Estimated ADT 1/*	*2005 Traffic Count (ADT)*	*2009 Prudent or Cautious Driver Speed (mph)*	*INFRA Roads Design Speed (mph)*	*2005 Traffic Study Speed (mph)*	*ROC Notes*	
28N70	3	3	1 admin. Suburban	6/10/08, 2 hrs			25-30	15		missing text	
29N03	3	3	3 civilian	not listed	40		35	20		no segments on map or photos	
29N18	3	3	2 PUs, 1 SUV	6/28/08, 2 hrs	25		30-40	25		3 segments	
29N48	3	3	2 pass cars, 1 mtn biker	6/10/08, 3 hrs	25		30	20		2 segments	
30N07	3	3	4 civilian	not listed	25		45	25		no segments on map	
30N16	3	3	none	6/25/08, 1hr	25	5	30	20	15		
31N17	3	3	2 pass cars (1 admin), 2 fire engines, 2 mtn bikers	6/25/08, 90 min	40	8	35	20	27	missing text	
32N02	4	4	none	not listed			45	25		missing text	
32N02	3	4	1 PU	7/30/08, 1 hr			40	25		no map	
32N08	3	3	1 pass car, 2 water trucks	6/25/08, 30 min	40		40	15			
32N09	3	3	2 civilian	not listed	25	11	40	20	20	combined in one rpt	no clear map or photos
32N09A	3	3	none	not listed			40	15		combined in one rpt	no clear map or photos

Road #	Obj ML	Oper ML	2008 Traffic Count for Engineering Reports	Count Date and Time	Lassen NF 2006 Roads Analysis - Estimated ADT 1/	2005 Traffic Count (ADT)	2009 Prudent or Cautious Driver Speed (mph)	INFRA Roads Design Speed (mph)	2005 Traffic Study Speed (mph)	ROC Notes	
32N10	4	4	2 pass cars on segment from SR 44 to rest area	6/25/2008, 30 min	25	16	45	20	20	count was observed on the entrance road to a Caltrans rest area and is invalid	mixed use should not be proposed on the rest area entrance road
32N12	3	3	1 Jeep, 1 BLM fire engine	6/25/08, 1hr	40	16	30-35	20	10	2 segments	missing text
32N13	3	3	none	not listed	15	16	15-25 seg 1, 35 seg 2, and 35-40 seg 3	20	20	3 segments	no photos, missing text
32N21	3	3	4 pass cars (3 SUVs)	6/28/2008, 3 hrs	25	17 2/	45	20	20		
32N22	3	3	none	6/25/08, 45 min and 6/29/08 for 40 min	25		40	20		2 segments	missing text
32N60	3	3	none	6/29/08, 105 min	25		40 seg 1 and 35 seg 2	20		2 segments	
32N73	3	3	4 PUs	7/29/2008, 1 hr	7		15	15		no photos	
33N02	3	4	none	7/30/08, 1hr	40		45, not supported by photos	15		2 segments	no segments on map
33N06	3	3	none	7/29/08, 1 hr			30	15		segment not on map	
33N08	3	2	none	7/30/08, 1 hr	15		25	20		segment not on map	poor photos of rd
33N13	3	3	1 FS fire vehicle	7/30/08, 1hr			40	20		segment not on map	no photos

Road #	Obj ML	Oper ML	2008 Traffic Count for Engineering Reports	Count Date and Time	Lassen NF 2006 Roads Analysis - Estimated ADT 1/	2005 Traffic Count (ADT)	2009 Prudent or Cautious Driver Speed (mph)	INFRA Roads Design Speed (mph)	2005 Traffic Study Speed (mph)	ROC Notes	
33N15	3	3	several comercial rd. maintenance vehicles and 1 FS research vehicle	7/30/08, 1 hr	15		40	15-20		segment not on map	no photos
34N13	3	3	1 admin. PU, 1 grazing permittee PU	not listed	15		30-40	20			
34N29	3	3	none	not listed	15		35 seg 1; 30 seg 2	15			
34N34	3	3	none	not listed	15		40	20			
35N04	3	3	none	7/30/08, 1 hr			25	15		segment not on maps	no photos
35N08	3	3	1 agency PU	7/30/08, 1 hr	25		45	10 - 20 mph		segment not on map	no photos
35N10	4	3	none	not listed	25		30-40	20		4 segments	
35N10	4	3	none	not listed	25		30-40	20		missing text	
36N18	4	3	none	not listed	25		35-40	20		missing text	
36N18	3	3	3 FS vehicles, 3 log trucks	7/30/08, 1 hr	25		45	20		no photos	
TOTAL Vehicles Counted			**46**								
Total Gov't or Commercial Vehicles			**18**								
Percent Gov't or Commercial Vehicles			**39%**								

1/ This is estimated ADT, no statistically valid traffic counts were taken.

2/ ADT is based on 2000-2005 National Park Service traffic count data on the Butte Lake Road.

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.

Table 3 in Exhibit 1 is based on a more complete version of the reports. There are still many boxes throughout the reports where the text is incomplete. The Lassen NF said this was due to the box format, but did not send us the missing text.

Elizabeth Norton

From: Elizabeth Norton [bobliz@frontiernet.net]
Sent: Wednesday, January 06, 2010 1:58 PM
To: 'Chris J Obrien'; 'David Pilz'
Cc: 'Sylvia Milligan'
Subject: Map Request and Engineering Analysis questions

Hi Chris and Dave, could I please get a copy of the Alt. 5 map (showing all new routes, mixed use, ML 2 changes, and a 2nd Alt. 5 map showing these routes with the proposed seasonal restrictions?

Also, I'd like the Alt. 1 map showing all unauthorized routes. If possible, could I pick these 3 maps up tomorrow when I'm in Chester?

The Engineering Analyses have several text boxes with incomplete sentences as if a page is missing. Could you pls. send me the missing page for the following roads?

28N70, see page 7 bottom for missing text
31N17, page 7 bottom
32N02, page 8 bottom
32N12, page 10 bottom
32N13, page 10 bottom
32N22, pages 8 and 9 bottom
35N10, page 9 bottom
35N10 (Negro Camp Spring), page 8 bottom
36N18 (Six Mile Hill), page 8 bottom
36N18, DR 18 Road has no photos with the report. Pls. send.

For several roads such as 35N04, 35N08 and 36N18, the study segments are not displayed on the road map so I'm not clear which segment(s) was analyzed. The map scale is very small to read the intersecting road #s. Other road maps are very clear. Is there a reason why some maps have arrows displaying the study segments and many others don't?

Thank you for your assistance. Sylvia said she also requested a complete copy of the engineering analyses, so she's appreciate the missing pages as well. Liz

Engineering Report:

Lassen National Forest

Almanor Ranger District

Analysis of

National Forest System Road (NFSR)

28N70

for Motorized Mixed Use Designation

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

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

Introduction: Turner Mountain is located on the west slope of the Lassen 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 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, that are not licensed or certified for general operation on public roads within the State) from the beginning termini to the end termini. The LNF Travel Analysis (June 2008) identified this road section as a potential destination and connection for recreational off-highway vehicle (OHV) loop opportunities on the adjacent road network, of which is a portion is currently managed as open to non-highway-legal vehicle use.

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 tower at the summit and it is expected a Special Use Permit was issued by Almanor Ranger District for this commercial communication site. In addition, State employees were observed maintaining radio communications equipment at the summit.

Subject to Highway Safety Act? ☒ Yes ☐ No

Non-highway-legal vehicles currently permitted? ☐ Yes ☒ No

Is motorized mixed use 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.

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 communication sites is expected throughout the year on this road.

The road has traditionally served commodity extraction, fire suppression (including providing access to a lookout tower), and recreation.

The road is appropriately posted with horizontal route identification markers. However, the road is currently maintained at a maintenance level 2 standard. In addition, an advisory sign stating "All Wheel Drive Road" exists approximately 0.5 miles from the summit; this statement contradicts with the assignment maintenance level of the road.

Most of the year it is currently managed as open only to highway legal traffic; however, when snow-covered the road serves as a groomed trail for both 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 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.

The road transitions from an apparent operational maintenance level 3 road (lower 2.5 miles) with a lack of maintenance into a road better suited to an operational maintenance level 2 classification (upper 0.6 miles). The "all wheel drive road" signing, although not in appropriate warning sign format or color, correctly identifies that the upcoming section is recommended for high clearance vehicles with four wheel / all wheel drive.

To quote the Lassen National Forest Winter Recreation Guide, "the old jeep road to Turner Mountain can be difficult as the road is narrow."

The road is maintained to a standard allowing efficient passenger car through traffic at speeds up to 30 mph for reasonable and prudent drivers on straightaways. Speeds along the upper section are estimated at approximately 5 mph.

Designating the road segment for motorized mixed use, with mitigation, results in a risk assessment of low crash probability and moderate crash severity.

Implementing mitigation measures will reduce crash probability.

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 and forest policy for operational maintenance level 3 roads.
- The last section of roadway would be challenging for passenger vehicles accessing the summit and trailhead. The road condition currently requires slower speeds to navigate obstacles, erosion, and steep sections.
- Administrative traffic was observed on the road (state employees maintaining radio communication site).

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 2-hour observation, beginning Tuesday 6/10/08 @ 1430 and ending @ 1630

1 vehicle: 4 x 4 Suburban, administrative

4. Speed - 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 observation and engineering judgment. Straightaways allow for higher speeds.

The upper 0.6 miles would accommodate an 85th percentile speed of approximately 5 mph.

5. Road surface type:

MP 0 to 4.2: native material

* the upper switchbacks have sections of spot-surfacing, approx 2" minus river rock - type aggregate

6. Intersections with other roads and trails:

The study segment begins at the intersection with an adjacent operational maintenance level 2 road, NFSR 28N28. Although NFSR 28N28 is assigned a lower maintenance level, the entrance is not maintained in accordance. NFSR 28N28 appears to be maintained at a higher standard based on the initial 200' visible from this intersection and lacks 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.

NFSR 28N70 also intersects with an unauthorized road, ULA191B. This intersection is located at approximately the point where the roadway condition of NFSR 28N70 changes into a high clearance vehicle route. The unauthorized route is being considered for addition to the forest transportation system and connects with another operational maintenance level 3 road, NFSR 29N48.

7. Other roadway factors:

- Roadway alignment was adequate for the assigned maintenance level in the lower sections; however, the alignment of the final 0.6 miles was appropriate for a maintenance level 2 road.
- The road was maintained with a traveled way width of 12' - 14'. The roadway narrows as the route nears the summit.
- Drainage along the lower portion of the road features include an inside

- 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.
- Windthrow, in multiple sections, fell across the roadway. This was removed through various methods and requires removal from the ditches and traveled way.

9. Risk without mitigation:

Lower portion, MP 0.7 to 3.6:

Crash probability: ☐ High ☒ Med ☐ Low

Crash severity: ☐ High ☒ Med ☐ Low

Upper portion, MP 3.6 to 4.2:

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 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", including highway-legal and non-highway-legal vehicles. Change the upper portion of the roadway to operational maintenance level 2 to accurately reflect current conditions.

- 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: $ 4500
- Expected risk:

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.

- 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**

Alternative 4: Construct trail segments to allow non-highway-legal vehicles to bypass the road and access adjacent maintenance level 2 roads.

- The terrain in this area does not provide for a parallel trail system.

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:

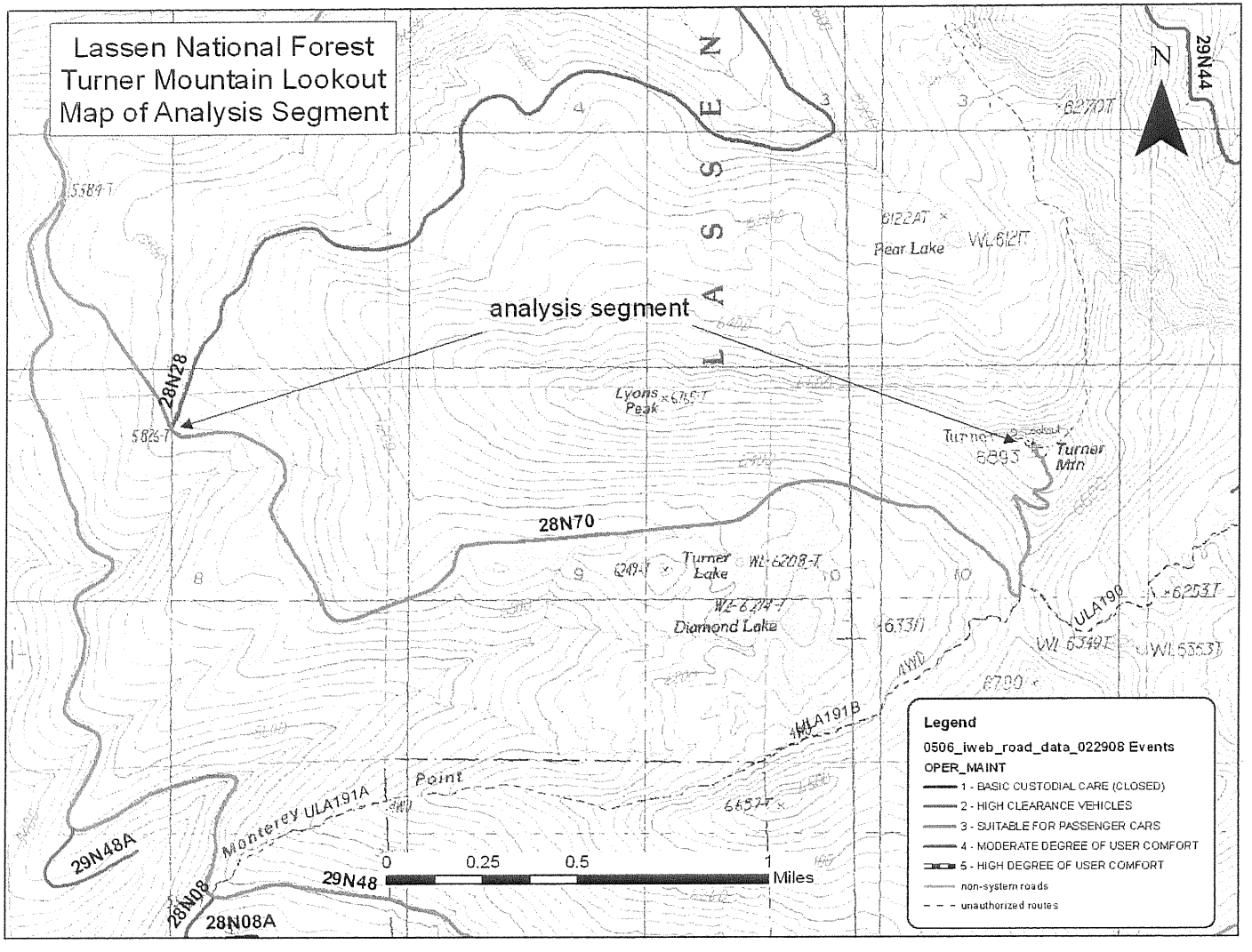


Figure 1: Map of road segments analyzed.

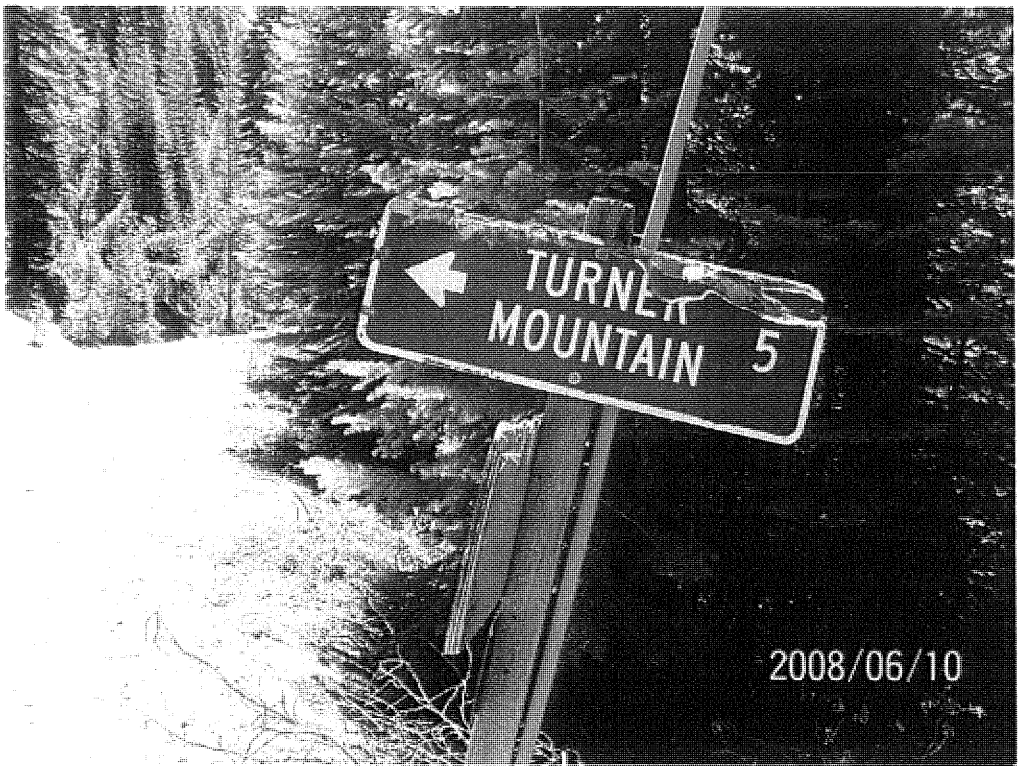


Figure 2: Road destination sign at the intersection of NFSR 28N70 & NFSR 29N48.

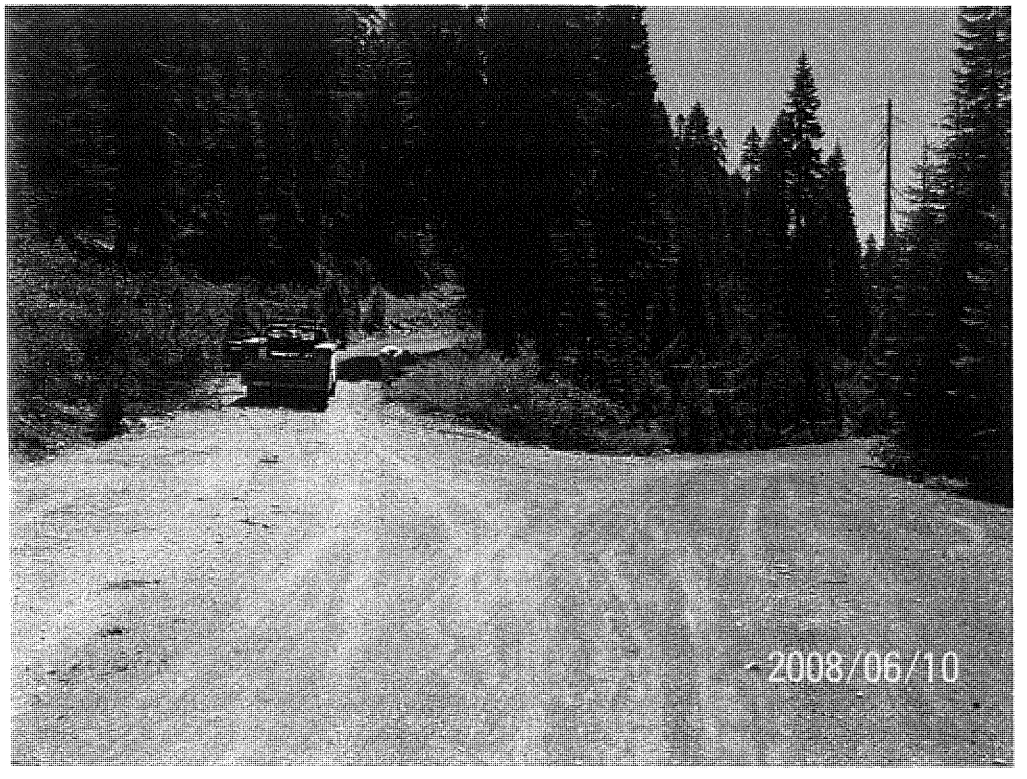


Figure 3: Intersection of NFSR 28N70 (left) and NFSR 29N48 (right).

Figure 4: Broken horizontal route identification marker at the intersection with NFSR 29N48.

Figure 5: Intersection of NFSR 28N70 (left) and NFSR 28N28 (right).

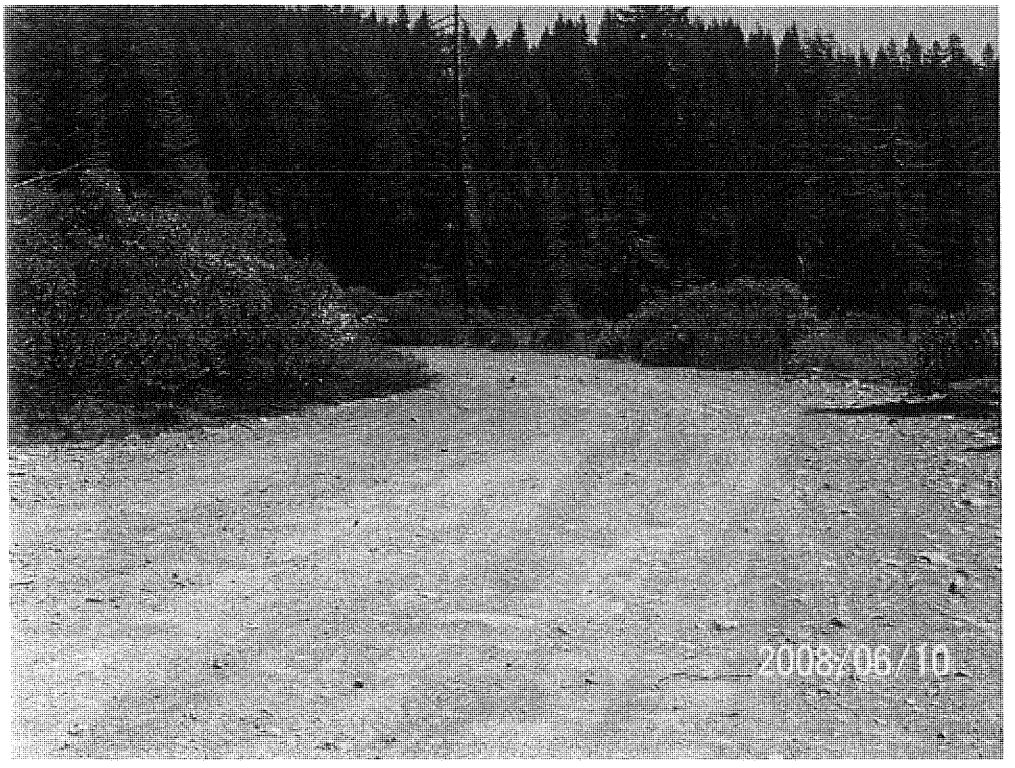


Figure 6: Typical traveled way of NFSR 28N70 along the lower 3.5 miles of the route.

Figure 7: Brush & debris encroachment, NFSR 28N70.

Figure 8: Straightaway along NFSR 28N70.

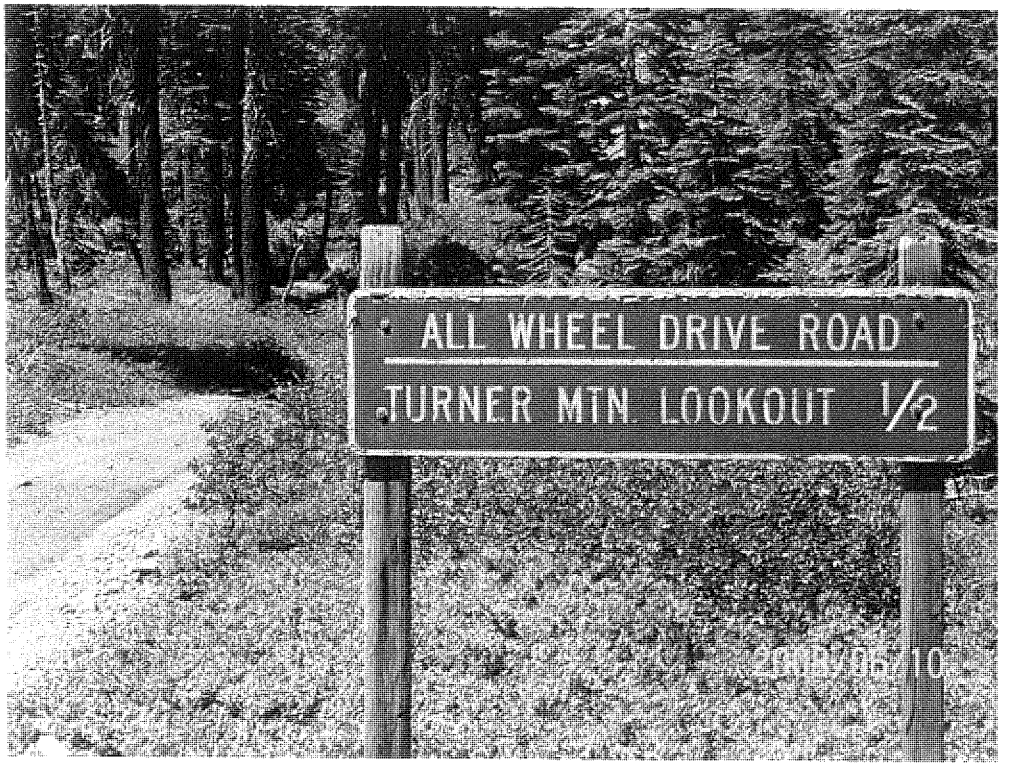


Figure 9: Guide sign combined with warning message, NFSR 28N70, mp 3.6.

Figure 10: Snow banks along the upper 0.5 miles of NFSR 28N70.

Figure 11: Traveled way along NFSR 28N70, mp 4.1.

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 mile 2.25.

This 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 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

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 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 possession of a valid driver's license.

Based on the Forest Service Directives and Travel Management purpose and need, to allow all motor vehicles on this segment with a designation of motorized mixed use for a segment or segments with a cumulative distance of 3 miles or less could be consistent with state and federal laws and directives with appropriate mitigation for safety concerns.

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

Road 29N03 / ML3 currently encourages use as an objective ML3 and operational ML3 collector road and functions as a forest highway connecting the State Highway 36 to the Eagle Lake Ranger District, defensible fuel profile zones, and recreation destinations.

This forest highway connects to all weather asphalt surfaced State highway and provides ingress and egress to a myriad of defensible fuel profile zones – DFPZ's, forest plan units for timber harvesting, and wildlife management areas.

29N03 is utilized by forest personnel for ingress and egress to Defensible Fuel Profile Zones – DFPZ's and their associated vegetation management and fire suppression functions, for wildlife management, and for recreation access to several forest destinations.

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 accordance with the Highway Safety Act.

The proposed use for this segment of 29N03 / 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 mitigation measures, especially improved road / safety signing and comprehensive public education / outreach, will reduce crash probability although road alignment and associated higher closing speeds will continue to affect crash severity.

Road mitigation should include implementing a comprehensive communication, management, and enforcement plan. Associated implementation costs will depend on the designated allowed use for the road.

NFSR road 29N03 is an observed 1+ lane operational maintenance level 3 standard throughout its extent.

The road is maintained to a standard allowing efficient passenger car through traffic at speeds up to 40 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. Crash severity is determined by the dynamics of a vehicles speed or combined speeds, mass, and configurations.

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.
- 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 29N03 appears to be consistent with state law and forest policy for operational maintenance level 3 roads.

2. Crash history:

There are no reported motor 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)

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 cinder surfacing. The majority of the traveled way is constructed upon a raised roadbed and the road has drainage ditches, singular culverts, and ditch-relief culverts. The road is approximately 16'-20' wide. The road traveled way is very dry and contains many fine aggregate components and produces prodigious quantities of dust when driven over. Road shoulders are soft and unconsolidated.

6. Intersections with other roads and trails:

Road segment 1 intersects with the following forest road.

- 29N20Y
- 29N03C
- 29N13
- 29N03B

The maintenance level 2 roads have historically provided forest management access, fire suppression access, commodity haul, forest grazing access, and hunting and firewood gathering access. The proposed MMU intersections of 29N03 /ML3 may result in higher traffic merging speeds.

7. Other roadway factors:

- Roadway alignment was adequate for the assigned maintenance level. Alignment provides for vehicle closing speeds of approximately 90 mph.
- The road was maintained with a traveled way width of 16'-20".
- Raised roadbed creates soft unconsolidated shoulders. Emergency vehicle run-out among numerous lava rocks, Juniper trees, Pine trees, and brush may lead to loss of control for vehicle operators and/or collisions with immobile objects.
- The road provides administrative access for commodity haul, fire prevention patrol access, fire suppression access, wildlife management. Summer and fall seasons will experience peak use, winter and spring can bring snowy and icy conditions.

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.).
- Improved route identification and safety 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 road-parallel 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", 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 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 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):

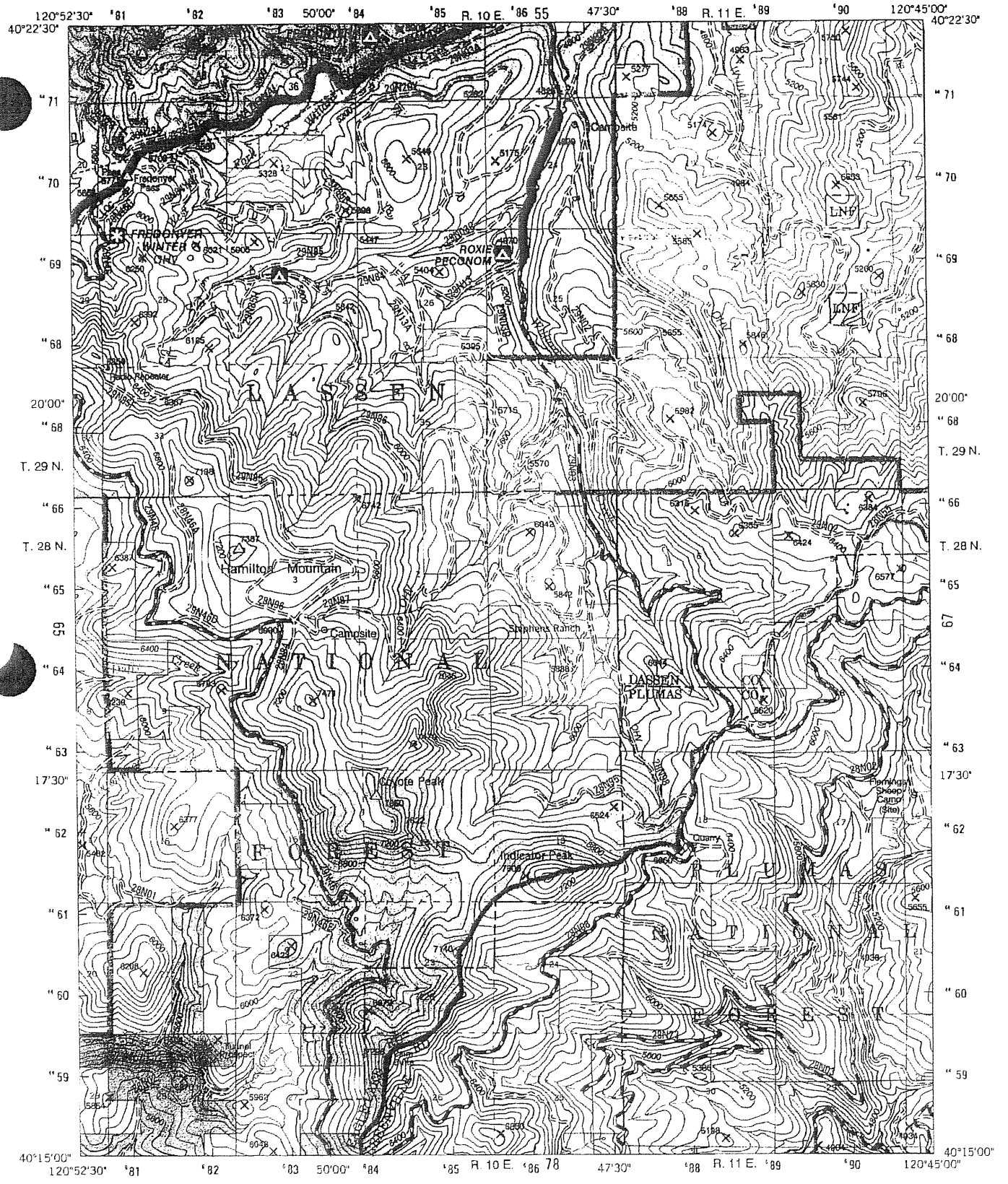
> The following priorities are to be used to minimize the potential conflicts of mixed use:
>
> - Provide separate facilities.
> - Separate use periods. Roads may be designated for separate use periods such as season, weekday/weekend, or day/night. Notify the public of the locations, effective dates, 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:

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

UNITED STATES
DEPARTMENT OF AGRICULTURE
FOREST SERVICE

FREDONYER PASS, CA
60 40120-C7 1999



Produced by the U.S. Geological Survey
Revised by the U.S. Forest Service
Areas outside the National Forest System lands may not have been revised.
Control by USGS and NOS/NOAA
Compiled from aerial photographs taken 1973. Revised from aerial photographs taken 1993. Partial field check by U.S. Forest Service 1995
North American Datum of 1927 (NAD 27). Projection: California coordinate system, zone 1 (Lambert Conformal Conic)
National Forest System lands. Revised 1997.
This map is not a legal land line or ownership document. Public lands are subject to change and leasing, and may have access restrictions; check with local offices. Obtain permission before entering private lands

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, that are not licensed or certified for general operation on public roads within the State) from the beginning termini to the end termini. The LNF Travel Analysis (June 2008) identified these road sections as connections for recreational off-highway vehicle (OHV) loop opportunities on the adjacent 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: **0.0** 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.

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

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 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.

The road transitions from an observed, 2-lane, operational maintenance level 4 standard (first 2 segments) to a narrower operational maintenance level 3 standard (segment 3).

In the last 5 years, the road has been maintained for resource protection and repaired for storm damage. The surfacing is generally reconditioned on an annual basis. The road is maintained to a standard allowing efficient passenger car through traffic at speeds up to 40 mph for reasonable and prudent drivers on straightaways.

Designating the road segments for motorized mixed use, with mitigation, results in a risk assessment of moderate crash probability and high crash severity. Designating only particular segments can result in lower risks – see the following report for more information.

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 segments.
- Segment 2 involves some curvy sections, sometimes with reverse ("S") curves.

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 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 encroaching the shoulders and roadway.
- Seg 3: Parallel drainage, steep embankments.

9. Risk without mitigation:

Segment 1:

Crash probability: ☒ High ☐ Med ☐ Low

Crash severity: ☒ High ☐ Med ☐ Low

Segment 2:

Crash probability: ☐ High ☒ Med ☐ Low

Crash severity: ☒ High ☐ Med ☐ Low

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 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", 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: $ 5500
- Expected risk:

Segments 1 & 2

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

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 bypass the road and access adjacent maintenance level 2 roads.

- Due to the high volume of maintenance level 2 roads in the vicinity, the amount of new construction would be limited and would provide extensive contiguous OHV opportunities with minimal effort.
- Private land in the area would necessitate public involvement and coordination.
- Approximate Implementation Cost: $20,000

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:

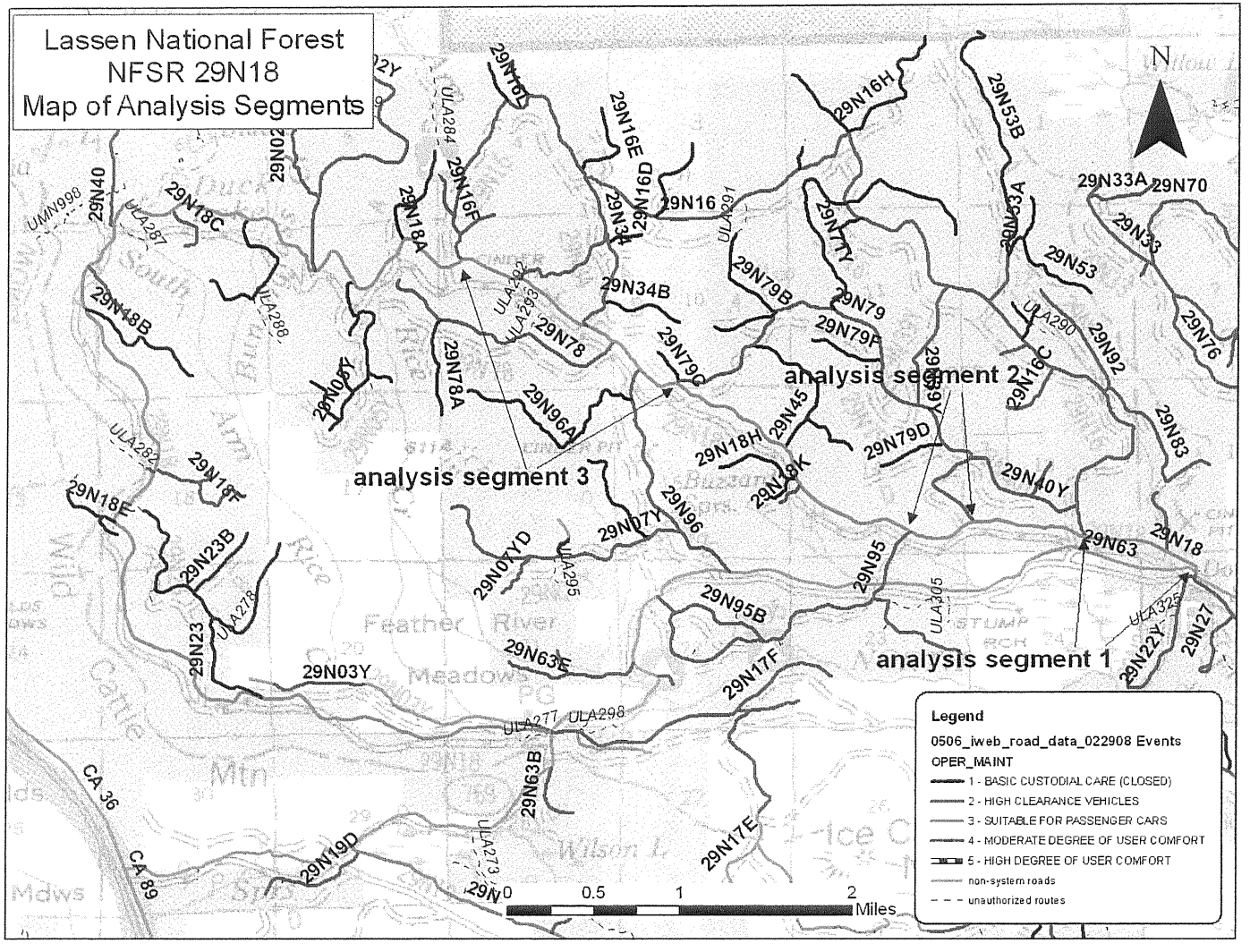


Figure 1: Map of road segments analyzed.

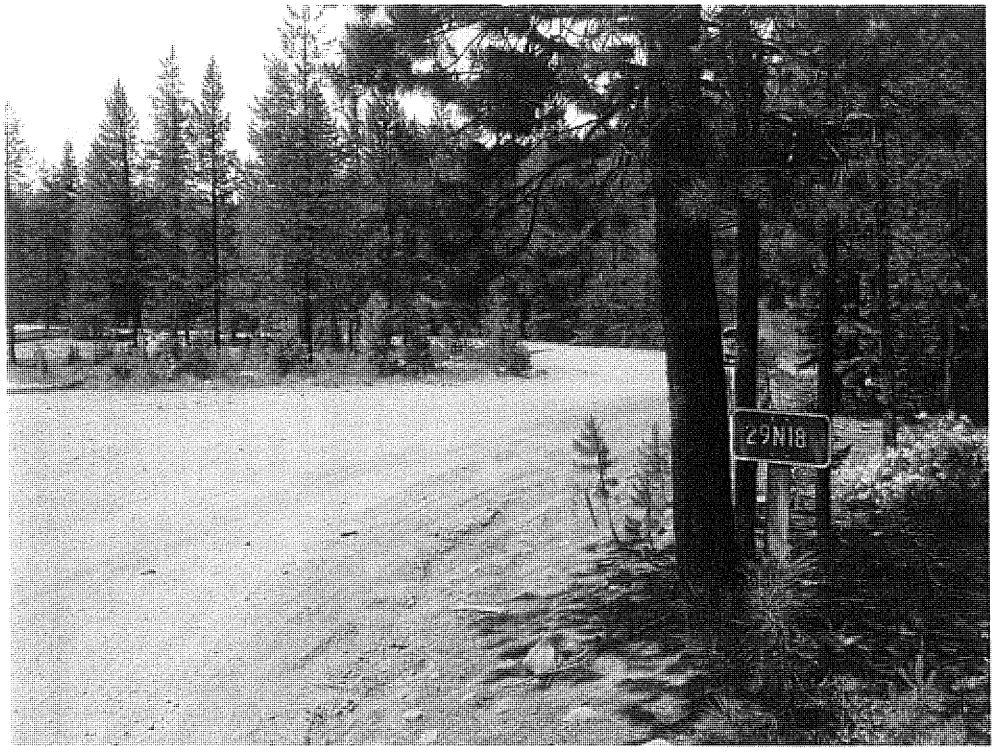


Figure 2: Looking at study segment 1, from the intersection with Plumas County Road 311.

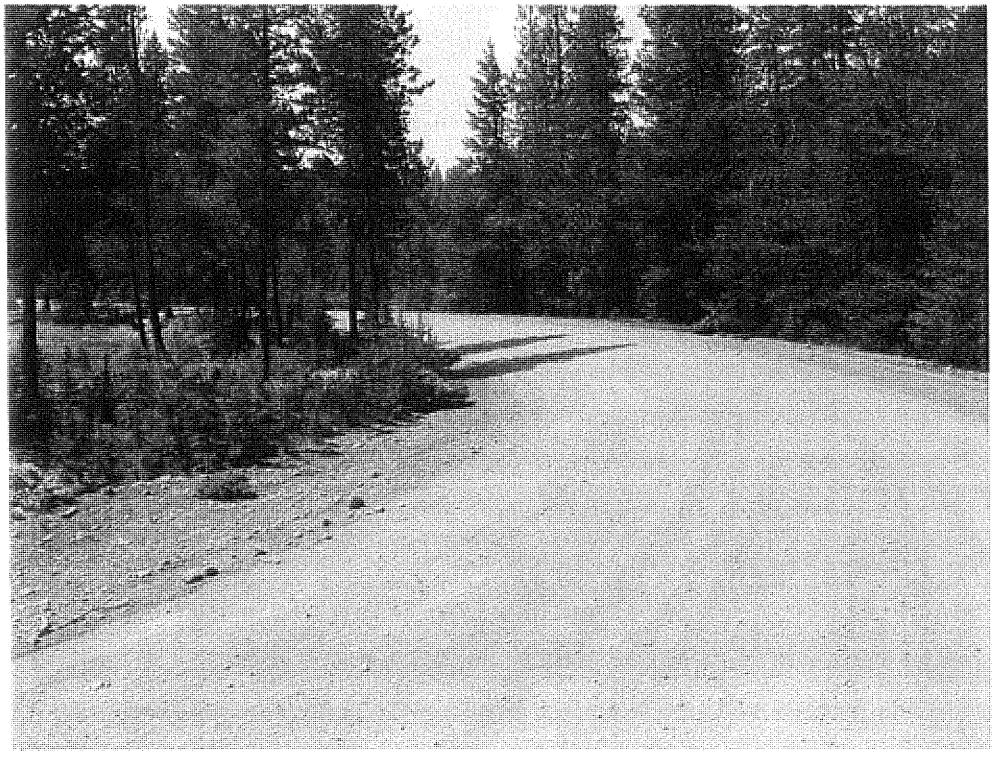


Figure 3: Curve in segment 1.

Figure 4: Segment 1 straightaway.

Figure 5: Horizontal route identification signing.

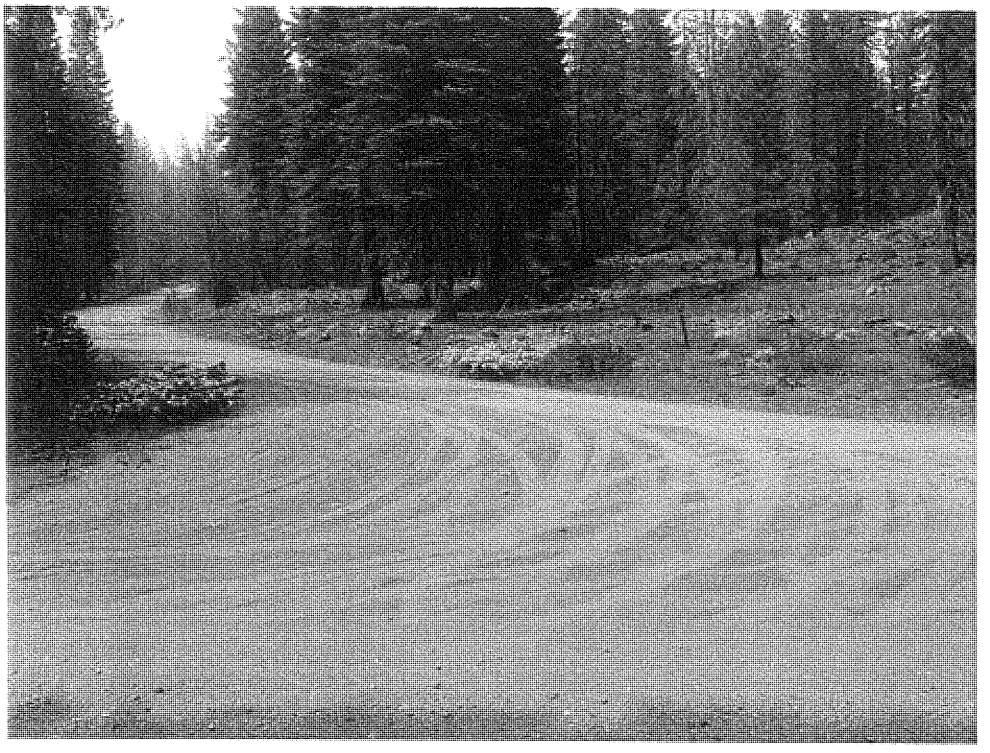


Figure 6: NFSR 29N16 from NFSR 29N18. Note the lack of entrance treatment to discourage passenger cars.

Figure 7: Looking at segment 2 (left), with the intersection of NFSR 29N79 to the right.

Figure 8: Forest road destination signing, segment 2.

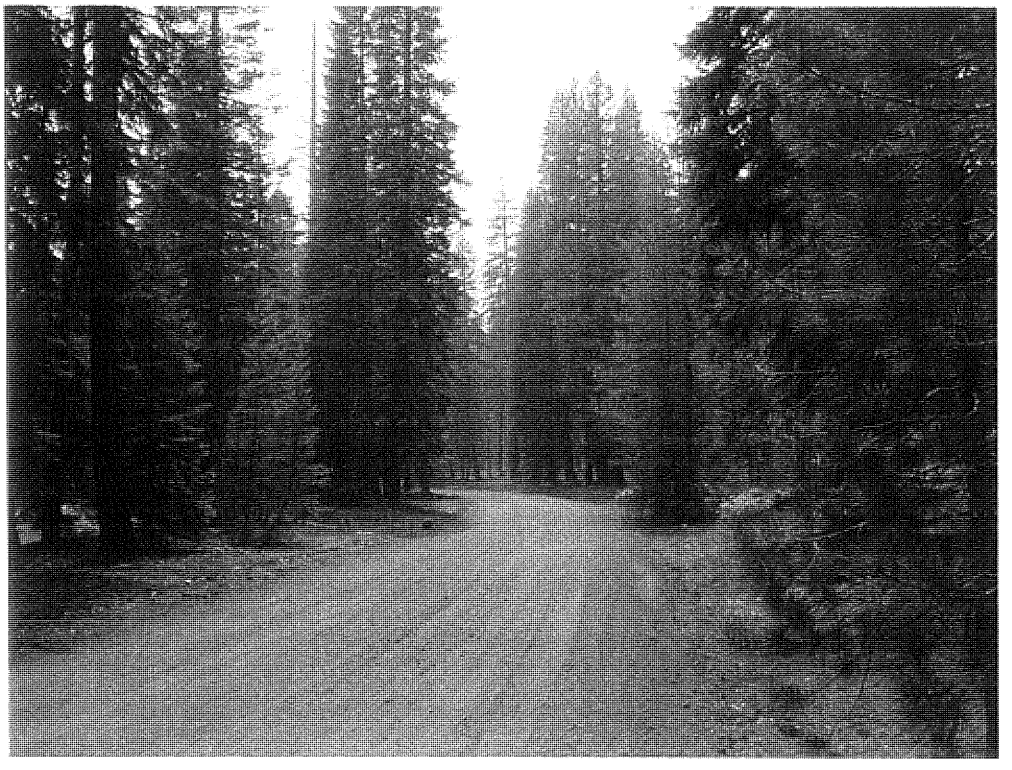


Figure 9: End of straightaway, segment 2.

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

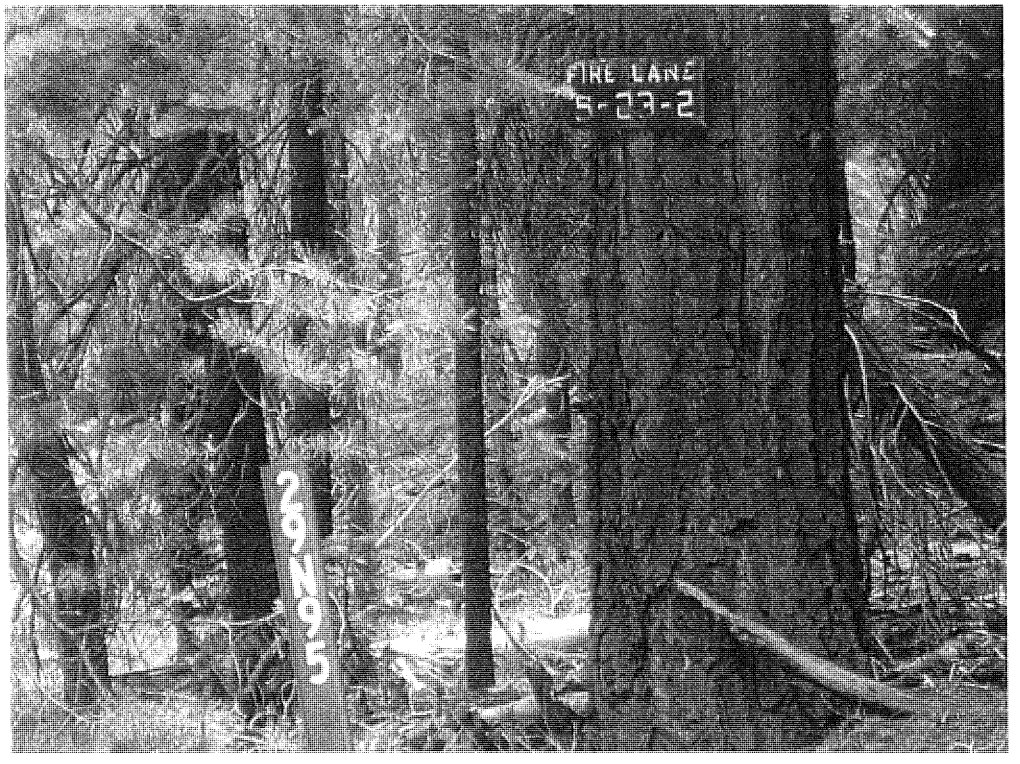


Figure 11: NFSR 29N95, with "Fire Lane" signing.

Engineering Report:

Lassen National Forest

Almanor Ranger District

Analysis of

National Forest System Road (NFSR)

29N48

for Motorized Mixed Use Designation

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

Road Number: **29N48** Road Name: **Turner Mountain Loop**

Introduction: This report documents the engineering analysis for two segments (1.1 miles and 2.0 miles, respectively) of NFSR 29N48. The Turner Mountain Loop is located on the west slope of the Lassen National Forest (LNF). The loop road is approximately 2 miles south of Mineral, CA. The loop is 27.2 miles long and encircles Turner Mountain. NFSR 29N48 begins at California State Highway Route 172 (SR 172) and ends roughly 350 feet west of this intersection.

The entire road is currently managed by LNF as open only to highway-legal vehicles.

Each of the two 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, that are not licensed or certified for general operation on public roads within the State) from the beginning termini to the end termini.

The LNF Travel Analysis identified these road sections as potential connections for recreational off-highway vehicle (OHV) loop opportunities on the adjacent road network, which is currently managed as open to non-highway-legal vehicle use. In the vicinity, the road to Turner Mountain Lookout (NFSR 28N70) was

also recommended for an engineering analysis of motorized mixed use; this route connects with the segments analyzed in this report. The NFSR 28N70 analysis can be found in a separate report.

Study Segment road data from the forest transportation atlas:

Segment 1: Beginning Mile Post: **0.6** Ending Mile Post: **1.7**

Segment 2: Beginning Mile Post: **6.7** Ending Mile Post: **8.7**

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:
N/A

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

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 provides access from a State highway to various local roads which access an administrative site, a trailhead, various lakes, creeks, and vistas. It has traditionally served commodity extraction, fire suppression (including providing access to a lookout tower), and recreation.

The road provides access to Turner Mountain, which has an interagency administrative radio communication site and a commercial cell phone tower. Traffic associated with maintaining these communication sites is expected throughout the year on this road.

Due to the location in an anadromous fishery watershed (Mill Ck, Sacramento River), significant effort has been put into treating this road for watershed rehabilitation. Past work includes stormproofing, surfacing, and drainage improvements. Funds were provided by FS programs (TRTR, CMLG) and State funds (CalFed).

The road is considered a highway by the forest service and is managed in accordance with the Highway Safety Act. The road is managed for passenger car vehicles and is appropriately posted with horizontal route identification markers. Most of the year it is currently managed as open only to highway-legal vehicles; however, when snow-covered the road serves as a groomed trail for both skiers and snowmobiles.

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 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 improving sight distance by removing brush, maintaining proper signing, and providing better communication, will reduce crash probability.

Road hazard 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.

In the last 5 years, the road has been maintained for resource protection and stormproofing. The surfacing is generally reconditioned on an annual basis. The road is maintained to a standard allowing efficient passenger car through traffic at speeds up to 35 mph for reasonable and prudent drivers on straightaways.

Designating the road segment for motorized mixed use, with mitigation, results in a risk assessment of low crash probability and moderate crash 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. Culverts are common drainage features on maintenance level 2 roads and standard on maintenance level 3 roads. Often roads on this national forest could be classified one maintenance level higher.
- Allowing non-highway-legal vehicles to use the road segments 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 current use on NFSR 29N48 appears to be consistent with State law and Forest Service policy for operational maintenance level 3 roads.
- Non-motorized traffic was observed on the road (mountain bike).
- Some intersections with connecting roads are at 45deg angles and do not provide adequate sight distance for merging traffic at higher speeds.
- The roadbed is raised and appears to provide for sufficient drainage and user comfort.

2. Crash history:

At the time of this analysis, there is record of one crash on this road. On January 23, 2005, a snowmobile was involved in a single vehicle accident. The operator experienced severe injuries.

3. Observed 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 3-hour observation, beginning Tuesday 6/10/08 @ 1100 and ending @ 1400

Passenger cars: 2

Mountain Bikers: 1

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

The road segments were driven at various speeds to simulate conditions encountered by a Tentatively 30 mph based on observation and engineering judgment. Straightaways allow for higher speeds.

5. Road surface type:

MP 0 to 18.6: aggregate

The entire road length in the vicinity of this analysis is aggregate surfaced.

6. Intersections with other roads and trails:

The study segments connect a variety of NFS roads with lower assigned maintenance levels (ML2). The sight distances at these intersections are rated fair to good. The roads that intersect with the Turner Mountain Loop 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 intersections may result in higher traffic merging speeds.

7. Other roadway factors:

- Roadway alignment was adequate for the assigned maintenance level. In general, the road was maintained with a traveled way width of 15'.
- Drainage features include an inside ditch with frequent cross-drain culverts with excavated catch basins.
- The cut slopes were often steep (> 1:1) and contained loose rock. During the analysis field trip, multiple stops were made to remove rocks up to 150lbs from the traveled way that had fallen from the cut slope.
- The fill side of the roadway often features slopes equal to and steeper than 2:1, for distances greater than 30'.
- The portion of NFSR 29N48 in the study is generally a single-lane road with 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:

- Route identification markers, regulatory signs, and warning signs generally meet the standards in MUTCD.
- Multiple road identification signs were found damaged and lying in the brush near their proper location.
- Roadside brush was beginning to encroach upon the traveled way in multiple sections; this should be removed to provide for improved sight distance.
- Trees often lined the shoulders and sometimes encroached upon the shoulder and edges of the traveled way.

9. Risk without mitigation if designating the roadway "open to all motor vehicles":

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.

  warning: improved sight distance may result in higher speeds
- Remove of roadside hazards such as boulders, trees, and debris.
- 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". Continue to 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 segments as "open to all motor vehicles", including highway legal and non-highway-legal vehicles. Continue to maintain the road in accordance with maintenance level 3 standards.

- 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 (i.e., "Share the Road") 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: $ 4500
- Expected risk:

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

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

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

- Based on the quality of the road, the amount of thru traffic, and the change from the rest of the loop, this change would not be consistent with the road management objectives.
- Approximate Implementation Cost: $ 149,000 (~$45k per mile)
- Expected risk

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

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

Alternative 4: Construct trail segments to allow non-highway-legal vehicles to bypass the road and access adjacent maintenance level 2 roads.

- The terrain in this area does not provide for a feasible parallel trail system.

Final Comments:

Signing on national forest system roads will 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:

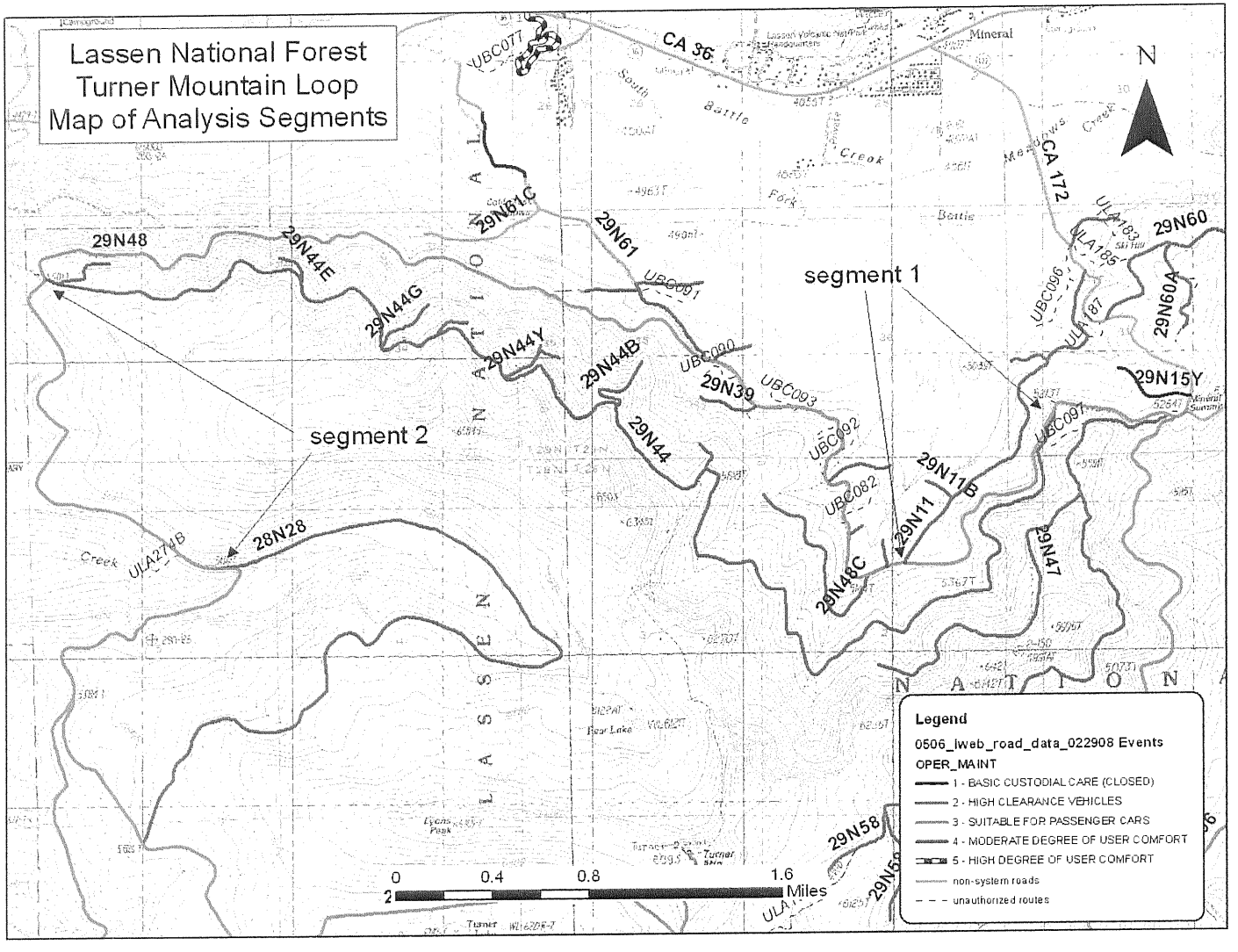


Figure 1: Map of road segments analyzed.

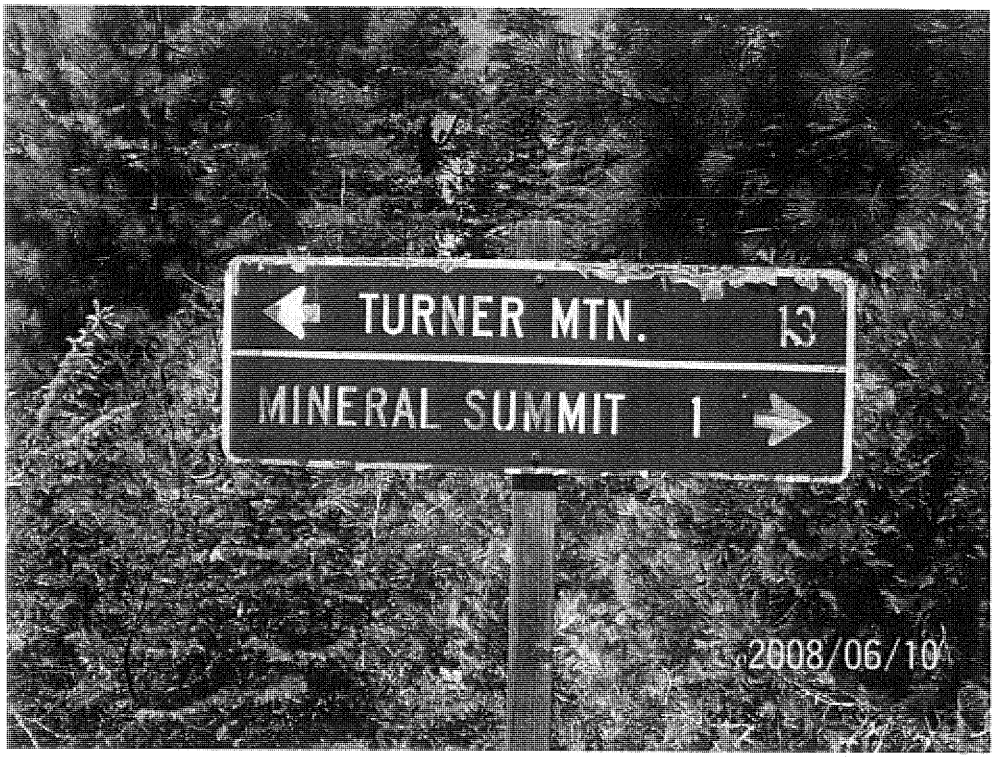


Figure 2: Forest road destination signing.

Figure 3: Intersection of NFSRs 29N48 (to the right) and 29N44. This marks the beginning of study segment 1.

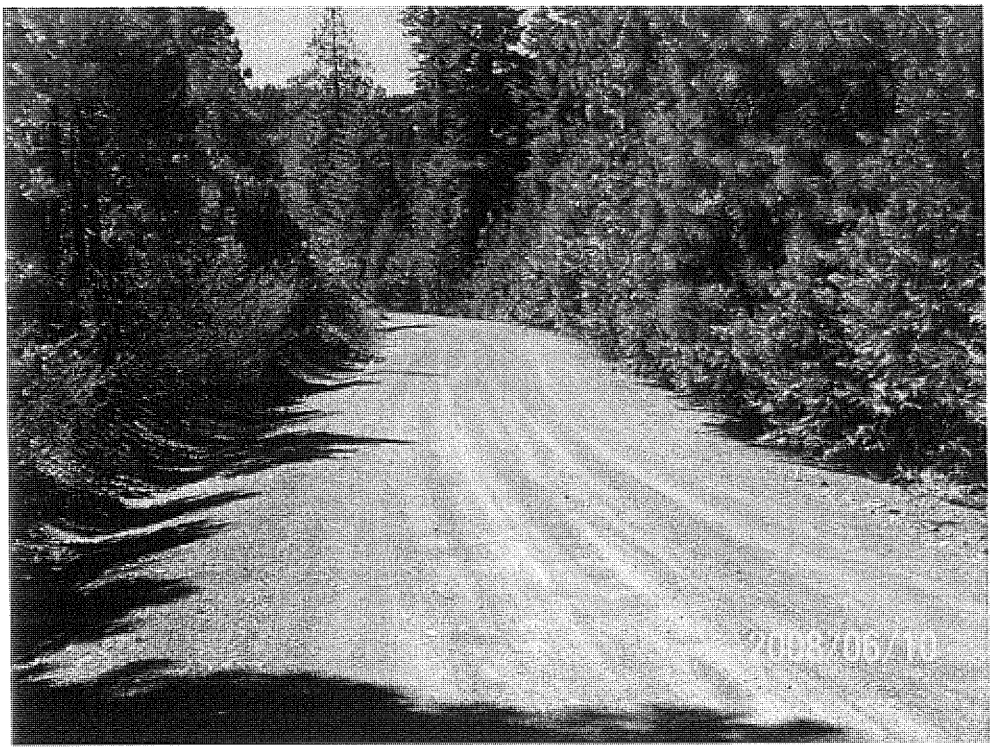


Figure 4: Typical alignment and sight distance encountered along straightaways, study segment 1.

Figure 5: Intersection with NFSR 29N44, marking the beginning of the study segment 2.

Figure 6: Looking south at NFSR 29N48, from the intersection with NFSR 29N44.

Figure 7: Typical straightaway along study segment 2.

Figure 8: Intersection with NFSR 28N28 (left) and NFSR 29N48 (right). This marks the end of study segment 2.

Prepared by:
Chris Bielecki, Supervisory Civil Engineer

Engineering Report:

Lassen National Forest

Almanor Ranger District

Analysis of

National Forest System Road (NFSR)

30N07

for Motorized Mixed Use Designation

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

Road Number: **30N07** Road Name: **Clover – Swain Mtn Road**

Introduction: The 30N07 Road segment studied is located on the west side of Lassen National Forest (LNF) in the Swain Mountain quadrangle.

NFSR 30N07 ML3 begins at the intersection with State Highway 44 in Section 13 of the Pegleg Mountain quadrangle, trends west and south through the Westwood Junction and an intersection with 30N10, traverses the northwest flank of Pegleg Mountain and an intersection with 30N23 at Lasco, then trends west and enters the Swain Mountain quadrangle where it insects with 30N49 at the Swain Snowmobile Park where the road enters the Swain Mountain experimental Forest. 30N07 then traverses the experimental forest where it exits and intersects at it's terminus with 32N10. The road length is approximately 17 miles in length.

The segment studied starts at approximate road mile 10.50 in Section 22 of Swain Mountain quadrangle at the intersection with 30N49 and intersects with 30N33 / 30N26A in the Swain Mountain Experimental Forest for a distance of approximately 1.00 miles to approximate road mile 11.50.

This 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 30N07 / 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: **10.50** Ending Mile Post: **10.50**

30N49 to 30N33 / 30N26A

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 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 possession of a valid driver's license.

Based on the Forest Service Directives and Travel Management purpose and need, to allow all motor vehicles on this segment with a designation of motorized mixed use for a segment or segments with a cumulative distance of 3 miles or less could be consistent with state and federal laws and directives with appropriate mitigation for safety concerns.

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

Road 30N07 / ML3 currently encourages use as an objective ML3 and operational ML3 collector road and functions as a forest highway connecting the State Highway 44 to the Almanor Ranger District, defensible fuel profile zones, experimental forest and recreation destinations.

This forest highway connects to all weather asphalt surfaced State highway and provides ingress and egress to a myriad of defensible fuel profile zones – DFPZ's, forest plan units for timber harvesting, and wildlife management areas.

30N07 is utilized by forest personnel for ingress and egress to Defensible Fuel Profile Zones – DFPZ's and their associated vegetation management and fire suppression functions, for wildlife management, and for recreation access to several forest destinations.

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 accordance with the Highway Safety Act.

The proposed use for this segment of 30N07 / 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 mitigation measures, especially improved road / safety signing and comprehensive public education / outreach, will reduce crash probability although road alignment and associated higher closing speeds will continue to affect crash severity.

Road mitigation should include implementing a comprehensive communication, management, and enforcement plan. Associated implementation costs will depend on the designated allowed use for the road.

NFSR road 30N07 is an observed 1+ lane operational maintenance level 3 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. Crash severity is determined by the dynamics of a vehicles speed or combined speeds, mass, and configurations.

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.
- 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 30N07 appears to be consistent with state law and forest policy for operational maintenance level 3 roads.

2. Crash history:

There is one reported motor vehicle crash on this road. The crash occurred on January 7, 2006 on a Saturday at 1240 hours. The vehicle was a snowmobile traveling at 45 mph which lost control and impacted a tree. The snowmobile then caught fire and burned entirely. The driver was transported to Banner Lassen Hospital and suffered a fractured left shoulder and bruises to hip and calf. The California Highway Patrol investigated this crash and determined that excess speed caused the motor vehicle to lose control and leave the roadway where it impacted a tree and burned-up.

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)

4 civilian motor vehicles were observed along the 30N07 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: 45 mph.

5. Road surface type:

The road has a combination of native crushed rock aggregate and volcanic cinder surfacing. The majority of the traveled way is constructed upon a raised roadbed and the road has drainage ditches, singular culverts, and ditch-relief culverts. The road is approximately 16'-20' wide. The road traveled way is very dry and contains many fine aggregate components and produces prodigious quantities of dust when driven over. Road shoulders are soft and unconsolidated.

6. Intersections with other roads and trails:

Road segment 1 intersects with the following forest roads.

- 30N49
- 30N07D
- 30N31
- 30N77
- 30N26A
- 30N33

The maintenance level 2 roads have historically provided forest management access, fire suppression access, commodity haul, forest grazing access, and hunting and firewood gathering access. The proposed MMU intersections of 30N07 /ML3 may result in higher traffic merging speeds.

7. Other roadway factors:

- Roadway alignment was adequate for the assigned maintenance level. Alignment provides for vehicle closing speeds of approximately 90 mph.
- The road was maintained with a traveled way width of 16'-20".
- Raised roadbed creates soft unconsolidated shoulders. Emergency vehicle run-out among numerous lava rocks, Juniper trees, Pine trees, and brush may lead to loss of control for vehicle operators and/or collisions with immobile objects.
- The road provides administrative access for commodity haul, fire prevention patrol access, fire suppression access, wildlife management. Summer and fall seasons will experience peak use, winter and spring can bring snowy and icy conditions.

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 0-2%.
- Grade is 0-2%.
- 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.).
- Improved route identification and safety 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 road-parallel 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", 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 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 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/).

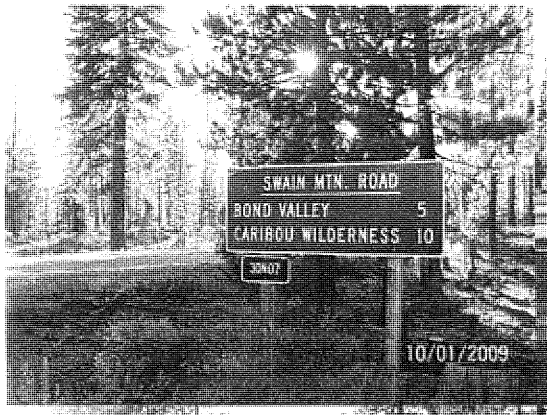
According to the Sign and Poster Guidelines for the Forest Service (2005):

> 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:

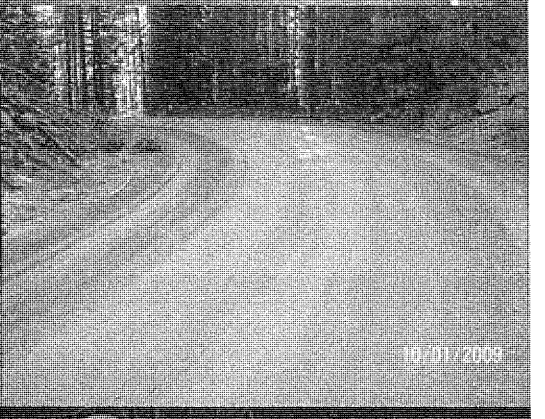

SWAIN MTN. ROAD
BOND VALLEY 5
CARIBOU WILDERNESS 10
30N07
10/01/2009

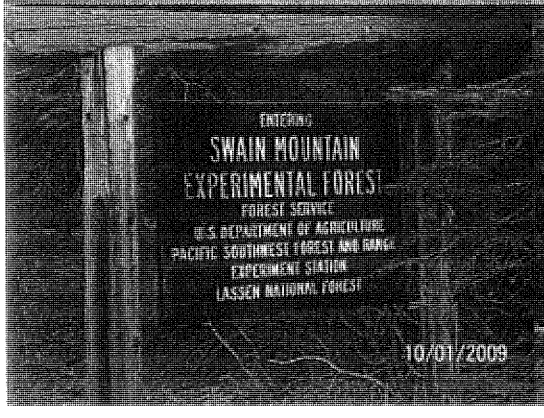

10/01/2009


10/01/2009

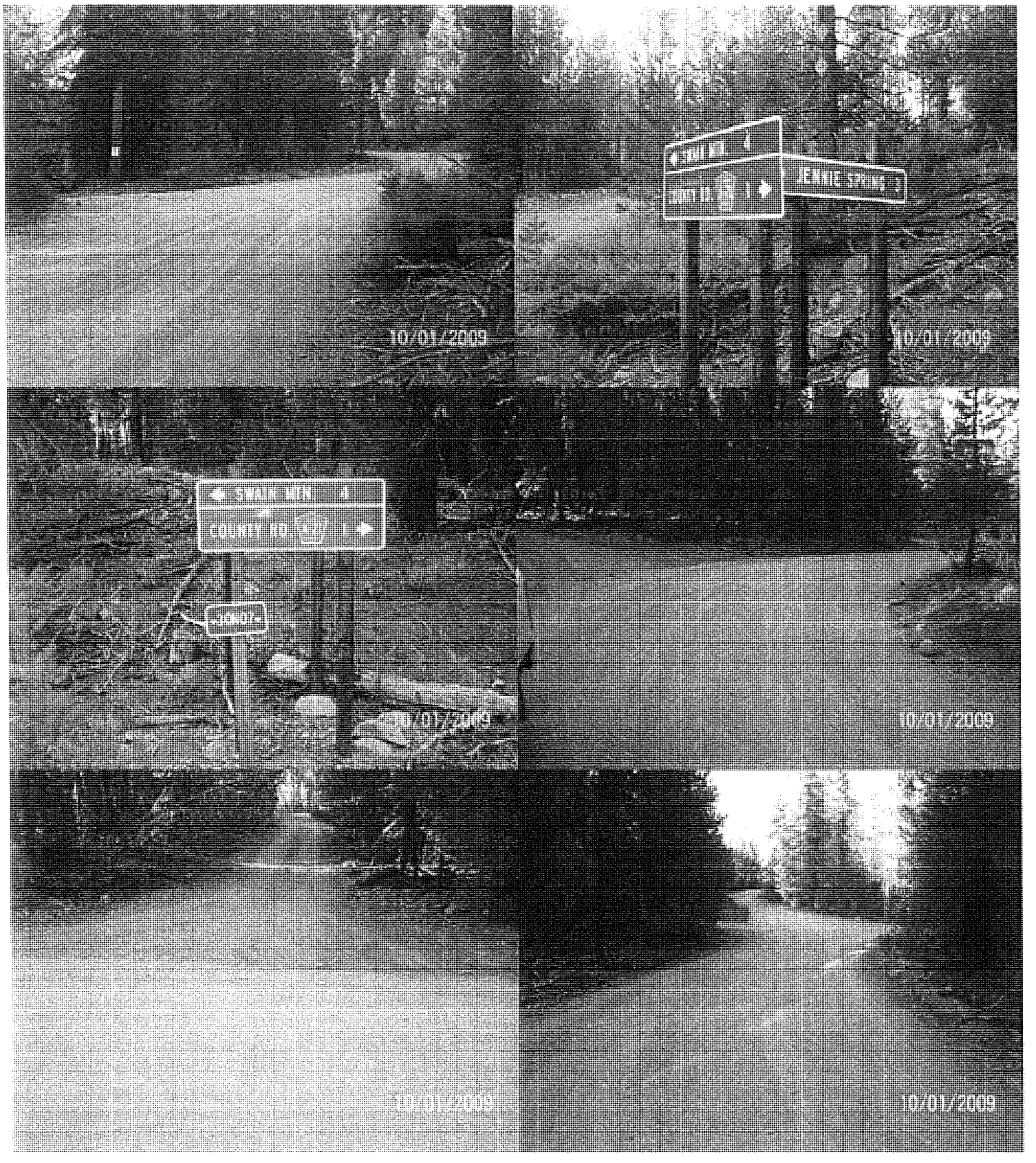

10/01/2009

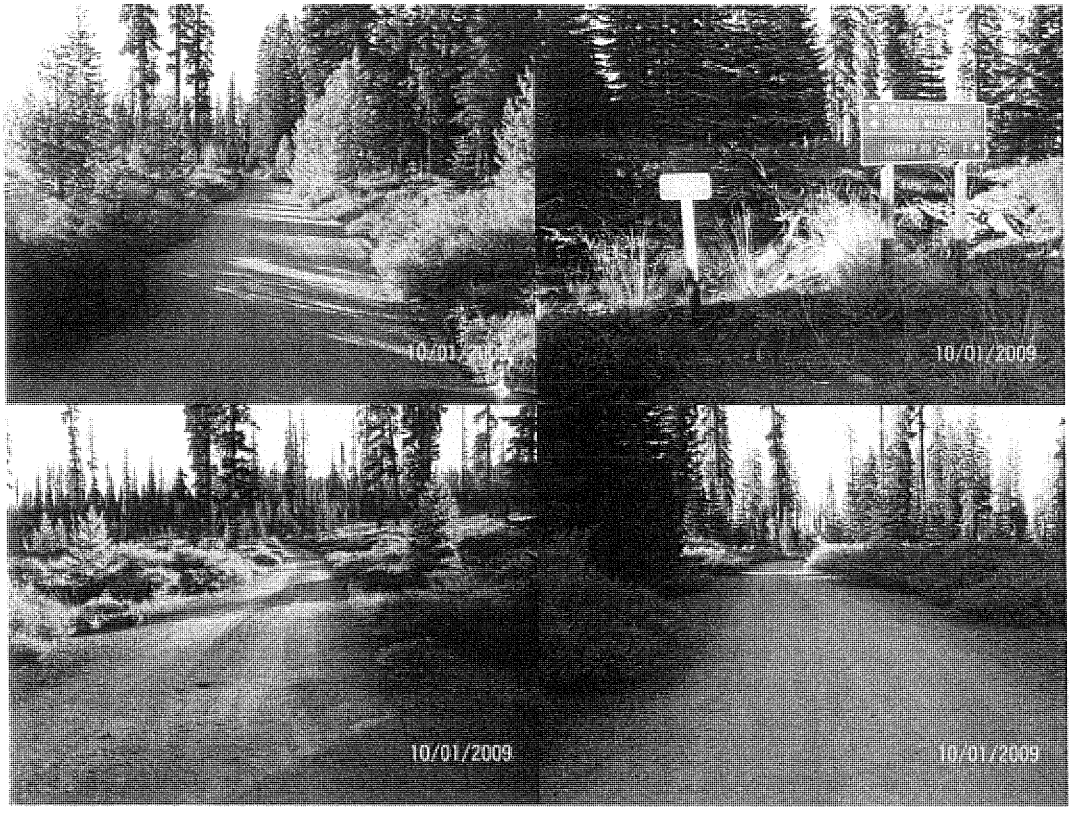

10/01/2009


10/01/2009


ENTERING
SWAIN MOUNTAIN
EXPERIMENTAL FOREST
FOREST SERVICE
U.S. DEPARTMENT OF AGRICULTURE
PACIFIC SOUTHWEST FOREST AND RANGE
EXPERIMENT STATION
LASSEN NATIONAL FOREST
10/01/2009


PLEASE
KEEP VEHICLES ON ROADS
DO NOT DISTURB
TREES PLANTS STAKES
FENCES INSTRUMENTS
THANK YOU
LASSEN NATIONAL FOREST
10/01/2009


10/01/2009
JENNIE SPRING
10/01/2009
COUNTY RD
10/01/2009
10/01/2009
10/01/2009
10/01/2009


10/01/2009
10/01/2009
10/01/2009
10/01/2009

1. Unit	2. Sub-Unit	3. District, JCC Other,	4. Case Number
Region 5	Lassen 06	Eagle Lake 58	7938239

5. **Classification of Injured or Property Owner** (Check One)
☒ Visitor ☐ Permittee/Personnel ☐ Contractor/Personnel

TIME & PLACE OF INCIDENT

6. **Date (mm/dd/yyyy)** 01/07/2006
7. **Time** 1240
8. **Day of Week (Day & Code)** 7 Saturday
9. **Exact location where incident occurred** (example: campground intersection route or trail) Approx. 2.88 East of County Road A21 on FS Road 30N07

PERSONAL INJURY DATA
Fill out data for each person injured. (Omit if no Injury involved)

10. **Name of Injured (Last, First, MI** DeLos Santos, Lydea E
11. **Sex (Check one)** ☐ Male ☒ Female
12. **Age** (to nearest birthday) 19
13. **Permanent Address** 7665 Kilarney Ln. #109, Citrus Heights, CA 95610
14. **Extent of Injuries** (check one) ☒ Not requiring Hospitalization ☐ Death ☐ Severe (formal admission to hospital)
15. **Hospital** (name & location) Banner Lassen Medical Center Susanville, CA
16. **Description of Injury (describe exact nature of injury - compound fracture of upper left arm)** Fractured Left Shoulder and bruises to her left hip and left calf.

PROPERTY DAMAGE DATA
$350 (or more)

17. **Owner** (name and address) Claude Sherman. 8873 Water Song Roseville, CA 95747
18. **Person Causing Damage** (name and address) Lydea E. DeLosSantos(Injured)
19. **Property Description and Extent of Damages** 2004 Polaris Snowmobile
20. **Estimated Damages** (to nearest $100) @$ 6,000.00 (total loss)

DESCRIPTION OF INCIDENT

21. **Describe Fully (use reverse or additional sheet if necessary. Investigation report may be attached)** See Attached CHP Report

WITNESS

22. **IMPORTANT: Secure the names and addresses of all witnesses, bystanders or persons in the immediate area who may have seen the incident or heard any statement made by the injured.**

Name	Relationship	Address

INCIDENT CAUSE AND CONDITIONS
(Click appropriate block block for each element)

23. **Type of Incident**
- A. Accident ☒
- B. Assault ☐
- C. Homicide ☐
- D. Malicious Act ☐
- E. Natural Catastrophe ☐
- F. Exposure ☐
- G. Other (Specify) ☐

24. **Location**
- A. Developed Site ☐
- B. Undeveloped Site ☐
- C. Administrative Site ☐
- D. Special Use Area ☐
- E. Contractor's Area ☐
- F. FS Road System ☒
- G. FS Trail System ☐

25. **Agency of Acciden**
- A. Wild Animal/Reptile ☐
- B. Domesticated Animal ☐
- C. Power Hand Tool ☐
- D. Manual Hand Tool ☐
- E. Bicycle ☐
- F. Falling Tree/Limb ☐
- G. Fire Arms ☐
- H. Heavy Equipment ☐
- I. Motor Vehicle, wheeled ☐
- J. Snowmobile ☒
- K. Watercraft ☐
- L. Ski Lift ☐
- M. Water ☐
- N. Rock ☐
- O. Snow ☐
- P. Work-Play Surface ☐
- Q. Lightening ☐
- R. Other (Specify) ☐

26. **Activity time of incident**
- A. Camping ☐
- B. Picnicking ☐
- C. Hiking ☐
- D. Mountain Climbing ☐
- E. Other Forest Work ☐
- F. Travelling thru NF ☐
- G. Sight-seeing in NF ☐
- H. Hunting, Fishing ☐
- I. Boating, Canoeing Floating ☐
- J. Swimming ☐
- K. Other water Sport ☐
- L. Snow Skiing ☐
- M. Snow Mobiling ☒
- N. Other Winter Sport ☐
- O. Cycling ☐
- P. Logging ☐
- Q. Operating ☐
- R. Horseback Riding ☐
- S. Other (specify) ☐

27. **Prepared By (print or type):** M. Welsh

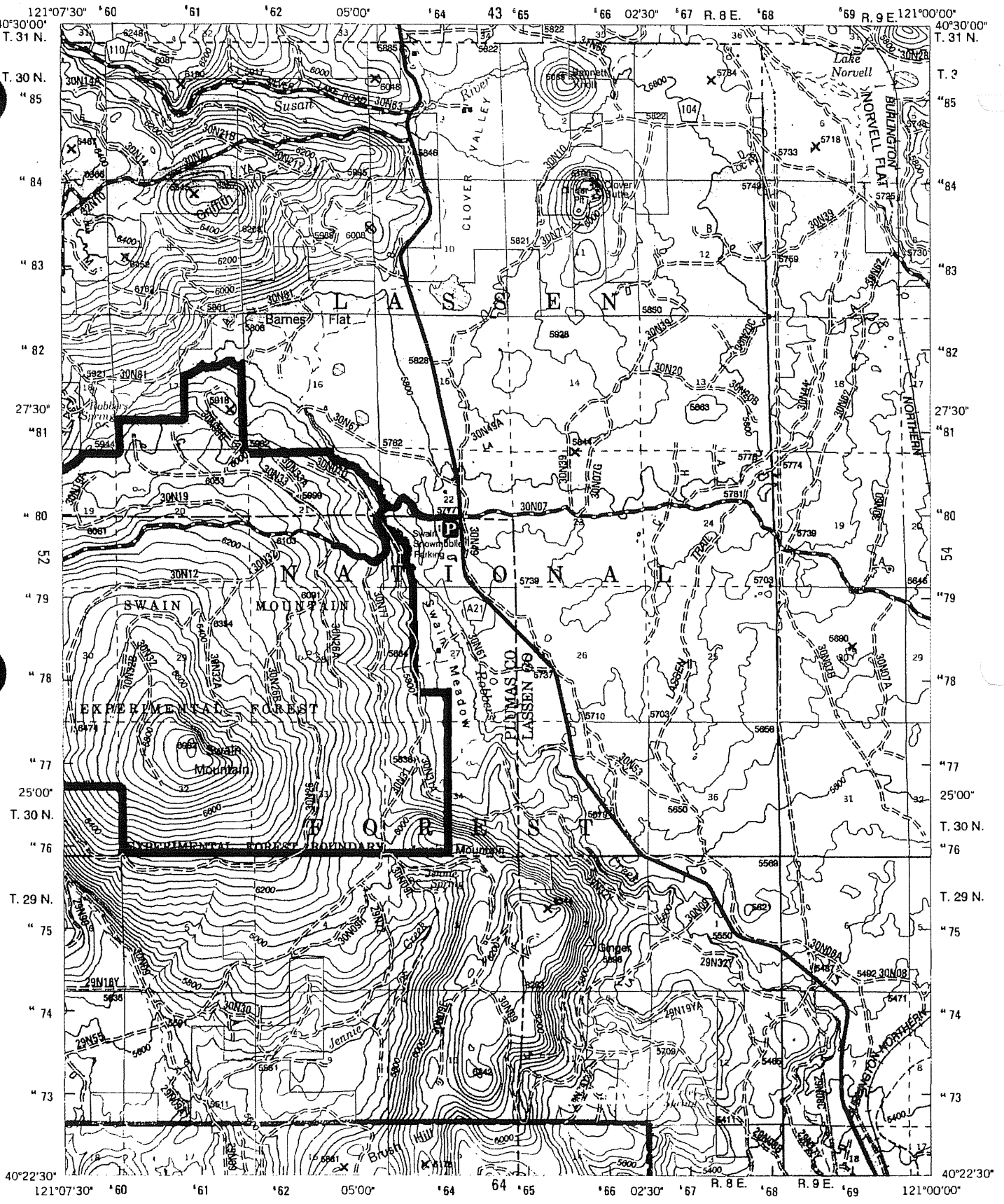
28. Signature	29. Title	30. Date
	LEO	01/19/2006

Microsoft Word 2000

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

UNITED STATES
DEPARTMENT OF AGRICULTURE
FOREST SERVICE

SWAIN MOUNTAIN, CA
54 40121-D1 1999



Scale 1 : 63,360 (1 inch to the mile)

1 .5 0 1 Miles

1000 0 5000 10 000 Feet

Contour Interval 40 Feet

MN GN 1°15' 22 MILS 16° 289 MILS

UTM GRID AND 1997 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

1 Bogard Buttes
2 Pine Creek Valley
3 Antelope Mountain
4 Red Cinder
5 Pegleg Mountain
6 Chester
7 Westwood West
8 Westwood East

ADJOINING 7.5' QUADRANGLES

HIGHWAYS AND ROAD

395 U.S.
139 State
11 County
30 National Forest
Gate

Primary Highway
Secondary Highway
Improved Road, Paved
Improved Road, Gravel
Improved Road, Dirt
Composition Unspecified
Unimproved Road
4 Wheel Drive Road
National Recreation Trail
Trail

Produced by the U.S. Geological Survey
Revised by the U.S. Forest Service

Areas outside the National Forest System lands may not have been revised.

Control by USGS and NOS/NOAA

Compiled from aerial photographs taken 1973. Revised from aerial photographs taken 1991 and 1993. Partial field check by U.S. Forest Service 1995.

North American Datum of 1927 (NAD 27) Projection: California coordinate system, zone 1 (Lambert Conformal Conic).

National Forest System lands. Revised 1997.

This map is not a legal land line or ownership document. Public lands are subject to change and leasing, and may have access restrictions; check with local offices. Obtain permission before entering private lands.

Tim Dedrick Sept. 11, 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)

30N16

for Motorized Mixed Use Designation

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

Road Number: **30N16** Road Name: **Plantation Gulch**

Introduction: This report documents the engineering analysis for a 0.5 mile segment of NFSR 30N16. The "Plantation Gulch" road (aka 'McGowan Lake' road) is located on the west slope of the Lassen National Forest (LNF) and connects California State Highway Route 89 with LNF Distinctive Route 17. The entire road is currently managed by LNF as open only to highway-legal vehicles. The study segment was 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, that are not licensed or certified for general operation on public roads within the State) from the beginning termini to the end termini.

The LNF Travel Analysis identified this road section as a potential connection for recreational off-highway vehicle (OHV) loop opportunities on the adjacent road network, which is currently managed as open to non-highway-legal vehicle use. In the vicinity, a segment of Distinctive Route 17 (NFSR 31N17) was also recommended for an engineering analysis of motorized mixed use. The results can be found in a separate engineering report.

Study Segment road data from the forest transportation atlas:

Beginning Mile Post: **1.4** Ending Mile Post: **1.9**

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:

N/A

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

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 provides a connection between Distinctive Route 17 and California State Highway Route 89.

The road is a single-lane road with turnouts. It provides access to McGowan Lake and the surrounding private land.

NFSR 30N16 has traditionally served administration of the LNF, including fuels and vegetation management, commodity extraction, fire suppression, and recreation.

The road will serve as a primary access route during implementation of the upcoming Gray's Peak project, which will involve vegetation treatments requiring haul vehicle traffic. To accommodate haul vehicles and provide watershed rehabilitation, additional surfacing and reconditioning is planned for the road.

The road is considered a highway by the forest service and is managed in accordance with the Highway Safety Act. The road is managed for passenger car vehicles and is appropriately posted with horizontal route identification markers. Most of the year it is currently managed as open only to highway-legal vehicles; however, when snow-covered the road serves as a cross-country ski trail.

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 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 improving sight distance by removing brush, maintaining proper signing, and providing better communication, will reduce crash probability.

Road hazard 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

The road is maintained to a standard allowing efficient passenger car through traffic at speeds up to 30 mph for reasonable and prudent drivers on straightaways. Based on speeds and their associated risk for crash severity, designating the road as open only to highway-legal vehicles will provide the lowest crash probability and severity.

Designating the road segment for motorized mixed use, with mitigation, results in a risk assessment of moderate crash probability and high crash severity.

Factors Considered:

1. Operator considerations:

- The current use on NFSR 30N16 appears to be consistent with State law and Forest Service policy for operational maintenance level 3 roads.
- The roadbed is raised and appears to provide for sufficient drainage and passenger car travel.

2. Crash history:

At the time of this analysis, there is no record of a crash on this road.

3. Observed 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 an observation, 6/25/08 1300 – 1400.

None observed

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

The road segments were driven at various speeds to simulate conditions encountered by a reasonable and prudent driver in a passenger car.

30 mph based on observation and engineering judgment.

5. Road surface type:

Improved native aggregate

6. Intersections with other roads and trails:

The sight distances at the intersections are rated fair. The maintenance level 2 roads that enter NFSR 30N16 during the study segment allow for merging at moderate speeds. The intersection with NFSR 29N93 is angled and has reduced visibility for uphill traffic.

7. Other roadway factors:

- Roadway alignment was adequate for the assigned maintenance level. In general, the road was maintained with a traveled way width of one lane with periodic turnouts.
- The segment was mainly situated on a hill, climbing from west to east above Dry Lake.
- Drainage features include an inside ditch with frequent cross-drains. Rolling dips were gradual and required only minor speed reductions.
- Summer and fall seasons will experience peak use, winter and spring can bring snowy and icy conditions along with snowmobile traffic. The road has been used in the winter to bypass SR-89 and LVNP.

8. Roadside conditions:

- Route identification markers, regulatory signs, and warning signs generally meet the standards in MUTCD.
- The embankments were steep, with sections of 2:1 slopes on the fill and cut banks for lengths of up to 15'.
- An inside ditch was constructed throughout most of the study segment.
- Brush and debris encroachment was encountered along the traveled way and shoulders.

9. Risk without mitigation if designating the roadway "open to all motor vehicles":

Segment 1:

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.

  warning: improved sight distance may result in higher speeds
- Remove of roadside hazards such as boulders, trees, and debris.
- 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". Continue to manage the road in accordance with maintenance level 4

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. Continue to maintain the road in accordance with maintenance level 4 standards.

- 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 (i.e., "Share the Road") 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**

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

- Based on the quality of the road, the amount of thru traffic, the Forest Highway status, and the change from the rest of the arterial route, this change would not be consistent with the road management objectives.
- Approximate Implementation Cost: $ 22,500 (~$45k per mile)
- Expected risk

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

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

Alternative 4: Construct trail segments to allow non-highway-legal vehicles to bypass the road and access adjacent maintenance level 2 roads.

- The terrain in this area would provide for a parallel trail system; however, it would involve significant excavation.
- Construction of short connectors, utilizing the existing maintenance level 2 system would be more cost efficient and would not increase route density substantially. The south side of the road would be the best location to based on topography.
- Approximate implementation cost: $6,500 (~ $13000 per mile)

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

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

Final Comments:

Signing on national forest system roads will 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:

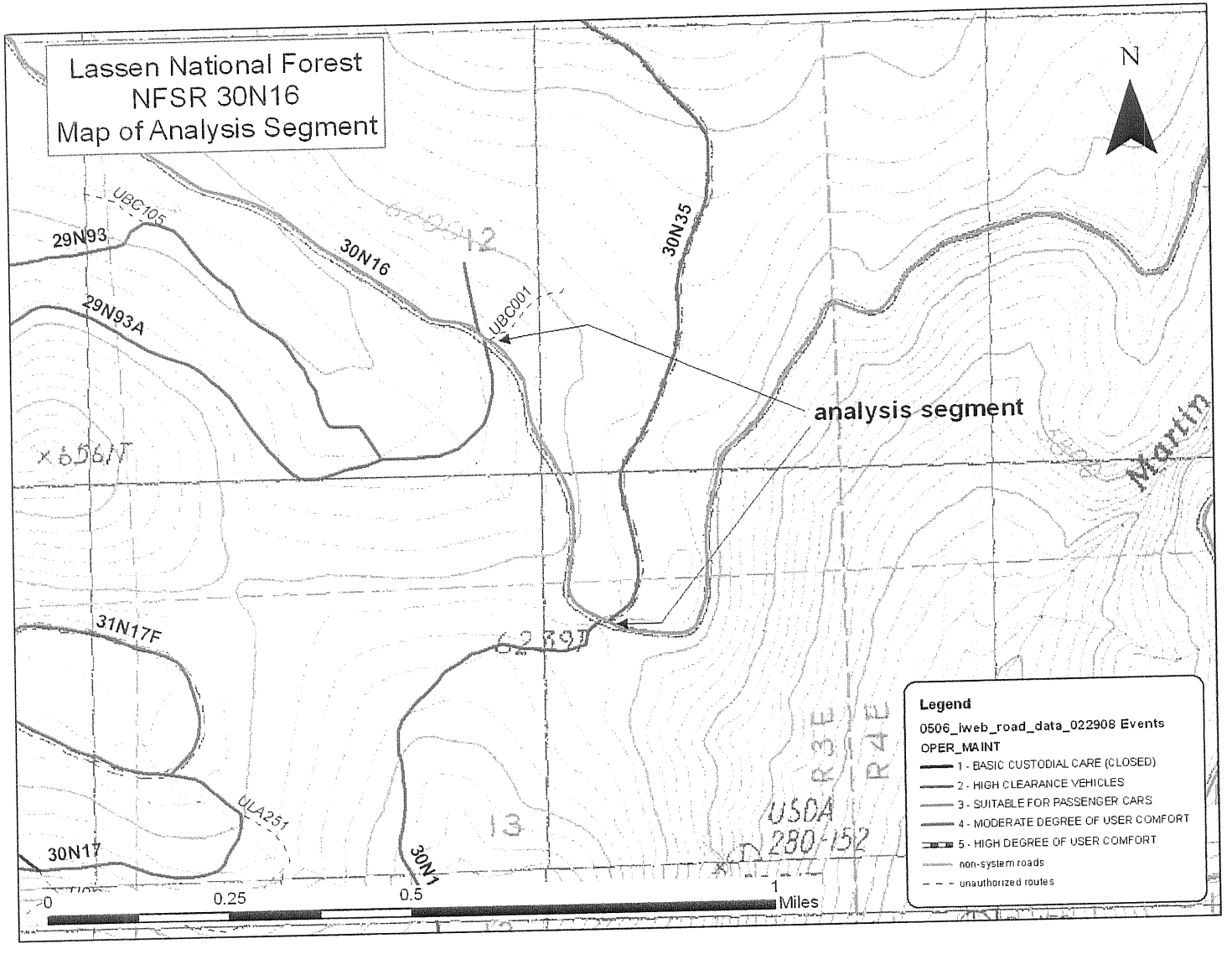


Figure 1: Map of road segment analyzed.

Figure 2: Forest road destination signing, directing through traffic along NFSR 30N16 to SR-89.

Figure 3: Looking towards the study segment, with the intersection of NFSR 29N93 on the right.

Figure 4: Looking down NFSR 29N93, from the intersection with NFSR 30N16.

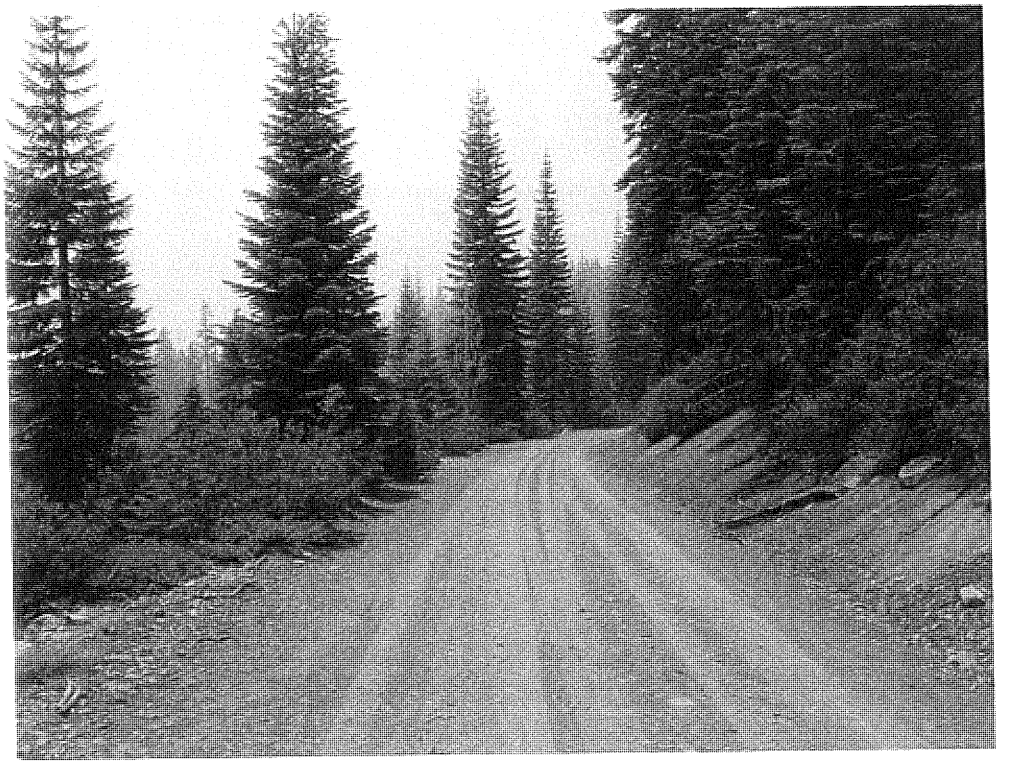


Figure 5: Looking west along the study segment, NFSR 30N16.

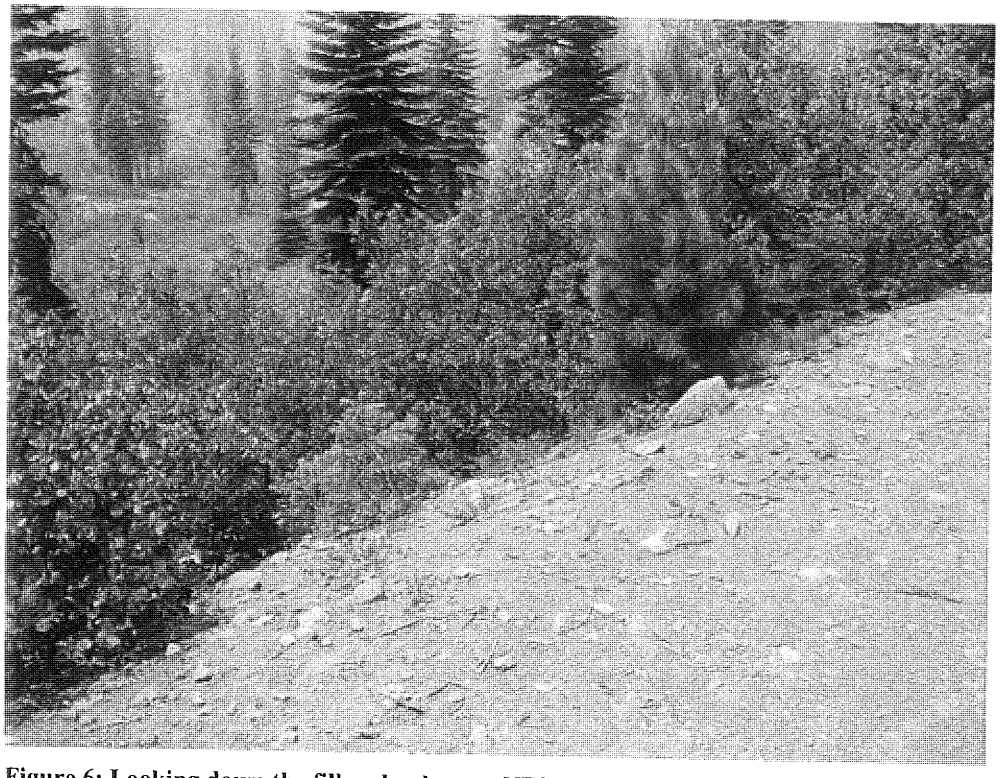


Figure 6: Looking down the fill embankment, NFSR 30N16.

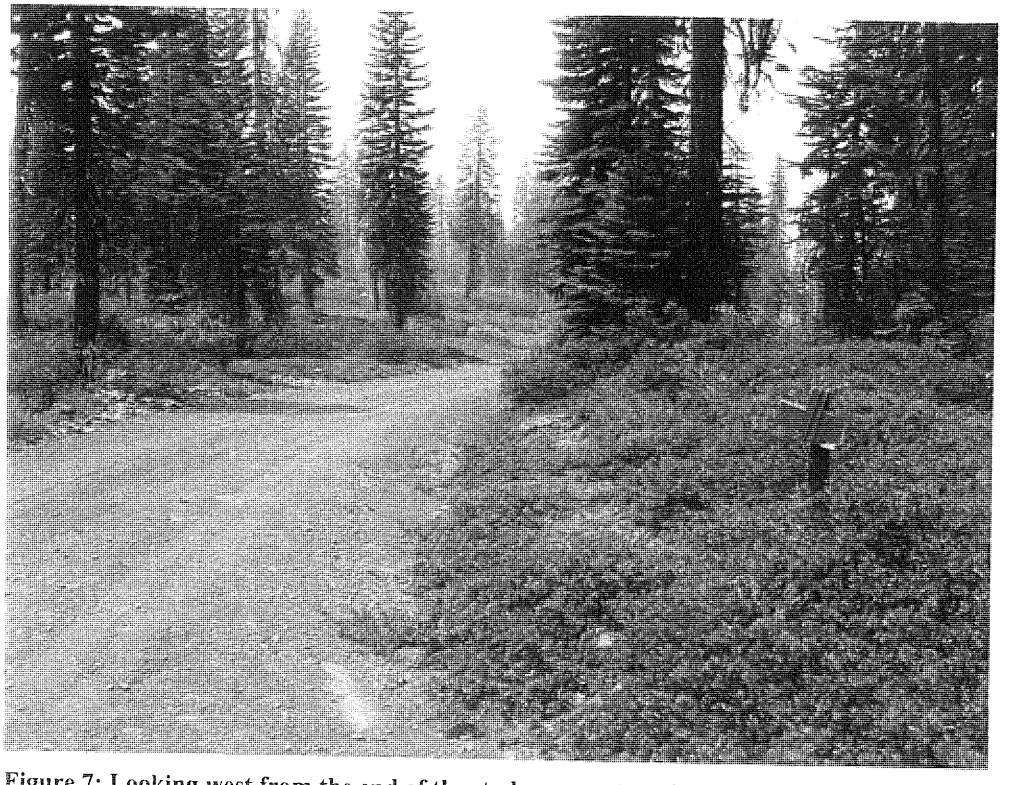


Figure 7: Looking west from the end of the study segment, at the intersection with NFSR 30N35.

Figure 8: The 4-way intersection with NFSR 30N16C (left), NFSR 30N16 (straight), and NFSR 30N35 (right).

Figure 9: Signing on a tree along NFSR 30N16, identifying the winter recreation routing.

Prepared by:
Chris Bielecki, Supervisory Civil Engineer

Engineering Report:

Lassen National Forest

Almanor Ranger District

Analysis of

National Forest System Road (NFSR)

31N17

for Motorized Mixed Use Designation

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

Road Number: **31N17** Road Name: **Mineral - Viola Highway**

Introduction: This report documents the engineering analysis for a 1.9 mile segment of NFSR 31N17. The "Mineral Viola Highway" is located on the west slope of the Lassen National Forest (LNF) and connects California State Highway Route 44 with California State Highway Route 36. The road, in its entirety, is also a forest distinctive route (DR 17) and is a designated Forest Highway, aka "Through Route" (FH 170). Shasta and Tehama counties consider this route an important inter-county connection. This arterial route is one of two routes that connect the eastern portions of these counties. In addition, this route is part of the Lassen Backcountry Byway. The entire road is currently managed by LNF as open only to highway-legal vehicles.

The study segment was 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, that are not licensed or certified for general operation on public roads within the State) from the beginning termini to the end termini.

The LNF Travel Analysis identified this road section as a potential connection for recreational off-highway vehicle (OHV) loop opportunities on the adjacent road

network, which is currently managed as open to non-highway-legal vehicle use. In the vicinity, a segment of the "Plantation Gulch" road (NFSR 30N16) was also recommended for an engineering analysis of motorized mixed use. The results can be found in a separate engineering report.

Study Segment road data from the forest transportation atlas:

Beginning Mile Post: **15.4** Ending Mile Post: **17.3**

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:

The road is typically used by Lassen Volcanic National Park personnel as a bypass to SR-89, especially during the off-season when access through the park is blocked by snow.

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

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 an arterial road and provides the primary access to NFS lands between SR-36 and SR-44 and west of Lassen Volcanic National Park (LVNP). The road serves as the principal connection between the towns of Viola and Mineral, and as a lower-elevation alternate to SR-89. NFSR 31N17 provides access to a subdivision near Brokeoff Meadows. The road is a designated Forest Highway and is also included in California DOT strategic planning.

It has traditionally served administration of the LNF, including fuels and vegetation management, commodity extraction, fire suppression, and recreation. It also accommodates administrative traffic from LVNP.

The road provides the primary access to the upcoming Gray's Peak project area, which will involve vegetation treatments requiring haul vehicle traffic.

The road is considered a highway by the forest service and is managed in accordance with the Highway Safety Act. The road is managed for passenger car vehicles and is appropriately posted with horizontal route identification markers. Most of the year it is currently managed as open only to highway-legal vehicles; however, when snow-covered the road serves as an ungroomed trail for both skiers and snowmobiles.

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 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 improving sight distance by removing brush, maintaining proper signing, and providing better communication, will reduce crash probability.

Road hazard 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.

The road is managed and identified as a forest distinctive route, a category used for significant, highly traveled routes through the Forest. Distinctive routes are passable by passenger cars during the normal season of use, and the appropriate travel management strategy is to encourage passenger car travel.

The road is maintained to a standard allowing efficient passenger car through traffic at speeds up to 35 mph for reasonable and prudent drivers on straightaways.

Designating the road segment for motorized mixed use, with mitigation, results in a risk assessment of moderate crash probability and high crash 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. Culverts are common drainage features on maintenance level 2 roads and standard on maintenance level 3 roads. Often roads on this national forest could be classified one maintenance level higher.
- Allowing non-highway-legal vehicles to use the road segments 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 current use on NFSR 31N17 appears to be consistent with State law and Forest Service policy for operational maintenance level 4 roads.
- Non-motorized traffic was observed on the road (mountain bikes).
- The roadbed is raised and appears to provide for sufficient drainage and user comfort.

2. Crash history:

At the time of this analysis, there is no record of a crash on this road.

3. Observed 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 an observation, 6/25/08 1130 – 1300.

Passenger cars: 2 (1 administrative)

Fire Engines: 2

Mountain Bikers: 2

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

The road segments were driven at various speeds to simulate conditions encountered by a reasonable and prudent driver in a passenger car.

35 mph based on observation and engineering judgment.

5. Road surface type:

crushed rock aggregate

traveled way width varies from 15' to 20'

6. Intersections with other roads and trails:

The study segment connects a variety of NFS roads to state highways. The sight distances at these intersections are rated fair. NFSR 31N45 is also signed with private timber company identification("F line")

7. Other roadway factors:

- Roadway alignment was adequate for the assigned maintenance level. In general, the road was maintained with a traveled way width of 15' – 20'.
- Drainage features include an inside ditch with frequent cross-drains. Rolling dips were gradual and required only minor speed reductions.
- The embankments were gradual, with short sections of 2:1 slopes on the

- Summer and fall seasons will experience peak use, winter and spring can bring snowy and icy conditions along with snowmobile traffic. The road has been used in the winter to bypass SR-89 and LVNP.

8. Roadside conditions:

- Route identification markers, regulatory signs, and warning signs generally meet the standards in MUTCD.
- An inside ditch was constructed throughout most of the study segment. This was built with a depth up to 2 feet.
- Minor logs and debris encroachment was encountered along the traveled way and shoulders.
- Brush (alder) greatly limited visibility in one curve location (see photo).
- Trees < 40" lined the shoulders in sections.
- A dispersed campsite is located along the study segment near Dry Lake.

9. Risk without mitigation if designating the roadway "open to all motor vehicles":

Segment 1:

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.
- Re-establish, define, and maintain a consistent traveled way width, utilize existing wider portions as turnouts.
- Clear brush, especially along curves, to improve sight distance. On certain curves, the cut slope can also be excavated and laid back.

  warning: improved sight distance may result in higher speeds
- Remove of roadside hazards such as boulders, trees, and debris.
- 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". Continue to manage the road in accordance with maintenance level 4 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. Continue to maintain the road in accordance with maintenance level 4 standards.

- 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 (i.e., "Share the Road") 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: $ 4000

  This does not account for the additional increase in long-term annual maintenance costs associated with maintaining these critical safety corridors.
- Expected risk:

  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 segments in accordance with maintenance level 2 standards. This would require removing culverts and ditches, reconstructing the template and narrowing the roadway.

- Based on the quality of the road, the amount of thru traffic, the Forest Highway status, and the change from the rest of the arterial route, this change would not be consistent with the road management objectives.
- Approximate Implementation Cost: $ 89,000 (~$45k per mile)
- Expected risk

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

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

Alternative 4: Construct trail segments to allow non-highway-legal vehicles to bypass the road and access adjacent maintenance level 2 roads.

- The terrain in this area would provide for a feasible parallel trail system. The west side of the road would be the best location to avoid wet areas associated with the Dry Lake area.
- Approximate implementation cost: $11,000 (~ $5500 per mile)

  This does not include the planning, agreements with private landowners, and long term maintenance costs associated with a new NFS trail.

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

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

Final Comments:

Signing on national forest system roads will 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:

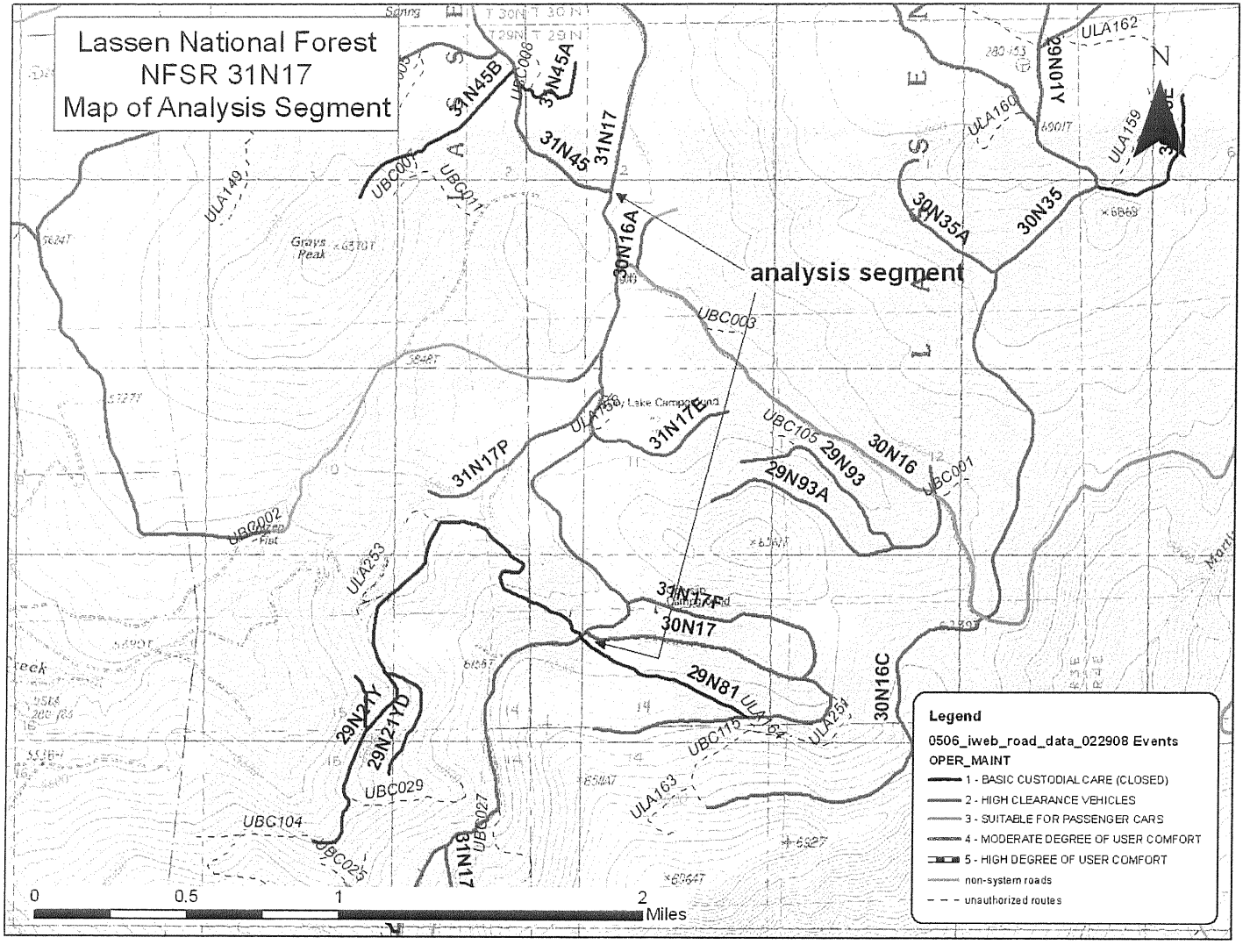


Figure 1: Map of road segments analyzed.

Figure 2: Signing at the south termini of NFSR 31N17.

Figure 3: Looking north at NFSR 31N17, with the intersection of 29N21Y on the left--marking the beginning of the analysis segment.

Figure 4: Curve in the analysis segment, NFSR 31N17.

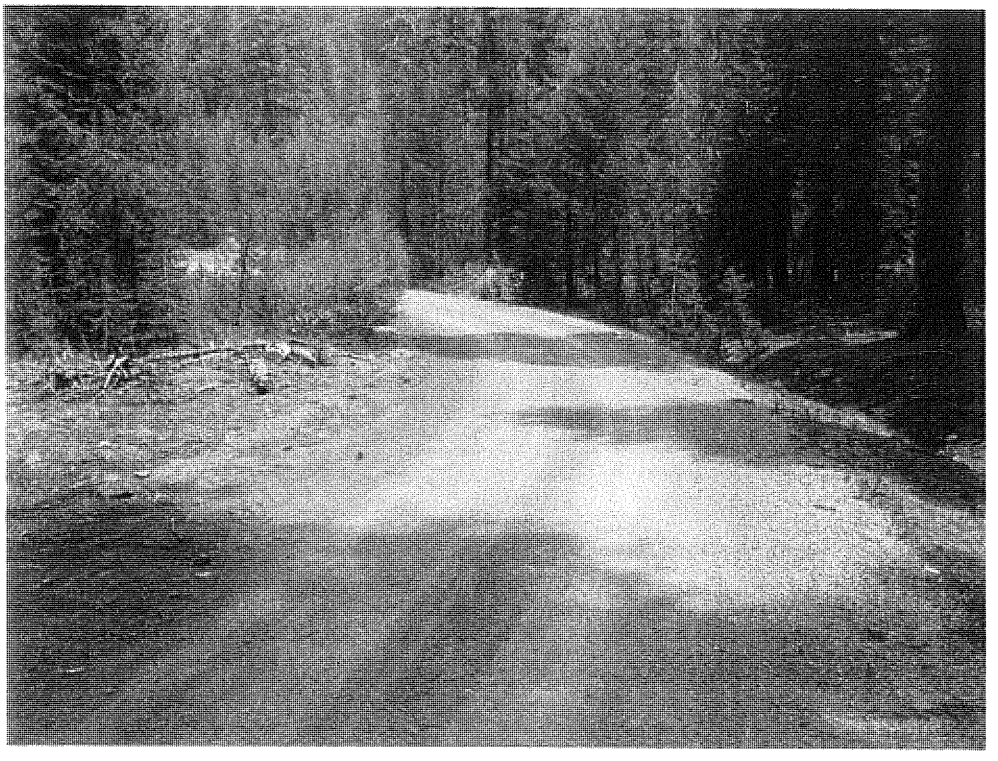


Figure 5: Curve with low visibility, NFSR 31N17.

Figure 6: End of straightaway, NFSR 31N17.

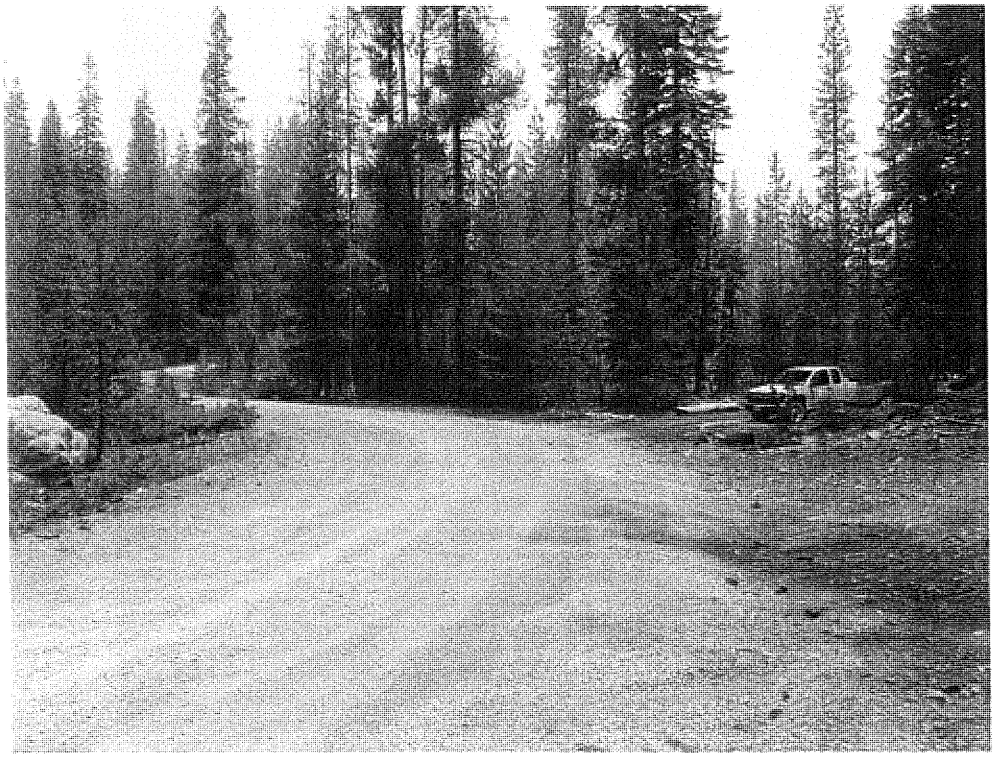


Figure 7: S-curve and intersection with unauthorized route that accesses dispersed campsite on Dry Lake.

Figure 8: Destination signing, showing connectivity with State highways.

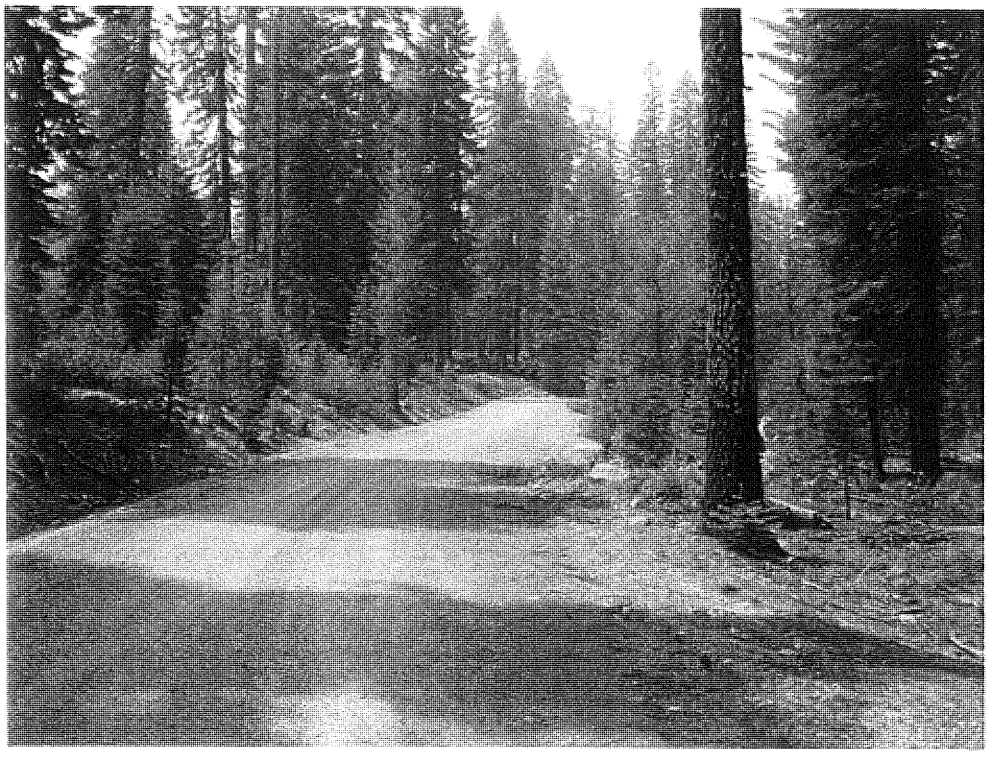


Figure 9: Typical section, NFSR 31N17.

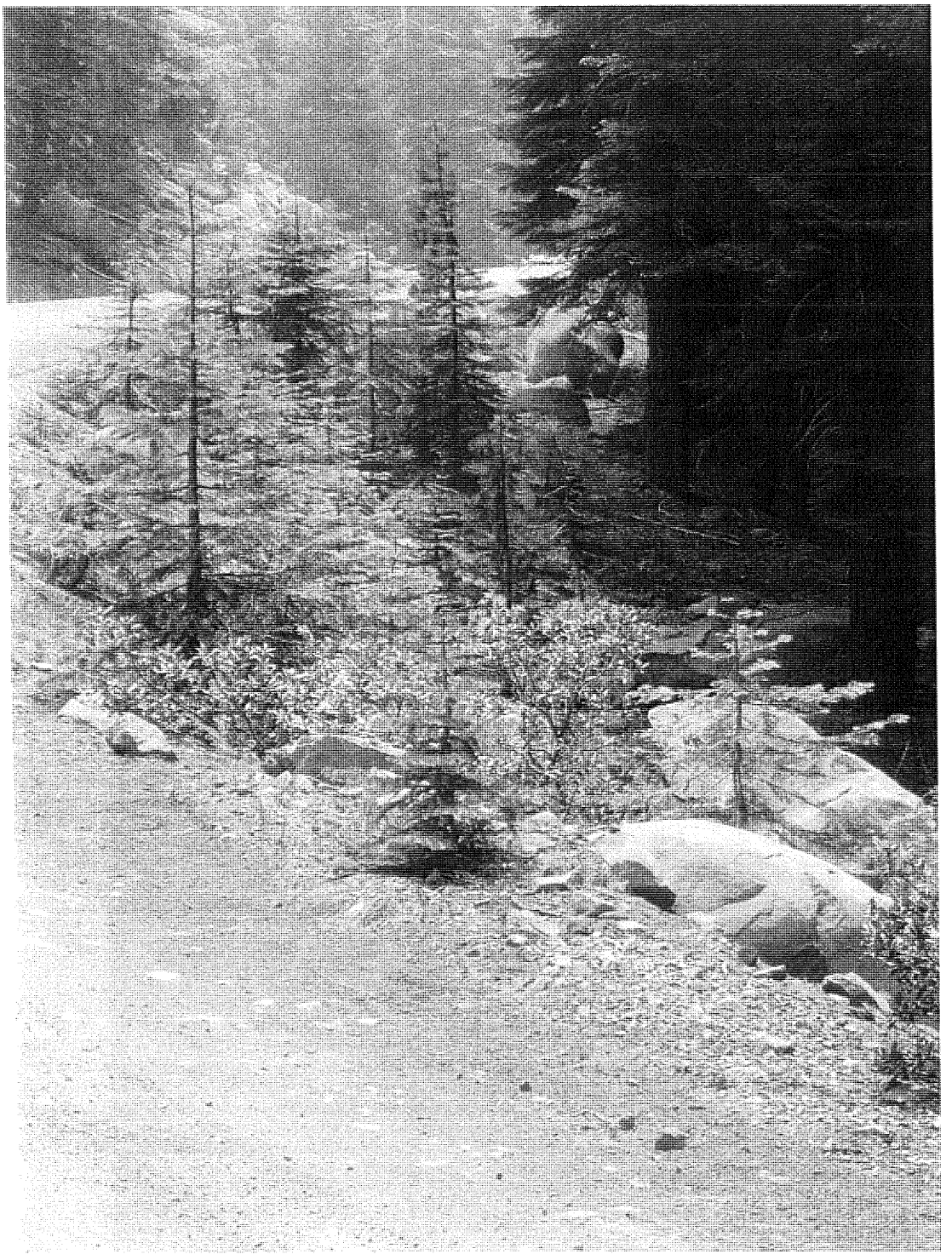


Figure 10: Inside curve showing fill slope and boulders.

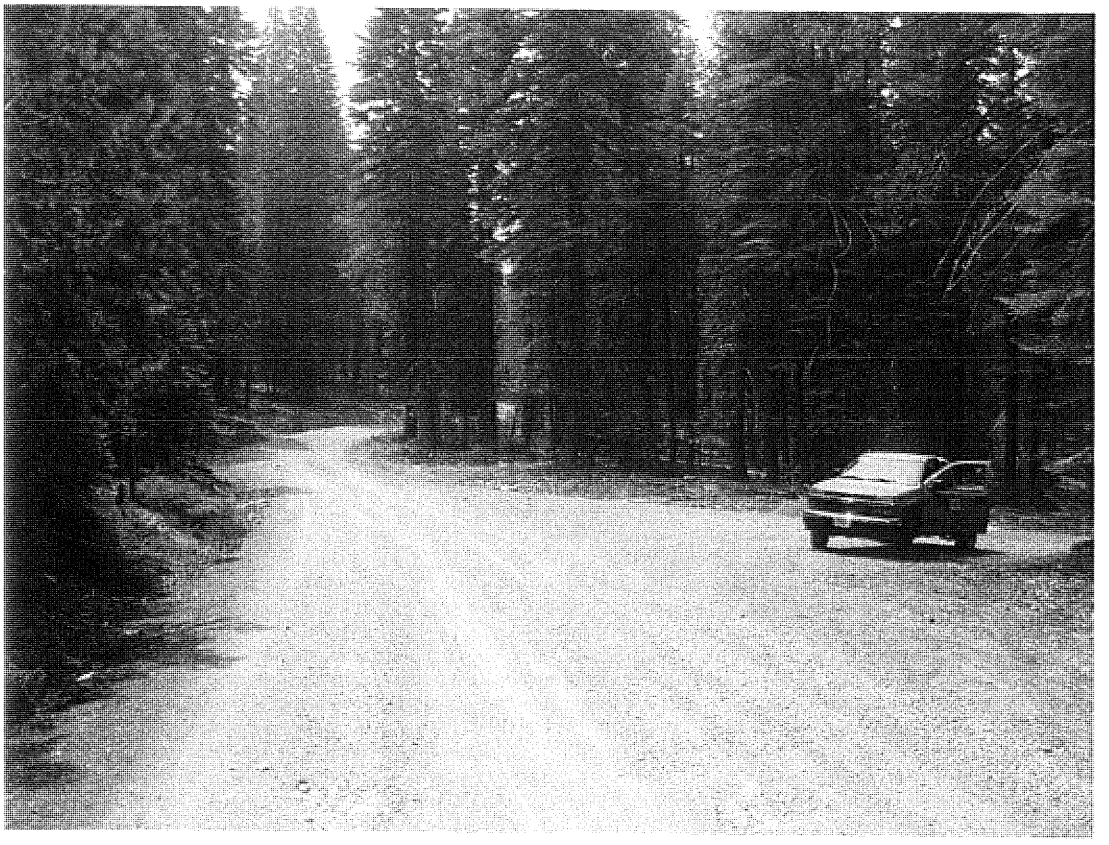


Figure 11: Looking back at the analysis segment from the north end, with NFSR 31N45 on the right.

Prepared by:
Chris Bielecki, Supervisory Civil Engineer

Engineering Report:

Lassen National Forest

Eagle Lake Ranger District

Analysis of

National Forest System Road (NFSR)

32N02

for Motorized Mixed Use Designation

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

Road Number: **32N02** Road Name: **Summit Camp**

Introduction: This report documents the engineering analysis for a segment of 32N02 (Distinctive Route 21) – Summit Camp, totaling 0.22 miles in length. This total route, which also serves as Distinctive Route 21, is an arterial road connecting California State Highway 44 on the west to Lassen County Road A1(Eagle Lake Road) on the east. The route is currently on the PFSR priority list for upgrade. There is substantial traffic using the route; it is commonly used as an alternative route to Eagle Lake by traffic originating from points northwest of Lassen National Forest traveling south on highway 44. Lassen National Forest (LNF) currently manages this road as open only to highway-legal vehicles.

The study segment was 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, that are not licensed or certified for general operation on public roads within the State) from the beginning termini to the end termini.

The LNF Travel Analysis identified this road section as a potential connection for recreational off-highway vehicle (OHV) loop opportunities on the adjacent road network, which is currently managed as open to non-highway-legal vehicle use.

Study Segment road data from the forest transportation atlas:

Segment : Beginning Mile Post: 4.7 Ending Mile Post: 4.9

NFSR 32N05 to NFSR 32N73

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:

The study segment is on private land. The Forest Service has a full public easement with jurisdiction.

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

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 total route currently serves as an arterial road, Forest distinctive route, and provides through access from California State Highway Route 44 to Lassen County Road A1. The road is a very wide single-lane (bordering on double lane in portions on the west) road with turnouts.

NFSR 32N02 has traditionally served administration of the LNF, including fuels and vegetation management, range management, commodity extraction, fire suppression, and recreation. It also provides access to private land inholdings. The road is considered a highway by the Forest Service and is managed in accordance with the Highway Safety Act. The road is managed for passenger car vehicles and is appropriately posted with horizontal route identification markers. Most of the year it is currently managed as open only to highway-legal vehicles. During the winter the route is groomed for OSV and skier use; ATV and 4WD are not allowed.

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 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 improving sight distance by removing brush, maintaining proper signing, and providing better communication, will reduce crash probability.

Road hazard 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.

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.

Designating the road segment for motorized mixed use, with mitigation, results in a risk assessment of moderate crash probability and high crash severity.

Factors Considered:

1. Operator considerations:

- The current use on NFSR 32N02 appears to be consistent with State law and Forest Service policy for operational maintenance level 4 roads.
- The roadbed is raised and appears to provide for sufficient drainage and passenger car travel.
- Commercial, recreational, private, and administrative traffic is expected along this segment.

2. Crash history:

No record of accidents

3. Observed 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)

None was observed during field investigation to the site.

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

The road segment was driven at various speeds to simulate conditions encountered by a reasonable and prudent driver in a passenger car.

45 mph based on observation and engineering judgment.

5. Road surface type: coordinate

Segment has aggregate surfacing and single lane traveled ways with turnouts. Segment is approximately 22 feet wide.

6. Intersections with other roads and trails:

The sight distances at the managed intersections are rated good.

7. Other roadway factors:

- **None**

8. Roadside conditions:

- **On segment one the design prism is typical of side hill construction with inboard ditch plus x-drain relief.**

9. Risk without mitigation if designating the roadway "open to all motor vehicles":

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 and trees, especially along curves and at intersections, to improve sight distance.**
  warning: improved sight distance may result in higher speeds
- **Removal of roadside hazards such as boulders, trees, and debris.**
- **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". Continue to manage the road in accordance with maintenance level 3 standards.**

- **Maintain all roadway signing to MUTCD standards.**
- **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. Continue to maintain the road in accordance with maintenance level 3 standards.**

- **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**

- **Coordinate with the State and revise existing agreements with Caltrans as applicable.**
- **Notify the Commissioner of the California Highway Patrol and review their opinion.**
- **Approximate Implementation Cost: $ 3500**
  This does not account for the additional long-term annual maintenance cost increase associated with maintaining these critical safety corridors.
- **Expected risk:**

  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 segments in accordance with maintenance level 2 standards. This would require removing culverts and ditches, reconstructing the template and narrowing the roadway.**

- Based on the quality of the road, the amount of thru traffic, the distinctive route status, and the change from the rest of the arterial route, this change would not be consistent with the road management objectives.
- **Approximate Implementation Cost: $10,000**
- **Expected risk:**

  Crash probability: ☐ High ☒ Med ☐ Low

  Crash severity: ☐ High ☒ Med ☐ Low

Alternative 4: **Construct trail segments to allow non-highway-legal vehicles to bypass the road and access adjacent maintenance level 2 roads.**
Segment one

- **The terrain in this area is on gentle to moderate slopes and would provide for a parallel trail system.**
- **The segment is partially on private land and would need an easement**
- **Approximate implementation cost: $7500**
  This does not include the planning, agreements, and long term maintenance costs associated with a new NFS trail.
- **Expected risk:**

Crash probability: ☐ High ☐ Med ☒ Low

Crash severity: ☐ High ☐ Med ☒ Low

Final Comments:

Signing on national forest system roads will 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:

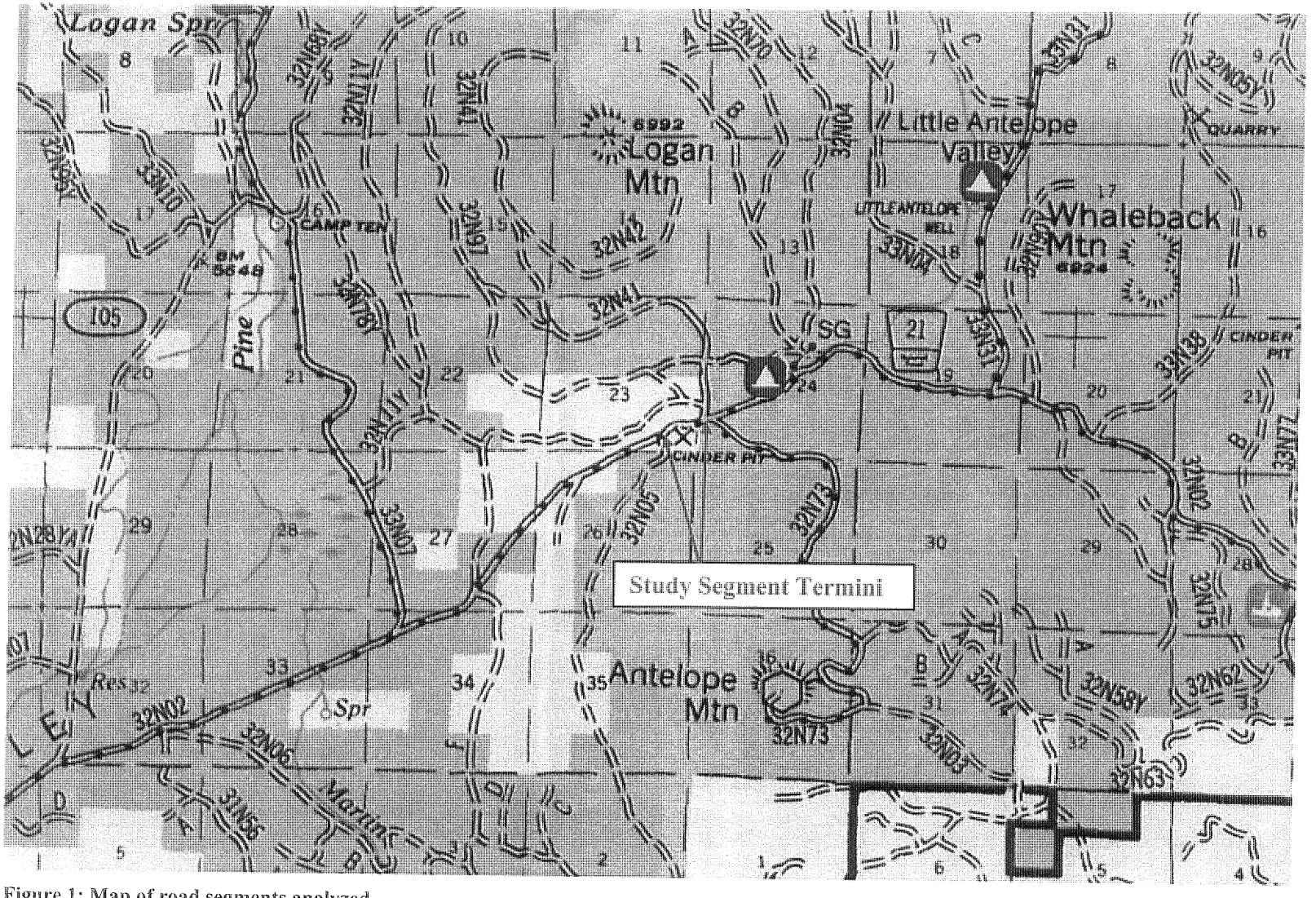


Figure 1: Map of road segments analyzed.

Figure 2: Intersection with NFSR 32N05 (right) and the study segment.

Figure 3: Curve within the study segment.

Figure 4: Straightaway within the study segment.

Figure 5: Passenger car vehicle sticker.

Figure 6: Intersection with NFSR 32N73 (left) and the study segment (ahead).

Chris Bielecki

Prepared by:
Chris Bielecki, Supervisory Civil Engineer

Engineering Report:

Lassen National Forest

Eagle Lake Ranger District

Analysis of

National Forest System Road (NFSR)

 # 32N02

for Motorized Mixed Use Designation

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

Road Number: **32N02** Road Name: **Distinguished Route 21**

Introduction: The Distinguished Route 21 Road segments studied are located on the east side of Lassen National Forest (LNF) in the Champs Flat quadrangle, approximately 1 mile southwest of Whaleback Mountain. NFSR 32N02 begins at Lassen County (LA) Road A1 and ends at State Highway 44 near Feather Lake. The road starts approximately 3 miles northwest of the western and southern extents of Eagle Lake, on Paved County Road A1, and travels upslope and northwesterly from the eastern toe of the slope of Antelope Mountain, around the northern toe of slope of said Antelope Mountain, traverses the western toe of slope of Antelope Mountain, then Campbell Mountain, intersects with Lassen County Road 105 which it shares a route identification number with, and enters into the lower altitudes of Pine Creek Valley where it intersects with Lassen County Road 112 and terminates into California State Highway 44. 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 two segments of 32N02, from the intersection of 33N38 to 33N31 for segment 1, and from 32N08YA to 32N04 for segment 2. The LNF Travel Analysis (June 2008) identified these road sections as connectors for recreational off-highway vehicle (OHV) loop opportunities on the adjacent 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: **1.02** Ending Mile Post: **1.67**

33N38 to 33N31

Traffic Service Level: ☐ A ☐ B ☒ C ☐ D

Objective Maintenance Level: ☐ 1 ☐ 2 ☒ 3 ☐ 4 ☐ 5

Operational Maintenance Level: ☐ 1 ☐ 2 ☐ 3 ☒ 4 ☐ 5

Segment 2: Beginning Mile Post: **2.16** Ending Mile Post: **2.56**

32N08YA to 32N04

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 serves as a ML3 collector road and functions as a through-road for commodity extraction, range allotment access, and fire lookout and fire suppression access from Lassen County Road A1 to the State of California Highway 44.

The road provides access from the lower elevations adjacent to Eagle Lake and County Road A1 which provides an all-weather surface and access to State Highway 395 to the south and State Highway 139 to the northeast. Road 32N02 provides an important function as an ML3 forest collector providing said access from 3 all-weather highways, through a variety of forest landscapes providing range, timber, fire suppression, and dispersed recreation, upon a well maintained gravel and cinder aggregate surfaced road, through a 15 mile traverse, to State Highway 44 to the southwest.

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 accordance with the Highway Safety Act.

The proposed use for the two segments of 32N02/ML3 identified in this analysis is to authorize motorized mixed vehicle class use. The proposal is to utilize the two segments of ML3 road 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.

The road is an observed 1-lane operational maintenance level 3 standard throughout the selected segments.

The road is maintained to a standard allowing efficient passenger car through traffic at speeds up to 40 mph for reasonable and prudent drivers on straightaways. Based on speeds and their associated risk for crash severity, designating the road 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. Topologically, the unit is dry and flat with pronounced volcanic relief features, once roads are improved for management activities, the improvements are long lasting. Culverts are common drainage features on maintenance level 2 roads and standard on maintenance level 3 roads. Often roads on this national forest could be classified one maintenance level higher.
- 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 32N02 appears to be consistent with state law and forest policy for operational maintenance level 3 roads.
- Frequent residential, recreational, and commercial traffic was observed on Lassen County Road A1 at the intersection with 32N02.
- Many roads in this vicinity, including the study segment, were dry and contributed significant dust when driven over.

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.

1 Pickup truck.

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 segments have a combination of crushed rock aggregate and red volcanic cinder aggregate surfacing. Portions of the traveled way are raised and the shoulders are soft and non-compacted. The segments are approximately 16' wide. The surfaces appeared well-maintained.

6. Intersections with other roads and trails:

Study segment 1 begins at an intersection with 33N38/ML2. 32N69 is a maintenance level 2 road that intersects with 32N02 and trends south, up the northern flank of Antelope Mountain. The segment ends with an intersection with 33N31/ML3

33N31 is a maintenance level 3 road and is another analysis segment of forest ML3 road that is receiving analysis for motorized mixed use. The road lacks the appropriate entrance treatment of discourage high-clearance vehicles.

Study segment 2 begins at an intersection with 32N08YA which is an unauthorized route and ends with an intersection with 32N04, a maintenance level 2 road.

The proposed MMU intersection of 32N02 and 33N38 may result in higher traffic

merging speeds. The proposed intersections of 32N08YA and 32N02 as well as 32N04 meet on horizontal curves and result in lessened sight distances.

7. Other roadway factors:

- Substantial vertical curves are present.
- Roadway alignment was adequate for the assigned maintenance level.
- The road was maintained with a traveled way width of 16', approximately.
- The road provides administrative access for range allotment and fire lookout access. It is a winter snowmobile sports trail. 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 segment runs through open pine forest.
- Cross slope is 0-5%.
- Grade is 0-5%.
- Pine trees are ≤ 18" and numerous volcanic rocks. Emergency run-out is possible.

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**

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**

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).

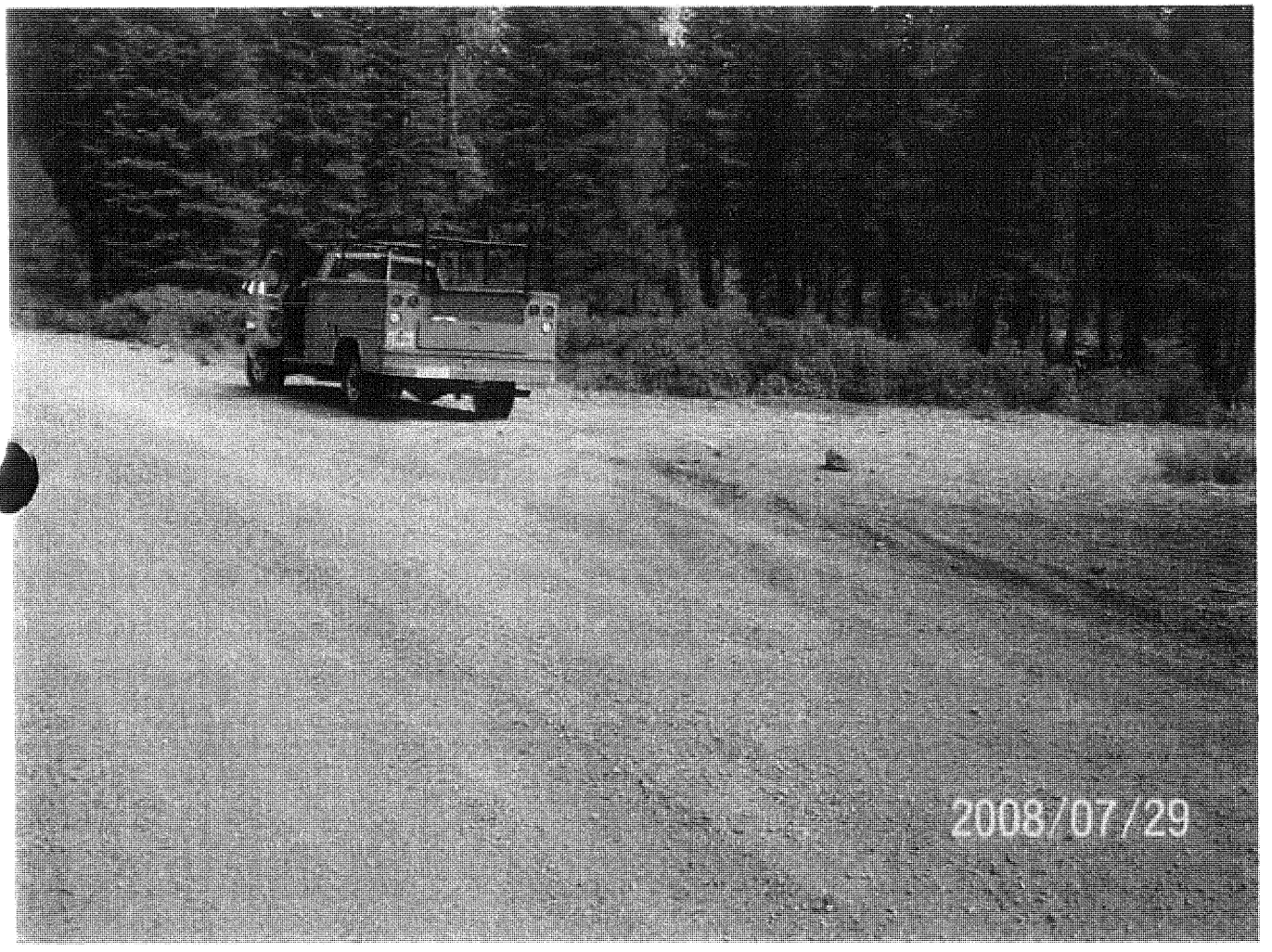
In addition, roads managed under the highway safety act, including the study segments here, must comply with the standards in the MUTCD (available @ http://mutcd.fhwa.dot.gov/).

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:

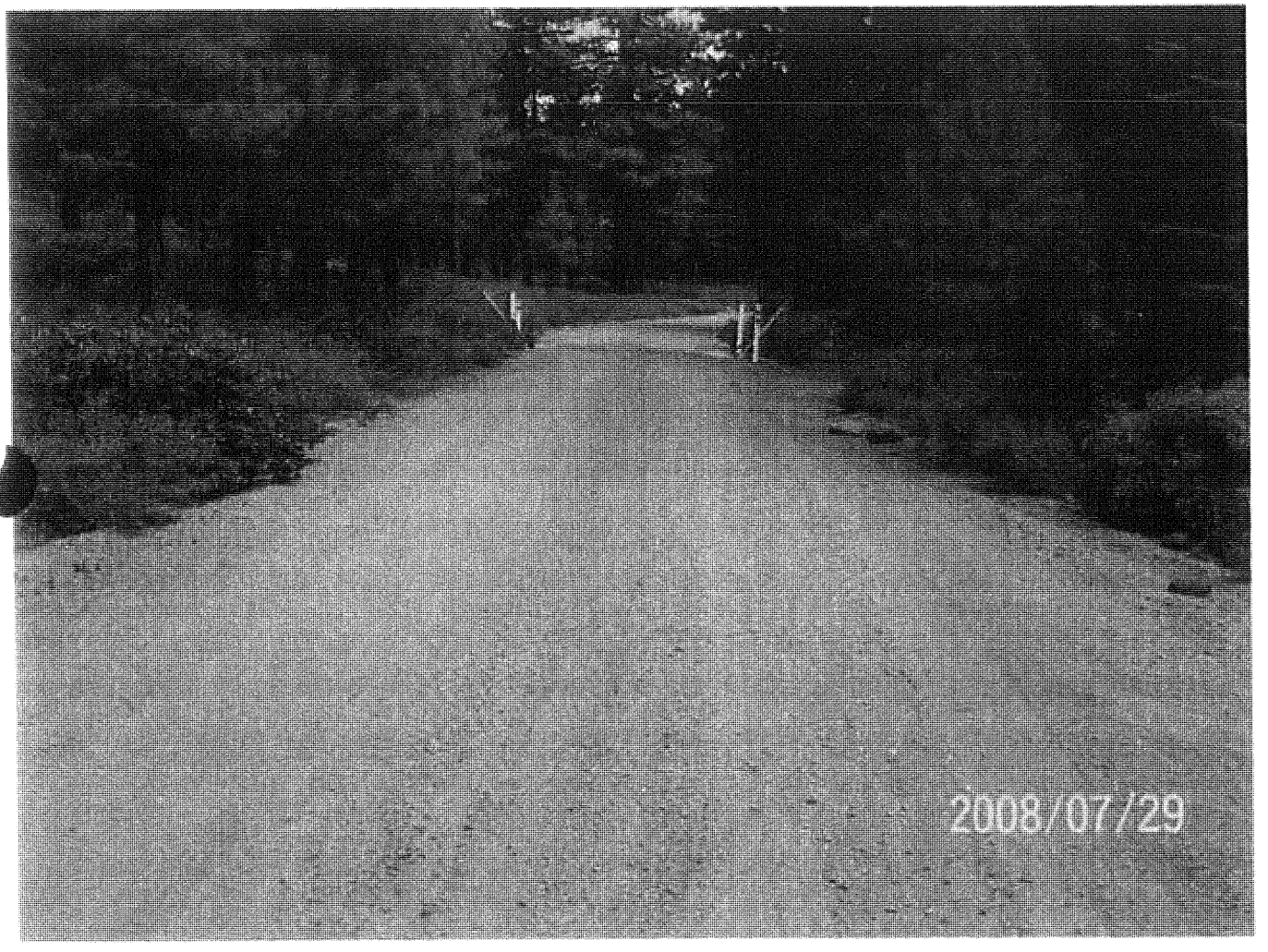

21
National
Forest
2008/07/29


2008/07/29

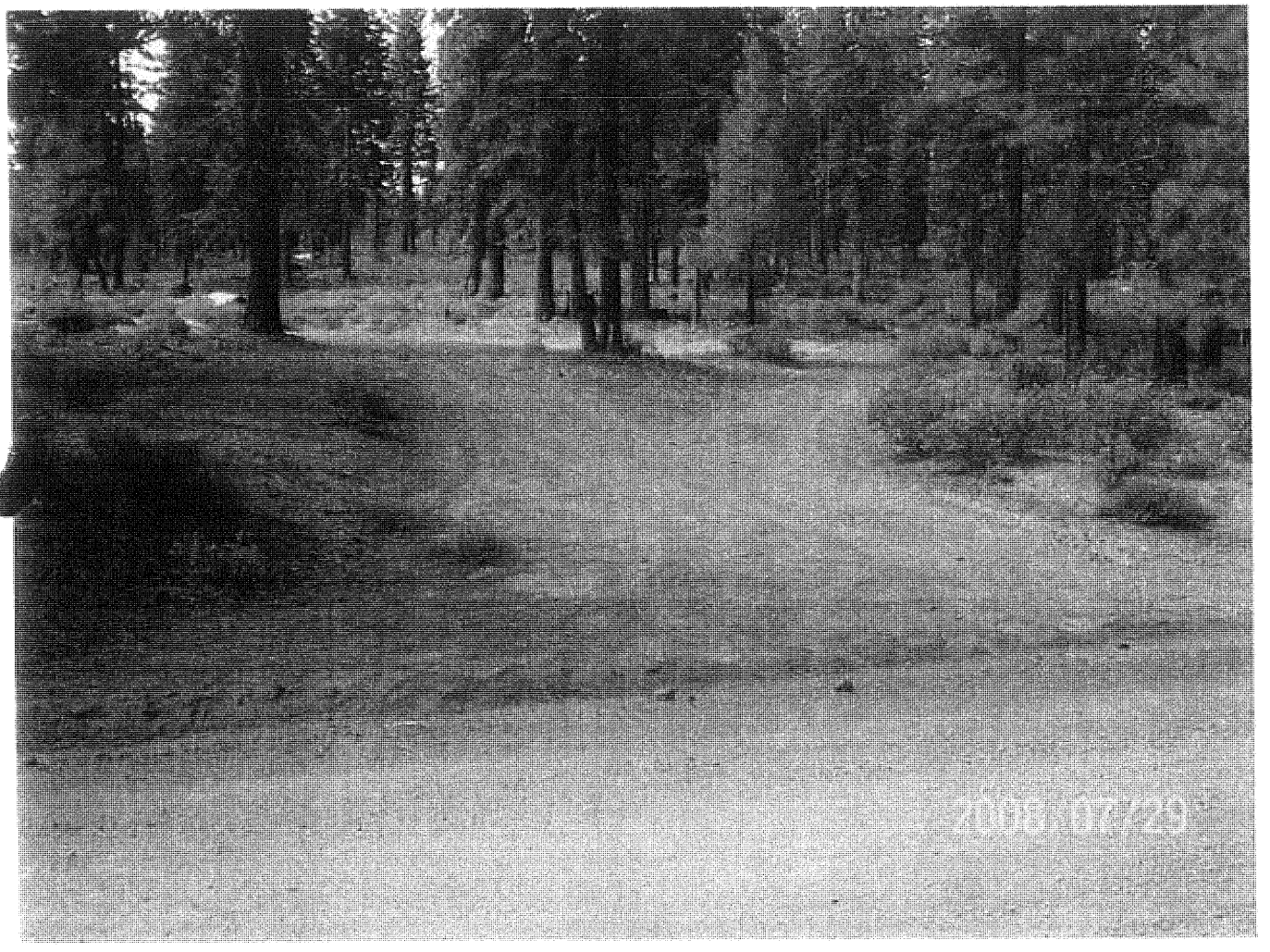

3
6
N
3
2008/07/29


2008/07/29


21
National
Forest
2008/07/29

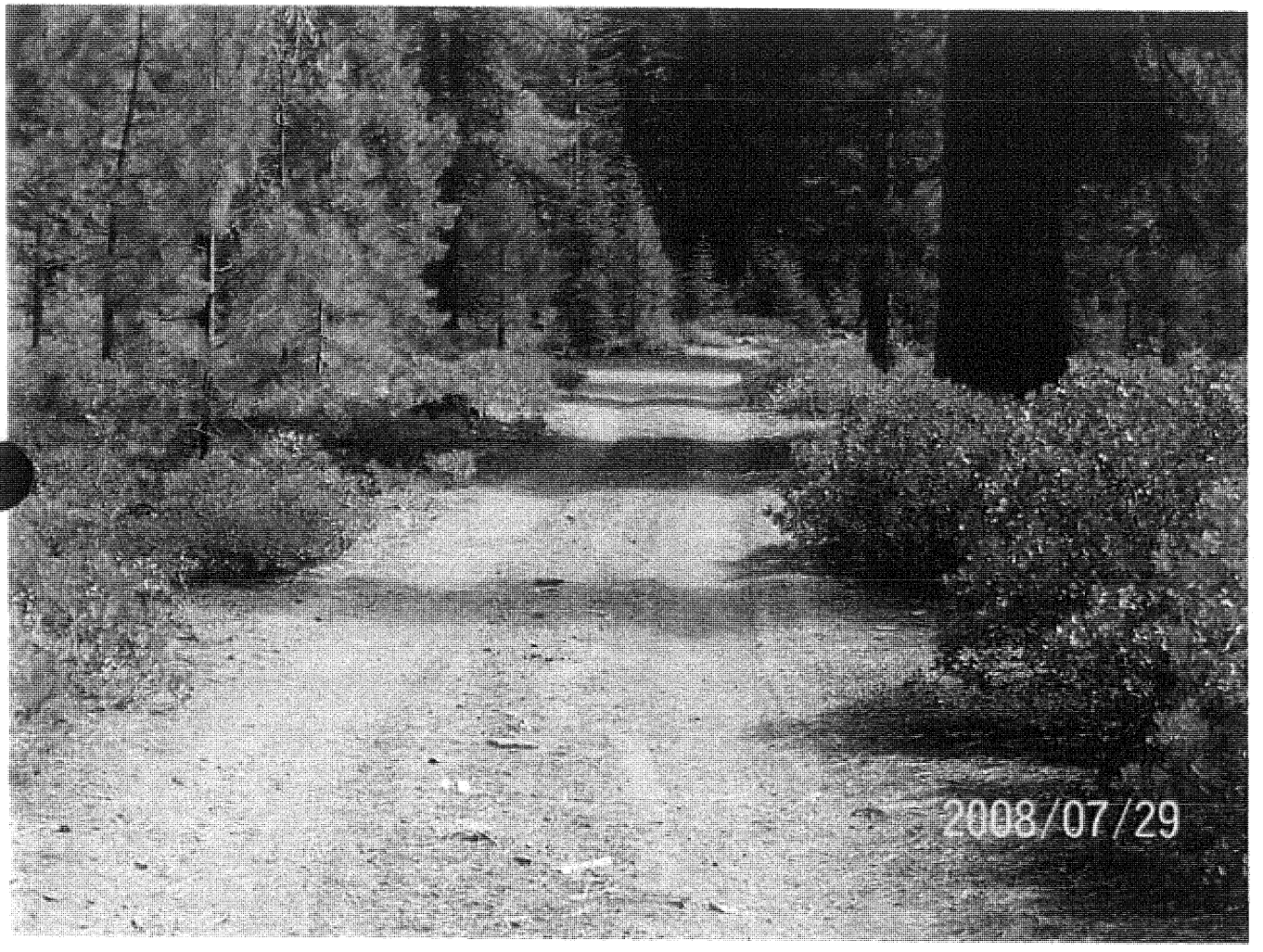

2008/07/29

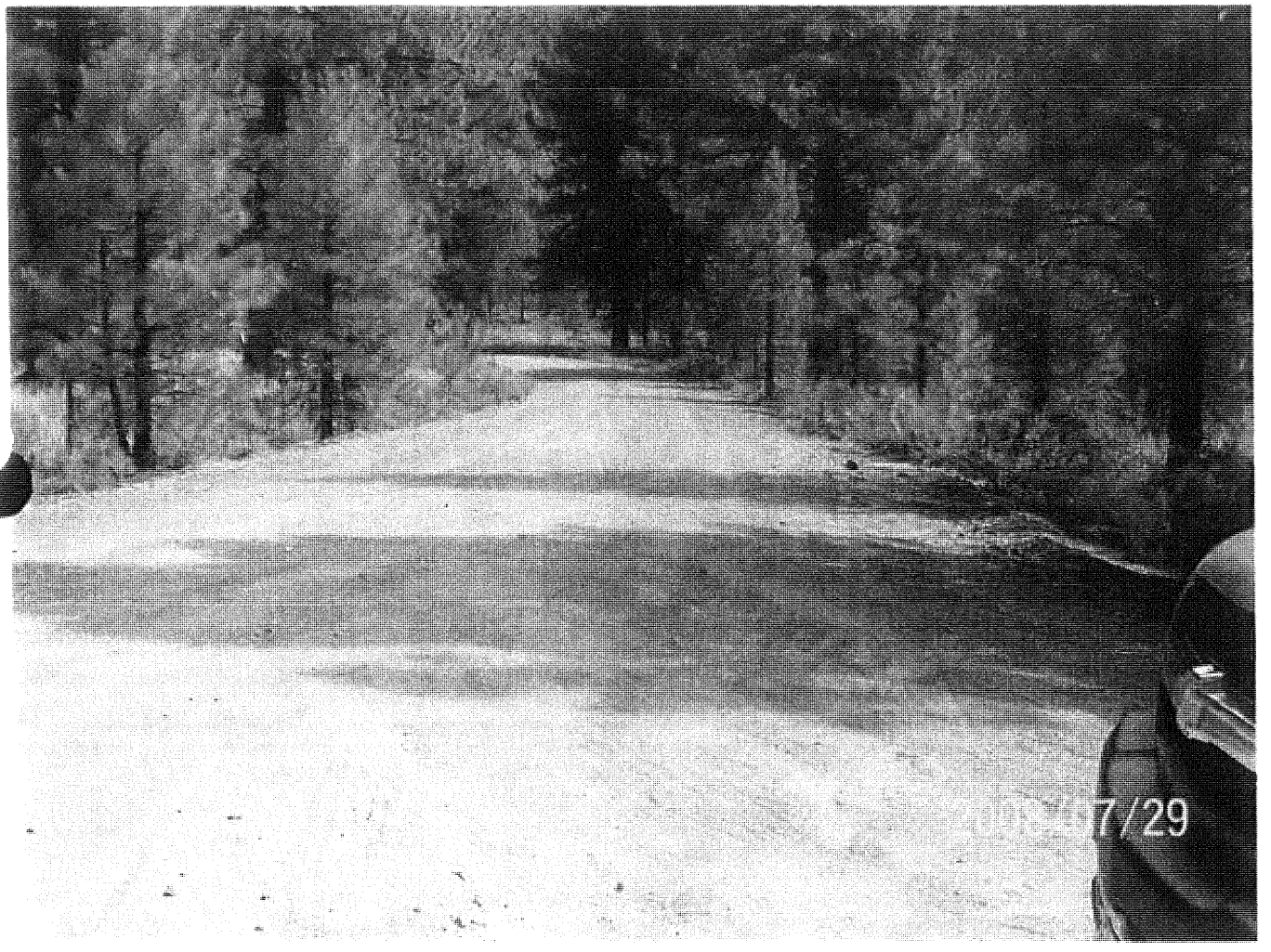

2008/07/29


2005/06/29


N
O
Y
2008/07/29

5


2008/07/29


7/29

Prepared by
Tim Dedrick

Forest Transportation Planner/Civil Engineer
Lassen National Forest

Date 9/29/08

Reviewed by
George Kulick

Date

Region 5 Qualified Engineer
Region 5 Office of Engineering

Engineering Report:

Lassen National Forest

Eagle Lake Ranger District

Analysis of

National Forest System Road (NFSR)

32N08

for Motorized Mixed Use Designation

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

Road Number: **32N08** Road Name: **Crater Lake Campground Access**

Introduction: This report documents the engineering analysis for a segment of the "Crater Lake Campground Access Road", totaling 0.8 miles in length. NFSR 32N08 is located in the Pine Creek Valley, and connects California State Highway Route 44 with Crater Lake Campground. Lassen National Forest (LNF) currently manages this road as open only to highway-legal vehicles.

The study segment was 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, that are not licensed or certified for general operation on public roads within the State) from the beginning termini to the end termini.

The LNF Travel Analysis identified this road section as a potential connection for recreational off-highway vehicle (OHV) loop opportunities on the adjacent road network, which is currently managed as open to non-highway-legal vehicle use. In the vicinity, segments of NFSRs 32N10 (across SR-44) and 32N22 were also recommended for engineering analyses of motorized mixed use. The results can be found in a separate engineering report.

Study Segment road data from the forest transportation atlas:

Segment 1: Beginning Mile Post: **0** Ending Mile Post: **0.8**

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:

The first portion (~100) is managed by Caltrans under a US Department of Transportation easement for California State Highway Route 44.

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

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.

It is important to note that the addition may result in a crossing of SR-44 that would not allow OHVs to cross the roadway at an angle of approximately 90 degrees, and therefore would not comply with State law. The existing situation would require OHVs to operate within the Caltrans right-of-way for a longitudinal distance of 300' before exiting – if proposing to provide access across the State highway to the "10 Road".

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

The road currently serves as the access road to Crater Lake Campground, and serves as a collector route connecting to a network of NFS roads.

The road was designed as a single-lane road with turnouts.

NFSR 32N08 has traditionally served administration of the LNF, including fuels and vegetation management, commodity extraction, fire suppression, and recreation. The road also provides access to the Bogard Well, the principal NFS water drafting source for the area.

The road is considered a highway by the forest service and is managed in accordance with the Highway Safety Act. The road is managed for passenger car vehicles and is appropriately posted with horizontal route identification markers. Most of the year it is currently managed as open only to highway-legal vehicles; however, when snow-covered the road serves is groomed for winter use—including skiers, ATVs, and snowmobiles.

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 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 improving sight distance by removing brush, maintaining proper signing, and providing better communication, will reduce crash probability.

Road hazard 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.

The road is maintained to a standard allowing efficient passenger car through traffic at speeds up to 40 mph for reasonable and prudent drivers on straightaways.

Designating the road segment for motorized mixed use, with mitigation, results in a risk assessment of moderate crash probability and high crash 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. Culverts are common drainage features on maintenance level 2 roads and standard on maintenance level 3 roads. Often roads on this national forest could be classified one maintenance level higher.
- Allowing non-highway-legal vehicles to use the road segments 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 current use on NFSR 32N08 appears to be consistent with State law and Forest Service policy for operational maintenance level 3 roads.
- The roadbed is raised and appears to provide for sufficient drainage and passenger car travel.
- An active Burlington Northern railroad line crosses the study segment.
- Commercial and administrative traffic is expected along this segment.

2. Crash history:

At the time of this analysis, there is no record of a crash on this road.

3. Observed 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 an observation, 6/25/08 @ 1815-1845

1 passenger car

2 water trucks

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

The road segments were driven at various speeds to simulate conditions encountered by a reasonable and prudent driver in a passenger car.

40 mph based on observation and engineering judgment.

5. Road surface type: coordinate

Aggregate, well maintained, smooth, 17' width.

6. Intersections with other roads and trails:

The sight distances at the intersections are rated good. The intersection with Burlington Northern rail line is well posted and visible.

The intersection with SR-44 has route identification for NFSR 32N08 in place. Through traffic speed limit is 65 mph in this section along SR-44.

7. Other roadway factors:

- There appear to be underground and above ground utilities accessed from this road.
- A cattleguard is located on the north side of the rail line crossing.

8. Roadside conditions:

- The embankments were gentle.
- The study segment mainly passes through grass and shrub vegetation.
- Occasional boulders and trees were encountered near the shoulders.

9. Risk without mitigation if designating the roadway "open to all motor vehicles":

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 and trees, especially along curves and at intersections, to improve sight distance.

  warning: improved sight distance may result in higher speeds
- Remove of roadside hazards such as boulders, trees, and debris.
- 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". Continue to manage the road in accordance with maintenance level 4 standards.

- Maintain all roadway signing to MUTCD standards.
- Consider designing new trails connecting to the 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. Continue to maintain the road in accordance with maintenance level 3 standards.

- 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 (i.e., "Share the Road") 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

  This does not account for the additional increase in long-term annual maintenance costs associated with maintaining these critical safety corridors.
- Expected risk:

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 segments in accordance with maintenance level 2 standards. This would require removing culverts and ditches, reconstructing the template and narrowing the roadway.

- Based on the quality of the road, the amount of thru traffic, the distinctive route status, and the change from the rest of the arterial route, this change would not be consistent with the road management objectives.
- Work with Fruit Growers Supply Company to make necessary adjustments to existing agreements.
- Approximate Implementation Cost: $ 60,000 (~$75k per mile)
- Expected risk

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

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

Alternative 4: Construct trail segments to allow non-highway-legal vehicles to bypass the road and access adjacent maintenance level 2 roads.

- The terrain in this area is relatively gentle and would provide for a parallel trail system. However, construction through CA DOT right-of-ways will require coordination and agreement modifications as appropriate.
- Approximate implementation cost: $8,000

This does not include the planning, agreements, and long term maintenance costs associated with a new NFS trail.

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

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

Final Comments:

Signing on national forest system roads will 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:

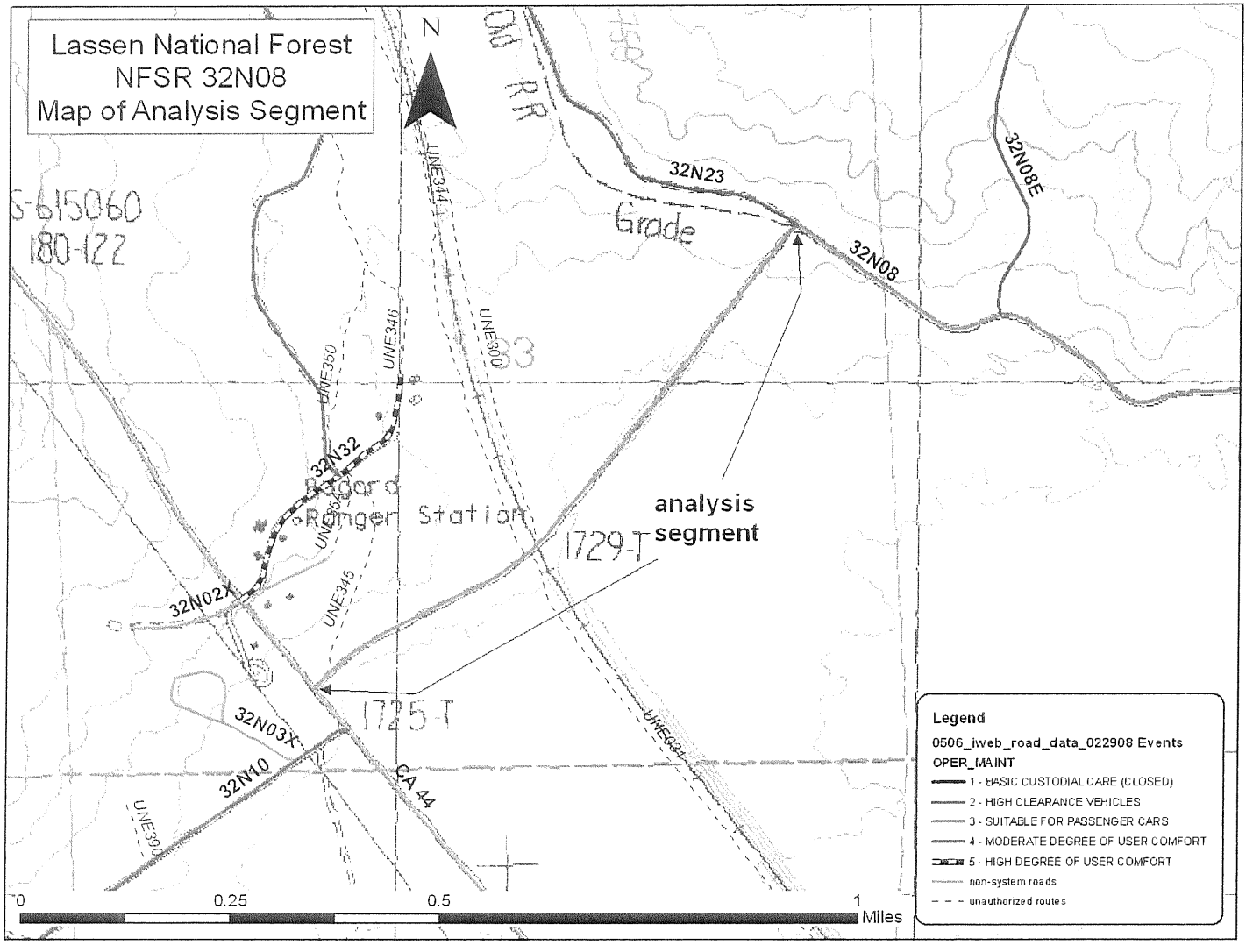


Figure 1: Map of road segments analyzed.

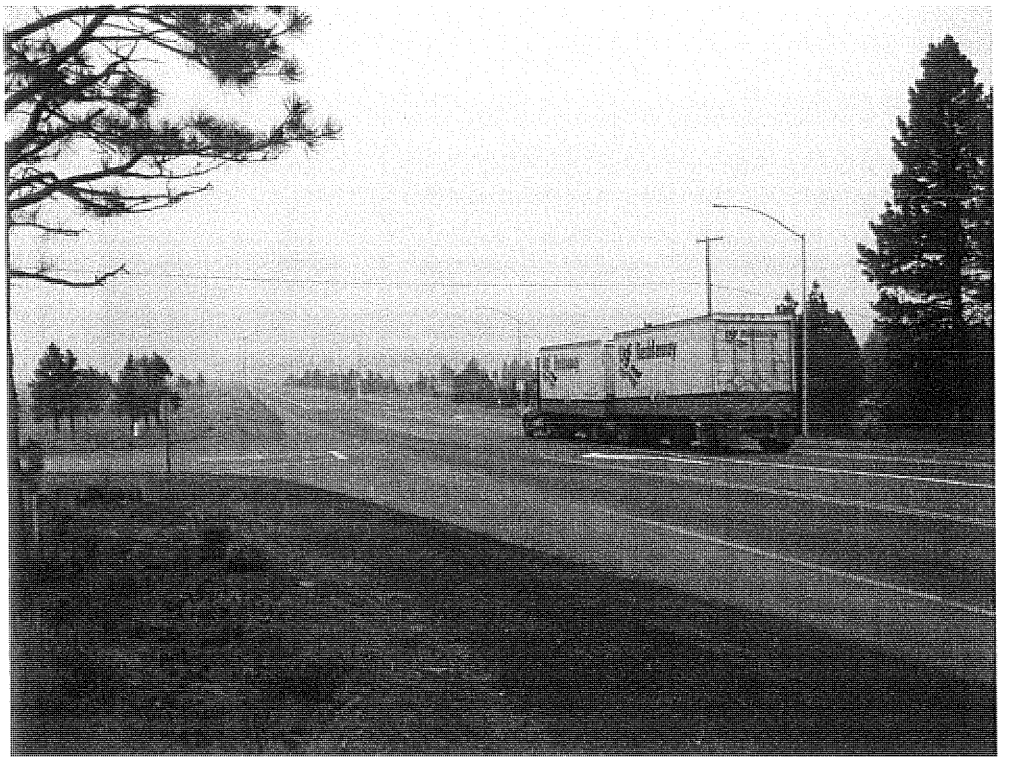


Figure 2: Looking across State Route 44 from NFSR 32N08, showing the potential motorized mixed use connection route crossing the State highway.

Figure 3: Highway approach apron along the beginning of the study segment.

Figure 4: Intersection with SR-44 and the study segment. NFSR 32N10 can be seen in the distance.

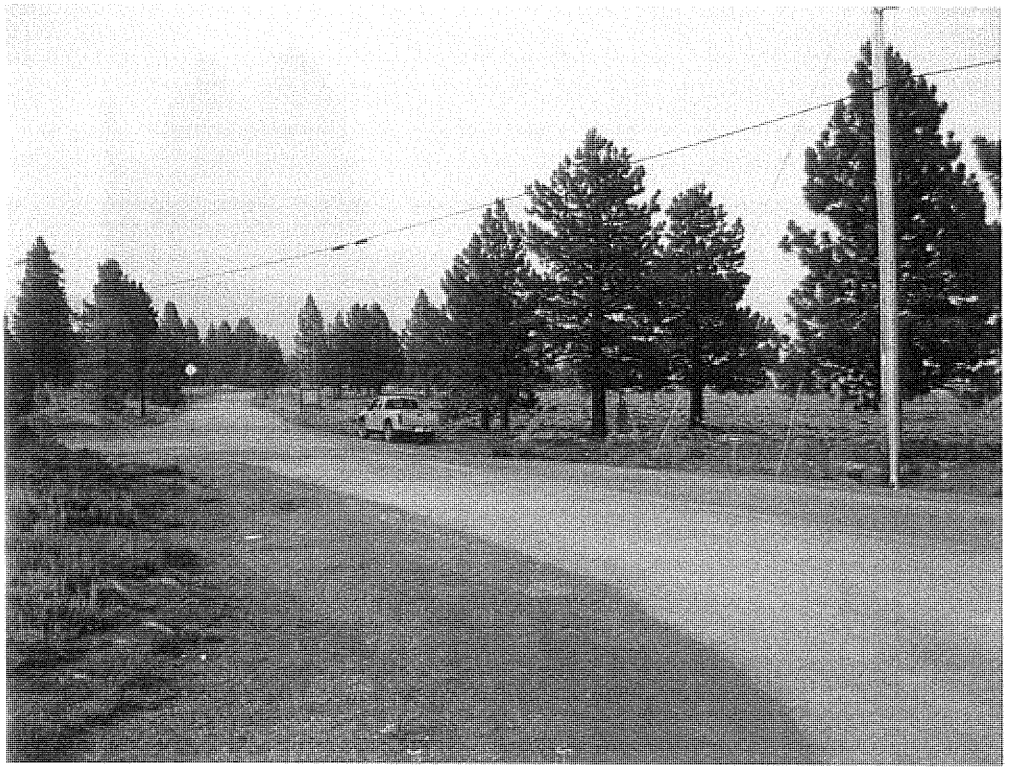


Figure 5: Looking down the study segment from the intersection with SR-44.

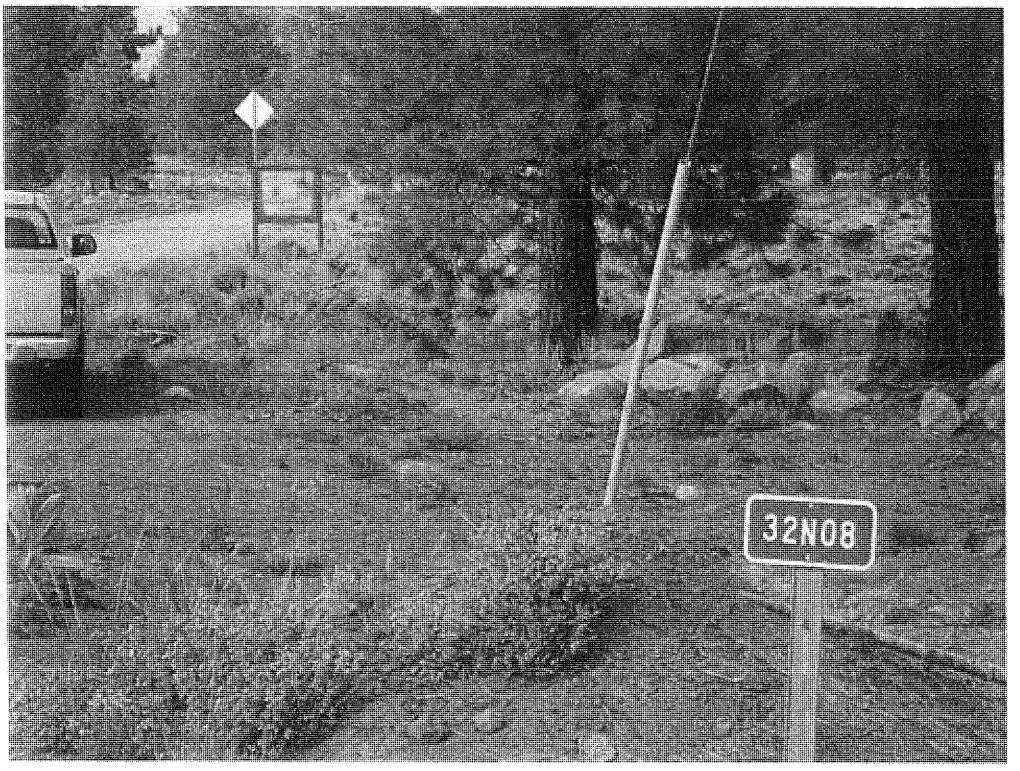


Figure 6: Study segment signing.

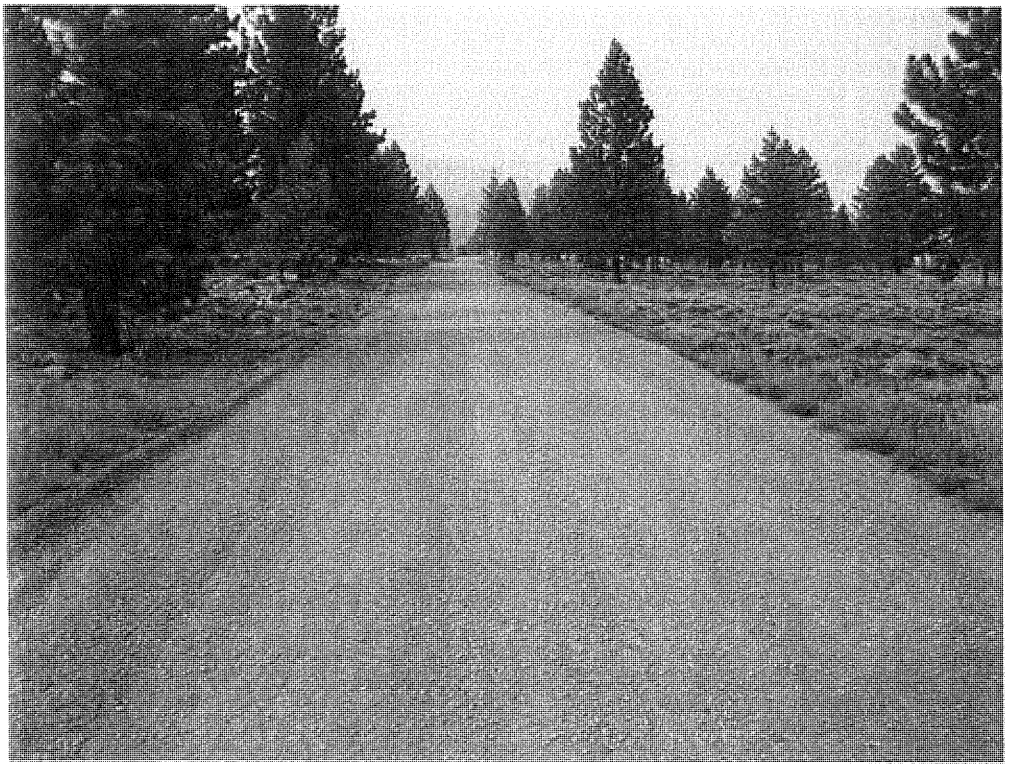


Figure 7: Study segment straightaway.

Figure 8: Railroad crossing along the study segment.

Figure 9: Study segment straightaway; intersection with water source access on the right.

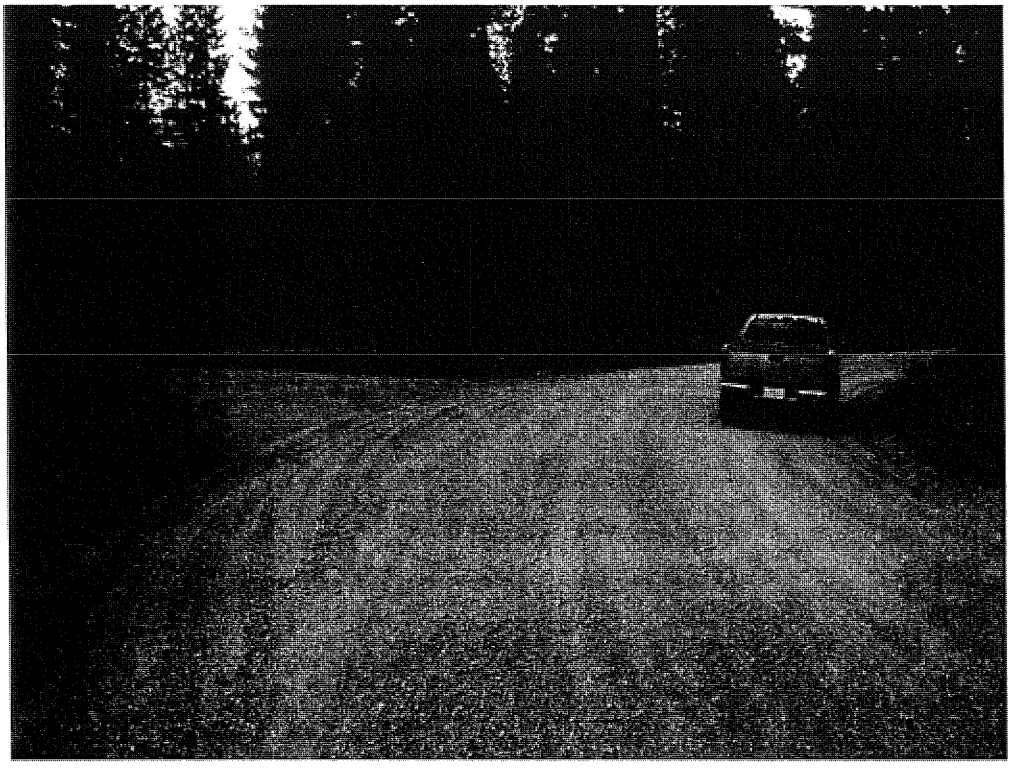


Figure 10: Intersection at the north end of the study segment.

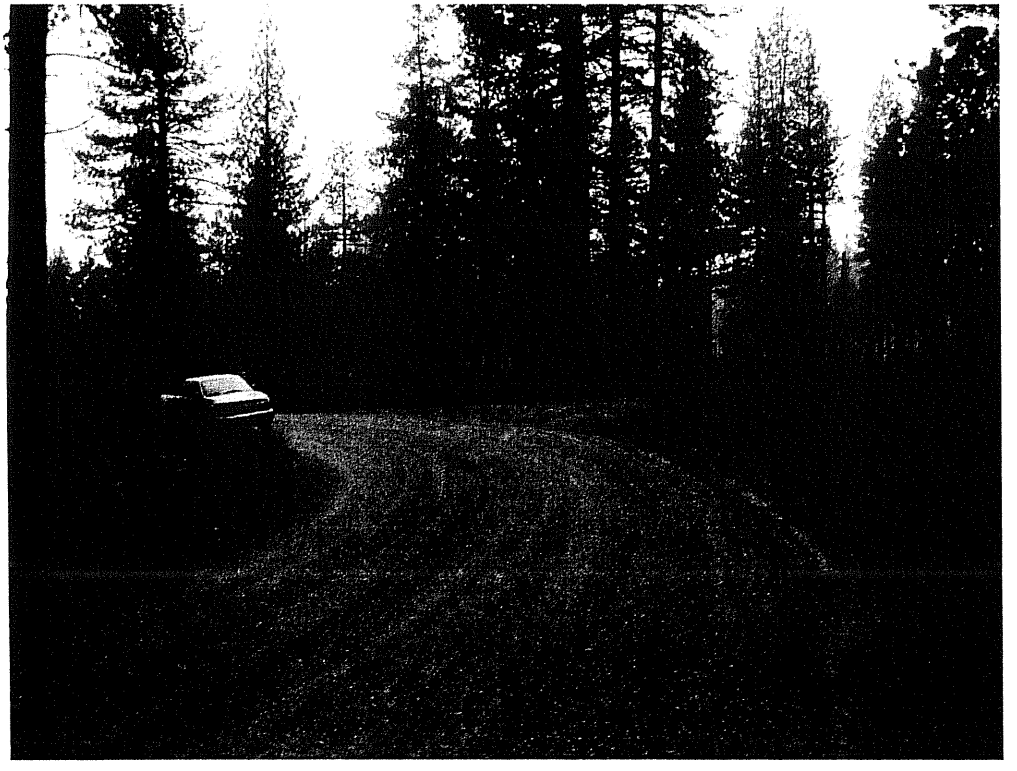


Figure 11: End of the study segment; intersection with NFSR 32N23 on right.

Prepared by:
Chris Bielecki, Supervisory Civil Engineer

Engineering Report:

Lassen National Forest

Eagle Lake Ranger District

Analysis of

National Forest System Road (NFSR)

32N09

#32N09A

for Motorized Mixed Use Designation

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

Road Number: **32N09/A** Road Name: **Bogard Buttes/Cone Lake**

Introduction: The 32N09/A Road segments studied are located on the west side of Lassen National Forest (LNF) in the Bogard Buttes quadrangle.

NFSR 32N09 ML3 begins at the intersection with 32N10 in Section 14 of said quadrangle and trends west by north along the northern flanks of the four Bogard Buttes, meanders past Lost Spring and Pole Springs in the Prospect Peak quadrangle and within ¼ mile of the northern boundary of the Lassen Volcanic National Park, then intersects with a terminus at 32N21, the Butte Lake Campground Road. The approximate road length is approximately 6.0 miles.

Segment 1 (32N09) starts at approximate road mile 1.00 at the intersection with 32N10 and intersects with 32N09A and 32N09A1 for a distance of approximately 1.00 miles.

Segment 2 (32N09A) starts at the intersection with 32N09 and intersects with 32N09A1 for a distance of approximately 0.25 miles.

These roads are 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 32N09 / 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: **1.00** Ending Mile Post: **2.00**

32N10 to 32N09A

Traffic Service Level: ☐ A ☐ B ☒ C ☐ D

Objective Maintenance Level: ☐ 1 ☐ 2 ☒ 3 ☐ 4 ☐ 5

Operational Maintenance Level: ☐ 1 ☐ 2 ☒ 3 ☐ 4 ☐ 5

Segment 2: Beginning Mile Post: **0.00** Ending Mile Post: **0.25**

32N09 to 32N09A1

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 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 possession of a valid driver's license.

Based on the Forest Service Directives and Travel Management purpose and need, to allow all motor vehicles on this segment with a designation of motorized mixed use for a segment or segments with a cumulative distance of 3 miles or less could be consistent with state and federal laws and directives with appropriate mitigation for safety concerns.

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

Road 32N09/A / ML3 currently encourages use as an objective ML3 and operational ML3 collector road and functions as a forest highway connecting the 32N10 road to the Hat Creek Ranger District, tree seed plantations, and defensible fuel profile zones.

These forest highways connects to all weather asphalt surfaced State Highway 44 via 32N21 the Butte Lake Campground road and provides ingress and egress to a myriad of defensible fuel profile zones – DFPZ's, forest plan units for timber harvesting, and wildlife management areas.

32N09 is utilized by forest personnel for ingress and egress to Defensible Fuel Profile Zones – DFPZ's and their associated vegetation management and fire suppression functions, for wildlife management, and for recreation access to a forest destination, Butte Lake Campground.

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

accordance with the Highway Safety Act.

The proposed use for this segment of 32N09/A / 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 mitigation measures, especially improved road / safety signing and comprehensive public education / outreach, will reduce crash probability.

Road mitigation should include implementing a comprehensive communication, management, and enforcement plan. Associated implementation costs will depend on the designated allowed use for the road.

NFSR road 32N09/A are an observed 1+ lane operational maintenance level 3 standard throughout its extent.

The road is maintained to a standard allowing efficient passenger car through traffic at speeds up to 40 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. Crash severity is determined by the dynamics of a vehicles speed or combined speeds, mass, and configurations.

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. These roads are 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.
- 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 a licensed 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 32N09/A appears to be consistent with state law and forest policy for operational maintenance level 3 roads.

2. Crash history:

There are no reported motor vehicle crashes on these roads.

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)

2 civilian motor vehicles were observed along the 32N09 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: 40 mph.

5. Road surface type:

The road has a combination of native crushed rock aggregate and volcanic cinder surfacing. The majority of the traveled way is constructed upon a raised roadbed and the road has drainage ditches, singular culverts, and ditch-relief culverts. The road is approximately 16'-20' wide. The road traveled way is very dry and contains many fine aggregate components and produces prodigious quantities of dust when driven over. Road shoulders are soft and unconsolidated.

6. Intersections with other roads and trails:

Road segment 1 intersects with the following forest roads.

- 31N83
- 32N60
- 32N09L
- 32N09A
- 32N09A1

Road segment 2 intersects with the following forest roads.

- 32N09
- 32N09A1

The maintenance level 2 roads have historically provided forest management access, fire suppression access, commodity haul, forest grazing access, and hunting and firewood gathering access. The proposed MMU intersections of 32N09 /ML3 may result in higher traffic merging speeds.

7. Other roadway factors:

- Roadway alignment was adequate for the assigned maintenance level. Alignment provides for vehicle closing speeds of approximately 80 mph.
- The road was maintained with a traveled way width of 16'-20".
- Raised roadbed creates soft unconsolidated shoulders. Emergency vehicle run-out among numerous lava rocks, Juniper trees, mixed conifer trees, and brush may lead to loss of control for vehicle operators and/or collisions with immobile objects.
- The road provides administrative access for commodity haul, fire prevention patrol access, fire suppression access, wildlife management,

and recreation. Summer and fall seasons will experience peak use, winter and spring can bring snowy and icy conditions.

8. Roadside conditions:

- The segments run through high elevation, 5,000 ft., open conifer forest, open Juniper, brush, native grass and lava rock forest land.
- Cross slope is 0-2%.
- Grade is 0-2%.
- Pine and Juniper trees are ≤18" and numerous lava ejecta rocks.
- 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.).
- Improved route identification and safety 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 road-parallel 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", 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:

Tim Dedrick July 29, 2009

Prepared by Tim Dedrick
Lassen NF Civil Engineer

Date

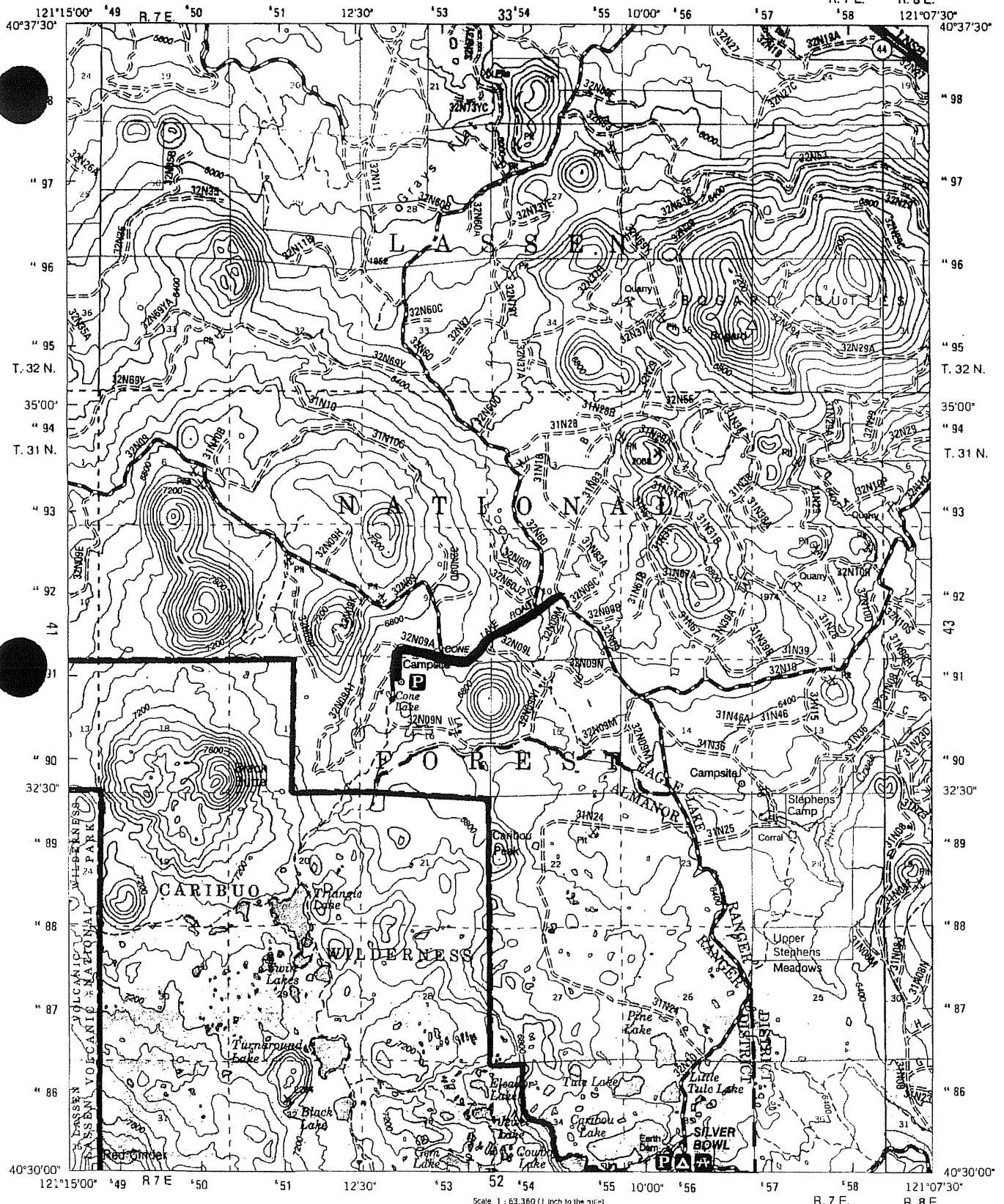
George Kulick
Region 5 Qualified Engineer

Date

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

UNITED STATES
DEPARTMENT OF AGRICULTURE
FOREST SERVICE

BOGARD BUTTES, CA
43 40121-E2 1999



Produced by the U.S. Geological Survey
Revised by the U.S. Forest Service
Areas outside the National Forest System lands may not have been revised.
Control by USGS and NOS/NOAA
Compiled from aerial photographs taken 1980. Revised from aerial photographs taken 1991 and 1993. Partial field check by U.S. Forest Service 1995
North American Datum of 1927 (NAD 27). Projection: California coordinate system, zone 1 (Lambert Conformal Conic)
National Forest System lands. Revised 1997.
This map is not a legal land line or ownership document. Public lands are subject to change and leasing, and may have access restrictions; check with local offices. Obtain permission before entering private lands.

Scale 1 : 63,360 (1 inch to the mile)
1 .5 0 1 Miles
1000 0 5000 10 000 Feet
Contour Interval 20 Feet

MN GN
1°09' 21 MILS
16° 293 MILS
UTM GRID AND 1997 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

1 Swains Hole
2 Poison Lake
3 Harvey Mountain
4 Prospect Peak
5 Pine Creek Valley
6 Mount Harkness
7 Red Cinder
8 Swain Mountain

ADJOINING 7.5' QUADRANGLES

HIGHWAYS AND ROADS

395 U.S.
139 State
11 County
30 National Forest
Gate

Primary Highway
Secondary Highway
Improved Road, Paved
Improved Road, Gravel
Improved Road, Dirt
Composition Unspecified
Unimproved Road
OHV 4 Wheel Drive Road
National Recreation Trail
Trail

Engineering Report:

Lassen National Forest

Eagle Lake Ranger District

Analysis of

National Forest System Road (NFSR)

32N10

for Motorized Mixed Use Designation

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

Road Number: **32N10** Road Name: **Robbers Spring**

Introduction: This report documents the engineering analysis for various segments of the "Robbers Spring Road". NFSR 32N10 is located near Bogard Buttes, and connects California State Highway Route 44 with California State Highway Route 36. Lassen National Forest (LNF) currently manages this road as open only to highway-legal vehicles.

The study 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, that are not licensed or certified for general operation on public roads within the State) from the beginning termini to the end termini.

The LNF Travel Analysis identified this road section as a potential connection for recreational off-highway vehicle (OHV) loop opportunities on the adjacent road network, which is currently managed as open to non-highway-legal vehicle use. In the vicinity, segments of NFSRs 32N08 (across SR-44) and 32N22 were also recommended for engineering analyses of motorized mixed use. The results can be found in a separate engineering report.

Study Segment road data from the forest transportation atlas:

Segments analyzed: SR-44 to NFSR 32N22, SR-44 to UNE392, NFSR 31N28 to NFSR 31N15, NFSR 31N24 to 31N25, NFSR 31N24 to NFSR 31N10A

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:

The first 500' (approximate) of the road is included in Caltrans (California Department of Transportation) agreements. This includes the SR-44 US Department of Transportation easement, and a FS issued Special Use Permit for Caltrans to manage a highway rest area west of, and connecting to, NFSR 32N10.

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

The proposed segments 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.

In addition, the proposed crossing of SR-44 would not currently allow OHVs to cross the roadway at an angle of approximately 90 degrees, and therefore would not comply with State law. The existing situation would require OHVs to operate within the Caltrans right-of-way for a longitudinal distance of 300' before exiting.

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

The road currently serves as an arterial road and provides a connection between California State Highway Route 44 and California State Highway Route 36.

The road was designed as a single-lane road but now is managed as a double-lane road, with a width of approximately 24'.

NFSR 32N10 has traditionally served administration of the LNF, including fuels and vegetation management, commodity extraction, fire suppression, and recreation. The road provides the primary access to the Caribou Wilderness area, and also provides the access to Silver Lake for traffic coming from the north and south.

The road is considered a highway by the forest service and is managed in accordance with the Highway Safety Act. The road is managed for passenger car vehicles and is appropriately posted with horizontal route identification markers. Most of the year it is currently managed as open only to highway-legal vehicles; however, when snow-covered the road is groomed for winter use—including skiers and snowmobiles.

The study segments are 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 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 improving sight distance by removing brush, maintaining proper signing, and providing better communication, will reduce crash probability.

Road hazard 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.

The road is managed and identified as a forest distinctive route, a category used for significant, highly traveled routes through the Forest. Distinctive routes are passable by passenger cars during the normal season of use, and the appropriate travel management strategy is to encourage passenger car travel.

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.

Designating the road segments for motorized mixed use, with mitigation, results in a risk assessment of moderate crash probability and high crash 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. Culverts are common drainage features on maintenance level 2 roads and standard on maintenance level 4 roads. Often roads on this national forest could be classified one maintenance level higher.
- Allowing non-highway-legal vehicles to use the road segments 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 current use on NFSR 32N10 appears to be consistent with State law and Forest Service policy for operational maintenance level 4 roads.
- The roadbed is raised and appears to provide for sufficient drainage and passenger car travel.
- A new year-round trailhead and parking area is being constructed immediately south of the Caltrans rest area. Although primarily built as a snowmobile and non-motorized facility, this may result in additional OHVs in the vicinity.
- Commercial, residential, and administrative traffic is expected along this segment.

2. Crash history:

At the time of this analysis, there is one record of a crash on this road. It took place on July 16, 2003, involving an ATV. No additional information is available at this time.

3. Observed 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 an observation, 6/25/08 @ 1845-1915

2 passenger cars utilized the segment from SR-44 to the rest area.

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

The road segments were driven at various speeds to simulate conditions encountered by a reasonable and prudent driver in a passenger car.

45 mph based on observation and engineering judgment.

5. Road surface type: coordinate

Aggregate, well maintained, smooth.

6. Intersections with other roads and trails:

The sight distances at the intersections are rated good. The intersection with NFSR 32N22 has a yield sign on NFSR 32N22 eastbound only. There are multiple unauthorized routes that access 32N10 in the study segment. South of the rest area there is an existing route accessing a corral.

The intersection with SR-44 does not have route identification for NFSR 32N10 in place. This intersection includes a transition, deceleration lane for east bound traffic entering the rest area and study segment. Through traffic speed limit is 65 mph in this section.

7. Other roadway factors:

- Evidence of recent vegetation treatments was observed at the NE corner of the intersection with NFSR 32N22.

8. Roadside conditions:

- The embankments were gentle.
- Double ditches were constructed throughout most of the study segment.
- Small trees (~12") were found encroaching along the shoulders.
- Larger trees (>24") are located along the segments outside of clearing limits.

9. Risk without mitigation if designating the roadway "open to all motor vehicles":

Crash probability: ☐ High ☒ Med ☐ Low

Crash severity: ☒ High ☐ Med ☐ Low

Crash probability was assessed based on:

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

Crash severity was assessed based on:

- Roadway geometry (embankments, slopes, horizontal and vertical alignments), 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 and trees, especially along curves and at intersections, to improve sight distance.

  warning: improved sight distance may result in higher speeds
- Remove of roadside hazards such as boulders, trees, and debris.
- 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". Continue to manage the road in accordance with maintenance level 4 standards.

- Maintain all roadway signing to MUTCD standards.
- Consider designing new trails connecting to the 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", including highway legal and non-highway-legal vehicles. Continue to maintain the road in accordance with maintenance level 4 standards.

- 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.
- Coordinate with the State and revise existing agreements with Caltrans as applicable.
- Notify the Commissioner of the California Highway Patrol and review their opinion.
- Approximate Implementation Cost: $ 2500

  This does not account for the additional long-term annual maintenance cost increase associated with maintaining these critical safety corridors.
- Expected risk:

  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 segments in accordance with maintenance level 2 standards. This would require removing culverts and ditches, reconstructing the template and narrowing the roadway.

- Based on the quality of the road, the amount of thru traffic, the distinctive route status, and the change from the rest of the arterial route, this change would not be consistent with the road management objectives.
- Work with Caltrans to make necessary adjustments to existing agreements.
- Approximate Implementation Cost: ~$75k per mile

- Expected risk

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

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

Alternative 4: Construct trail segments to allow non-highway-legal vehicles to bypass the road and access adjacent maintenance level 2 roads.

- The terrain in this area is relatively gentle and would provide for a parallel trail system. However, construction through Caltrans right-of-ways and within areas managed by Caltrans special use permits will require coordination and agreement modifications as appropriate.
- A large, year-round parking lot will be available near the beginning of the study segment.
- Approximate implementation cost: ~ $8,000 per mile

  This does not include the planning, agreements, and long term maintenance costs associated with a new NFS trail.

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

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

Final Comments:

Signing on national forest system roads will 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:

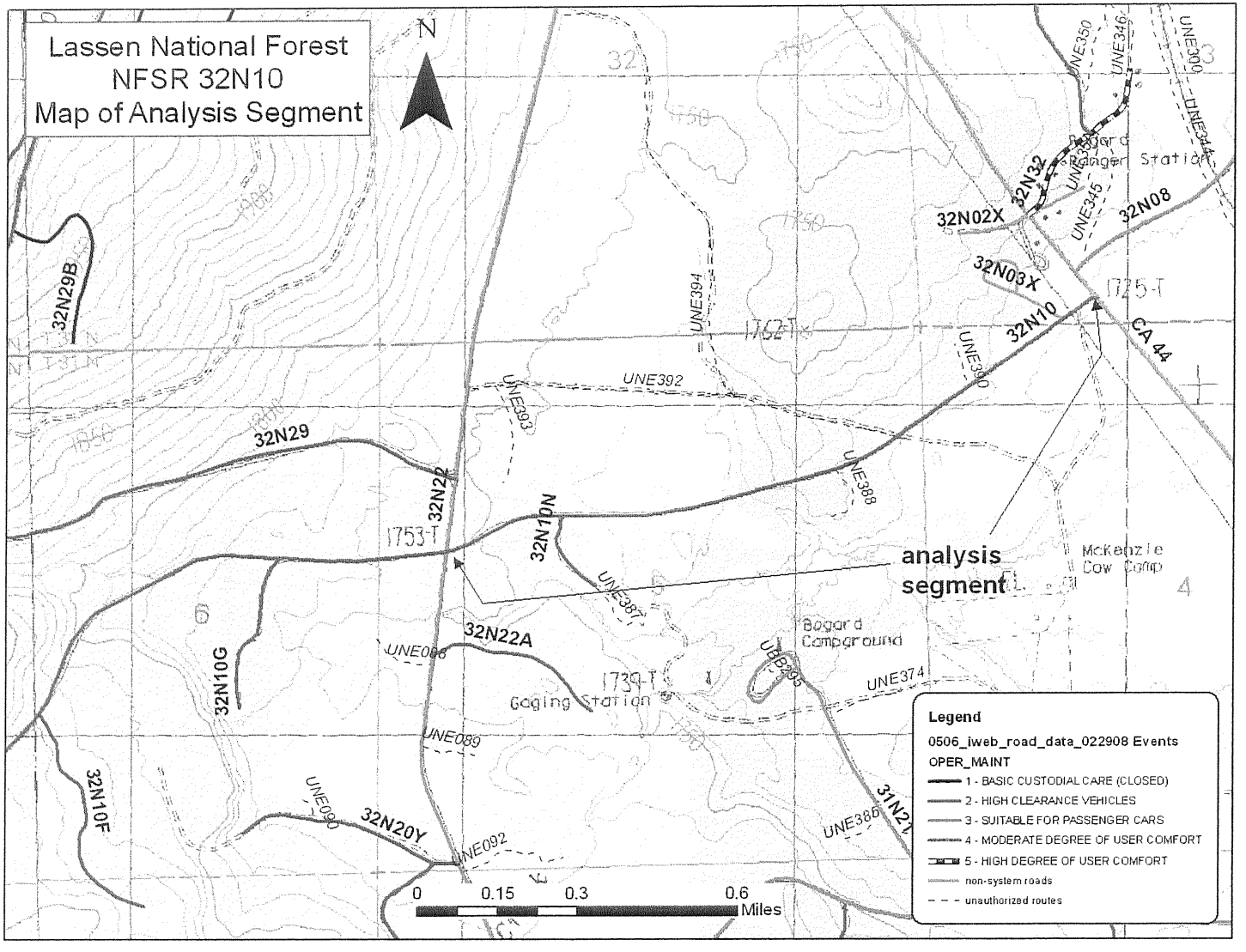


Figure 1: Map of segment 1.

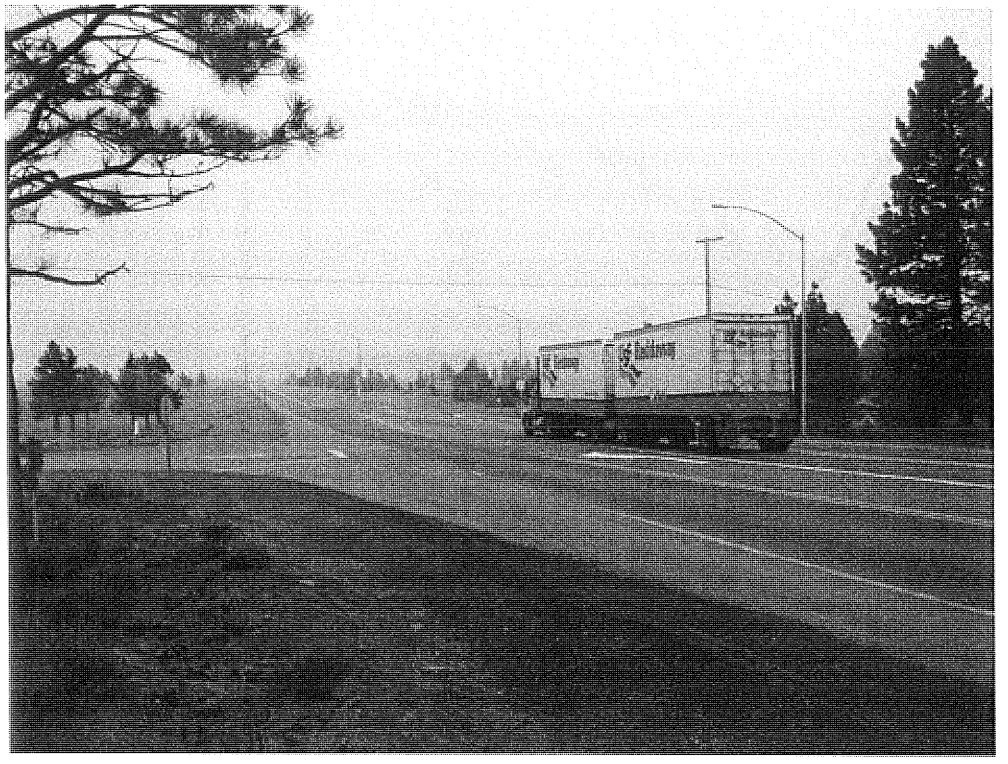


Figure 2: Looking across State Route 44 from NFSR 32N08, showing the potential motorized mixed use connection route crossing the State highway.

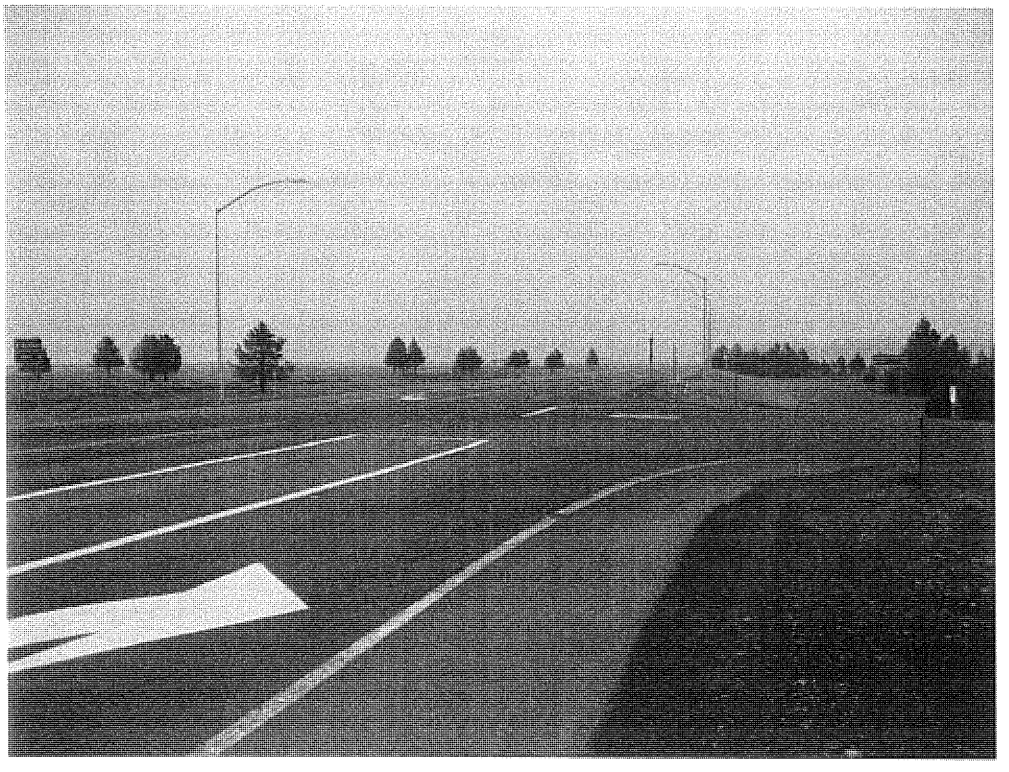


Figure 3: Looking east along SR-44, with the intersection of NFSR 32N10 on the right.

Figure 4: Looking down the study segment of NFSR 32N10, with the CA DOT rest area on the right.

Figure 5: Looking down the study segment, south of the rest area turnoff.

Figure 6: Typical roadway encountered between SR-44 and NFSR 32N22.

Figure 7: Looking towards the study segment, across the intersection with NFSR 32N22.

Figure 8: Looking from NFSR 32N22 west, towards the intersection with NFSR 32N10 (left & right). Note yield sign facing away.

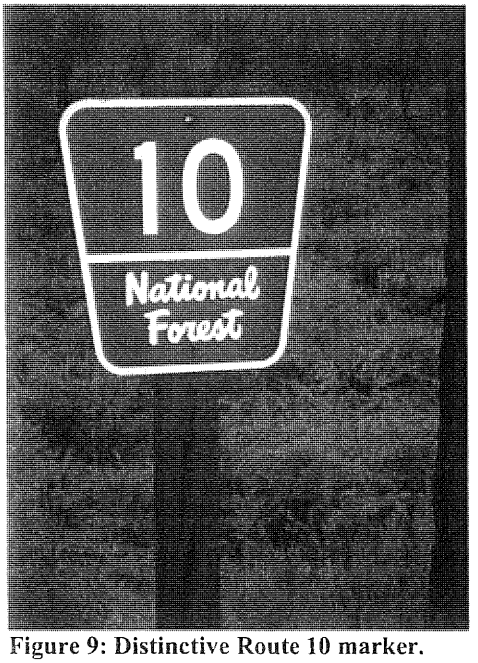


Figure 9: Distinctive Route 10 marker.

Prepared by:

Chris Bielecki, Supervisory Civil Engineer

Engineering Report:

Lassen National Forest

Hat Creek Ranger District

Analysis of

National Forest System Road (NFSR)

32N12

for Motorized Mixed Use Designation

Forest: **Lassen** District: **Hat Creek**

Road Number: **32N12** Road Name: **West Prospect Lookout**

Introduction: This report documents the engineering analysis for 2 segments of the "West Prospect Lookout Road", totaling 0.8 miles in length. The study segments are south of Old Station, near the northern boundary of Lassen Volcanic National Park (LVNP). The route connects highway 44/89 to a Forest Service lookout and other electronic facilities on Prospect Peak. Lassen National Forest (LNF) currently manages this road as open only to highway-legal vehicles.

The study 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, that are not licensed or certified for general operation on public roads within the State) from the beginning termini to the end termini.

The LNF Travel Analysis identified these road sections as potential connections for recreational off-highway vehicle (OHV) loop opportunities on the adjacent road network, which is currently managed as open to non-highway-legal vehicle use.

In the vicinity three segments of route 32N13 were also recommended for an engineering analysis of motorized mixed use. The results can be found in a separate engineering report.

Study Segment road data from the forest transportation atlas:

Segment 1: Beginning Mile Post: **0.8** Ending Mile Post: **1.1**

Segment 2: Beginning Mile Post: **3.3** Ending Mile Post: **3.8**

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:

N/A

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

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 provides access from California State Highway Route 44/89 to the West Prospect Lookout. The road is a single-lane road with turnouts. The favorable alignment along with greater than ordinary width (14 – 18 feet) provides for speeds up to 40 MPH.

NFSR 32N12 has traditionally served administration of the LNF, including fuels and vegetation management, commodity extraction, fire suppression, and recreation.

The road is considered a highway by the Forest Service and is managed in accordance with the Highway Safety Act. The road is managed for passenger car vehicles and is appropriately posted with horizontal route identification markers. Most of the year it is currently managed as open only to highway-legal vehicles; however, when snow-covered the road is open for winter use—including ATVs, 4WDs, skiers and OSVs (including snowmobiles).

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 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 improving sight distance by removing brush, maintaining proper signing, and providing better communication, will reduce crash probability.
Road hazard 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.
The road is maintained to a standard allowing efficient passenger car through traffic at speeds up to 35 mph for reasonable and prudent drivers on straightaways. Designating the road segment for motorized mixed use, with mitigation, results in a risk assessment of moderate crash probability and moderate crash severity on segment 1 and a moderate crash probability and high crash severity on segment 2.

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. Culverts are common drainage features on maintenance level 2 roads and standard on maintenance level 4 roads. Often roads on this national forest could be classified one maintenance level higher.

- Allowing non-highway-legal vehicles to use the road segments 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 current use on NFSR 32N12 appears to be consistent with State law and Forest Service policy for operational maintenance level 3 roads.
- The roadbed is raised and appears to provide for sufficient drainage and passenger car travel.
- Commercial, recreational, and administrative traffic is expected along this segment.

2. Crash history:

No record of accidents

3. Observed 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 an observation, 6/25/08 @ 1630-1730.
1 passenger car (Jeep), 1 BLM fire engine

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

The road segments were driven at various speeds to simulate conditions encountered by a reasonable and prudent driver in a passenger car.

Segment 1:
30 mph based on observation and engineering judgment. The segment features many operator distractions that require a slow, attentive speed, including: 2 trailheads, campsites, a 1-lane bridge, lava flows.

Segment 2:
35 mph based on observation and engineering judgment.

5. Road surface type: coordinate

Both segments have aggregate surfacing and single lane traveled ways with turnouts. Segment 1 is approximately 14' wide. Segment 2 is approximately 14' – 16' wide.

6. Intersections with other roads and trails:

The sight distances at the managed intersections are rated good. The intersection with NFSR 33N22 on segment one and 32N38 on segment two allows for higher merging speeds since the road lacks the proper entrance treatment. Within the first study segment, there are multiple unauthorized routes accessing 32N12 that exist in association with uncontrolled dispersed camping along Hat Creek.

7. Other roadway factors:

- None

8. Roadside conditions:

- Raised route typical of turnpike construction (1 foot average fill) on segment one
- On segment two the design prism is typical of side hill construction with inboard ditch plus x-drain relief

9. Risk without mitigation if designating the roadway "open to all motor vehicles":

Segment one

Crash probability: ☐ High ☒ Med ☐ Low

Crash severity: ☐ High ☒ Med ☐ Low

Segment two

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 and trees, especially along curves and at intersections, to improve sight distance.
  warning: improved sight distance may result in higher speeds
- Removal of roadside hazards such as boulders, trees, and debris.
- 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". Continue to manage the road in accordance with maintenance level *3* standards.

- Maintain all roadway signing to MUTCD standards.
- Approximate Implementation Cost: $ 0
- Expected risk:
  Segment one
  Crash probability: ☐ High ☐ Med ☒ Low

  Crash severity: ☐ High ☒ Med ☐ Low

  Segment two
  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. Continue to maintain the road in accordance with maintenance level *3* standards.

- 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.
- Coordinate with the State and revise existing agreements with Caltrans as applicable.
- Notify the Commissioner of the California Highway Patrol and review their opinion.
- Approximate Implementation Cost: $ 5500
  This does not account for the additional long-term annual maintenance cost increase associated with maintaining these critical safety corridors.
- Expected risk:
  Segment one
  Crash probability: ☐ High ☒ Med ☐ Low

Crash severity: ☐ High ☒ Med ☐ Low

Segment two
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 segments in accordance with maintenance level 2 standards. This would require removing culverts and ditches, reconstructing the template and narrowing the roadway.

- Based on the quality of the road, the amount of thru traffic, the distinctive route status, and the change from the rest of the collector route, this change would not be consistent with the road management objectives.
- This option is not currently feasible, based on the high standard of existing road
- Approximate Implementation Cost: $ 100,000
- Expected risk on both segments

Crash probability: ☐ High ☐ Med ☒ Low

Crash severity: ☐ High ☒ Med ☐ Low

Alternative 4: Construct trail segments to allow non-highway-legal vehicles to bypass the road and access adjacent maintenance level 2 roads.
Segment one

- The terrain in this area is moderate and would provide for a parallel trail system.
- This option may also necessitate additional bridges to cross Lost Creek and Hat Creek.
- Approximate implementation cost: $250,000 with bridges, $20,000 without.
  This does not include the planning, agreements, and long term maintenance costs associated with a new NFS trail.

Crash probability: ☐ High ☐ Med ☒ Low

Crash severity: ☐ High ☐ Med ☒ Low

Segment two

- The terrain in this area is on moderate slopes and would provide for a

- Approximate implementation cost: $15000
  This does not include the planning, agreements, and long term maintenance costs associated with a new NFS trail.

  Crash probability: ☐ High ☐ Med ☒ Low

  Crash severity: ☐ High ☐ Med ☒ Low

Final Comments:

Signing on National Forest System roads will 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:

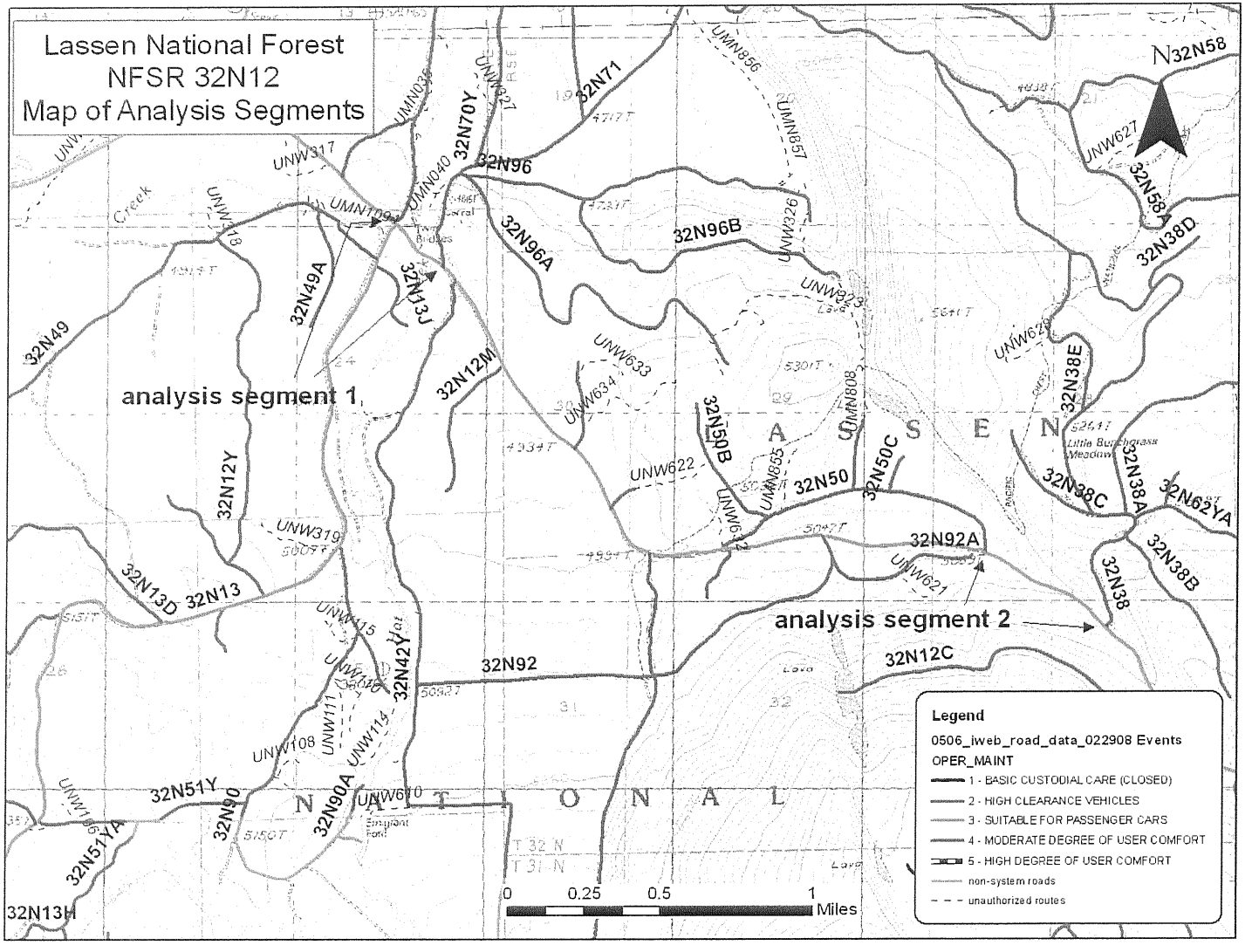


Figure 1: Map of road segments analyzed.

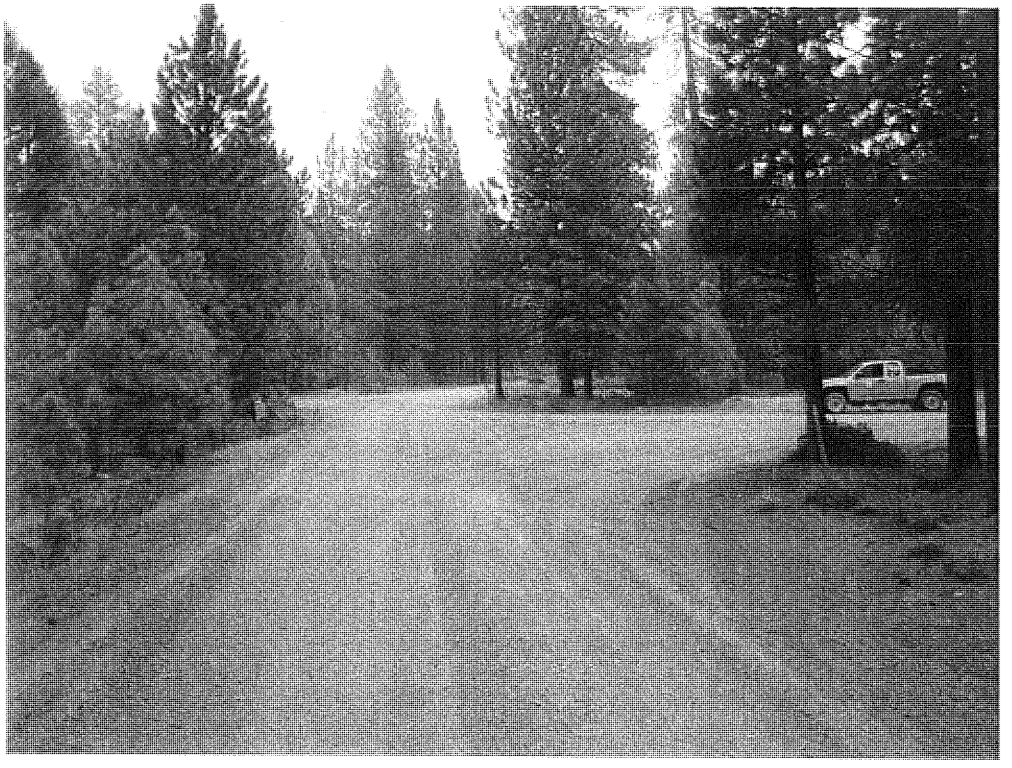


Figure 2: Looking at segment 1, with 32N13 on the right.

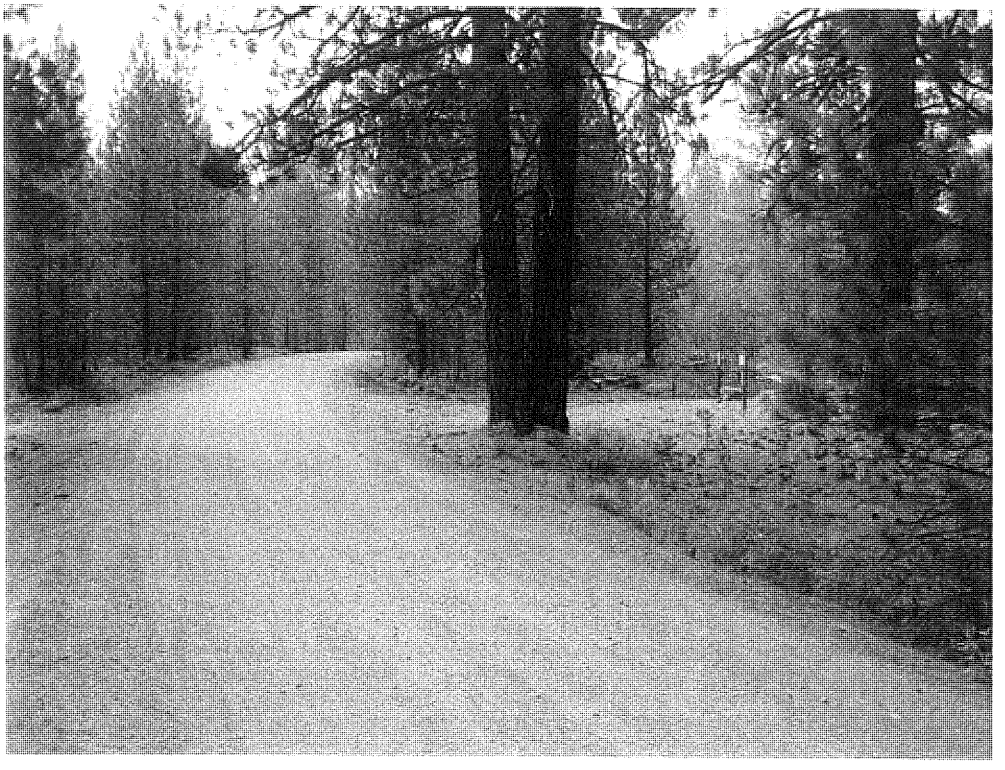


Figure 3: Segment 1.

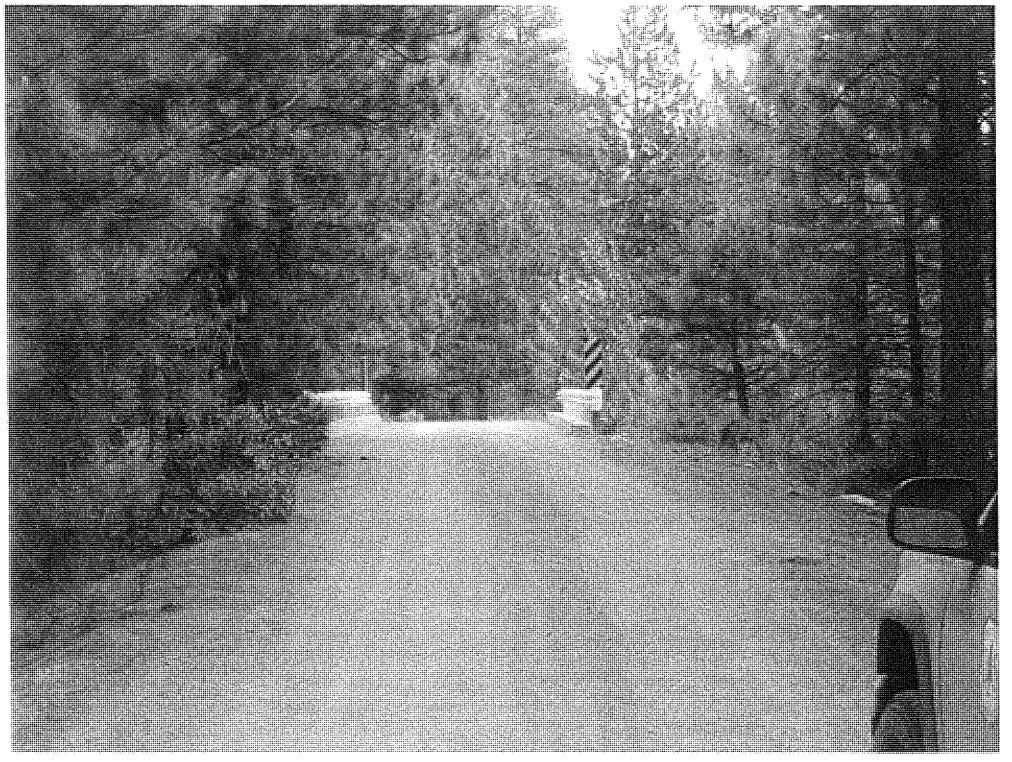


Figure 4: Bridge along segment 1.

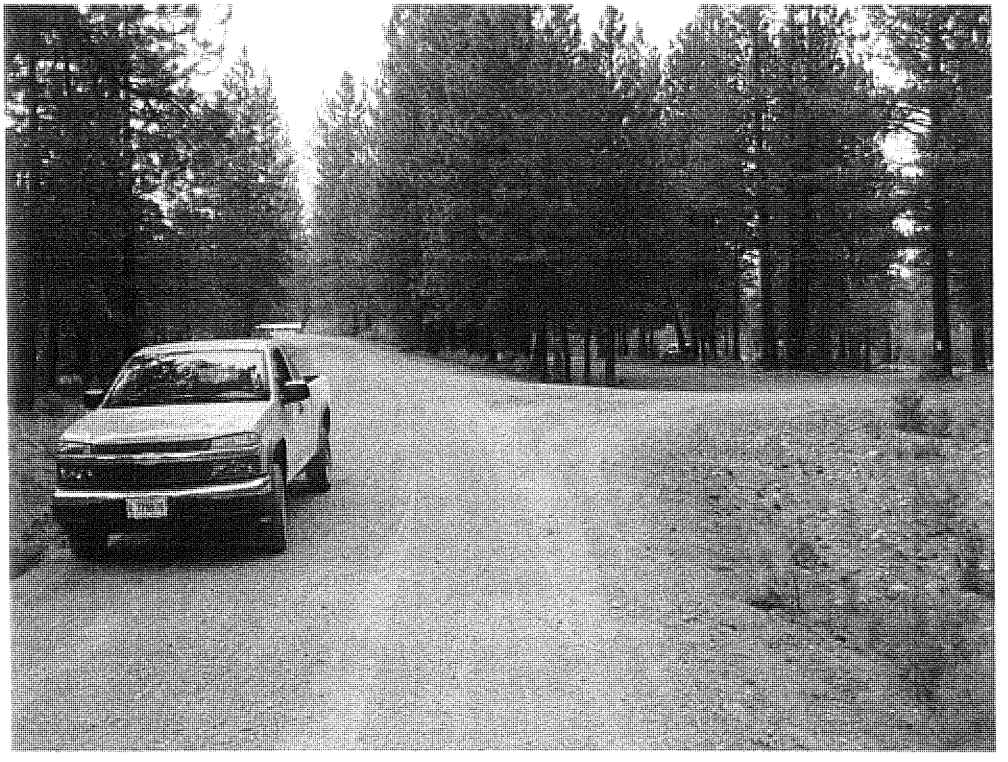


Figure 5: Looking back at a bridge, with route 32N71 on the right.

Figure 6: Segment 2, route 32N50 on left.

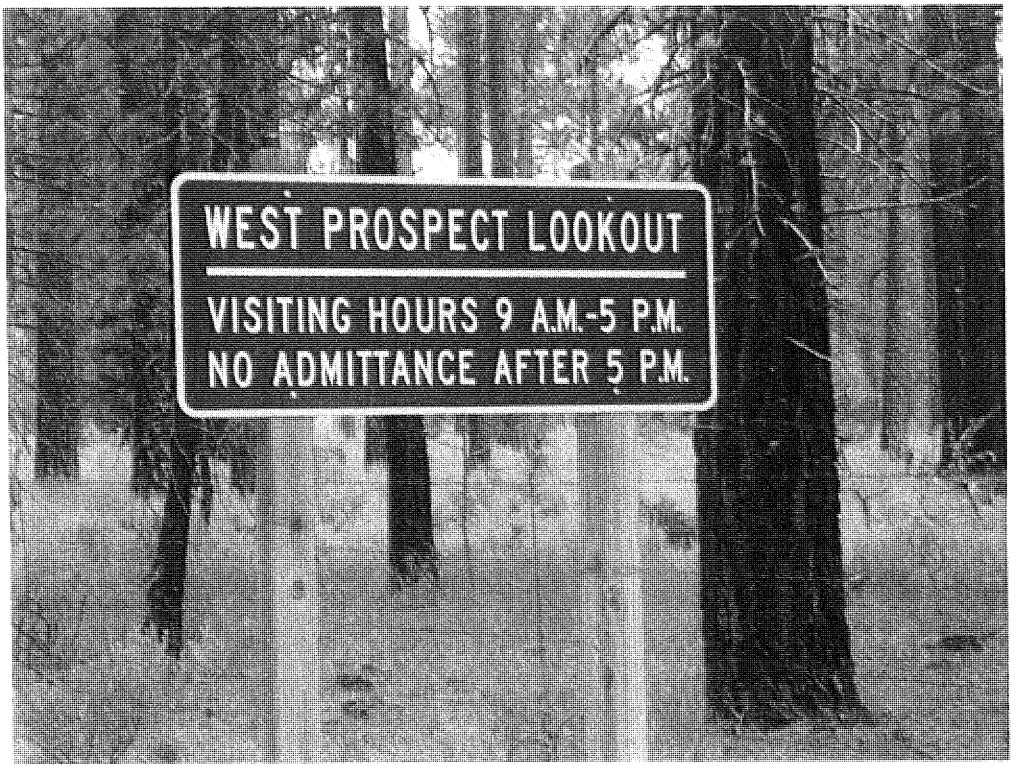


Figure 7: Lookout information sign.

Figure 8: Segment 2, typical section.

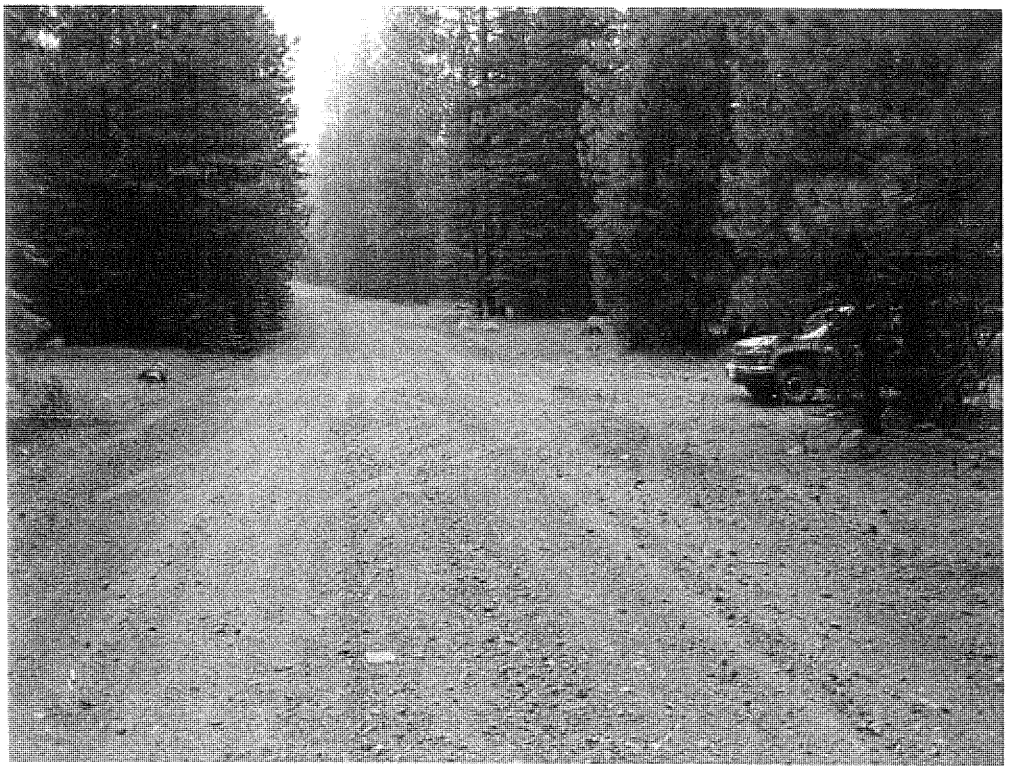


Figure 9: Looking back at segment 2, intersection with 32N38 on right.

Prepared by:
Chris Bielecki, Supervisory Civil Engineer

Engineering Report:

Lassen National Forest

Hat Creek Ranger District

Analysis of

National Forest System Road (NFSR)

32N13

for Motorized Mixed Use Designation

Forest: **Lassen** District: **Hat Creek**

Road Number: **32N13** Road Name: **Emigrant Road**

Introduction: This report documents the engineering analysis for 3 segments of 32N13 – Emigrant Road, totaling 1.4 miles in length. The study segments are southwest of Old Station, near the northern boundary of Lassen Volcanic National Park (LVNP). The route connects highway 44/89 to NFSR 32N12 which has two segments that are also recommended for engineering analysis of motorized mixed use. The route is entered onto by NFSR 32N75Y at the approximate midpoint. By past field observations it is apparent that the northwest portion to highway 44/89 carries more traffic volume from 32N75Y and thus has more ADT than the northeast portion to NFSR 32N12. Only a short portion of segment one is to the northwest of NFSR 32N75Y, the rest plus segments two and three are within the northeast portion of the route. Lassen National Forest (LNF) currently manages this road as open only to highway-legal vehicles.

The study 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,

that are not licensed or certified for general operation on public roads within the State) from the beginning termini to the end termini.

The LNF Travel Analysis identified these road sections as potential connections for recreational off-highway vehicle (OHV) loop opportunities on the adjacent road network, which is currently managed as open to non-highway-legal vehicle use. In the vicinity segments of 32N12 were also recommended for an engineering analysis of motorized mixed use. The results can be found in a separate engineering report.

Study Segment road data from the forest transportation atlas:

Segment 1:	Beginning Mile Post: 3.6	Ending Mile Post: 4.6
Segment 2:	Beginning Mile Post: 1.2	Ending Mile Post: 1.5
Segment 3:	Beginning Mile Post: 0.0	Ending Mile Post: 0.1

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 (not within study areas)

Description of agreements or encumbrances:

The northeast portion of the route passes through private land. The forest Service has a full public easement with jurisdiction. The three study areas are completely on NFSL.

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 ☐

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 provides through access from California State Highway Route 44/89 to the NFSR 32N12. The road is a single-lane road with turnouts.

NFSR 32N13 has traditionally served administration of the LNF, including fuels and vegetation management, commodity extraction, fire suppression, and recreation. It also provides access to private land inholdings.

The road is considered a highway by the Forest Service and is managed in accordance with the Highway Safety Act. The road is managed for passenger car vehicles and is appropriately posted with horizontal route identification markers. Most of the year it is currently managed as open only to highway-legal vehicles; however, when snow-covered the road is managed for winter use—open to ATVs, 4WDs, skiers and OSVs (including snowmobiles).

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 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 improving sight distance by removing brush, maintaining proper signing, and providing better communication, will reduce crash probability.
Road hazard 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.
The road is maintained to a standard allowing efficient passenger car through traffic at speeds up to *40 mph* for reasonable and prudent drivers on straightaways. Based on speeds and their associated risk for crash severity, designating the road 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. Culverts are common drainage features on maintenance level 2 roads and standard on maintenance level 4 roads. Often roads on this national forest could be classified one maintenance level higher.
- Allowing non-highway-legal vehicles to use the road segments 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 current use on NFSR 32N13 appears to be consistent with State law and Forest Service policy for operational maintenance level 3 roads.
- The roadbed is raised and appears to provide for sufficient drainage and passenger car travel.
- Commercial, recreational, and administrative traffic is expected along this segment.

2. Crash history:

No record of accidents

3. Observed 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)

None was observed during field investigation to the site.

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

The road segments were driven at various speeds to simulate conditions encountered by a reasonable and prudent driver in a passenger car.

Segment 1:
15 - 25 mph based on observation and engineering judgment.

Segment 2:
35 mph based on observation and engineering judgment.

Segment 3:
35 - 40 mph based on observation and engineering judgment.

5. Road surface type: coordinate

All segments have cinder surfacing and single lane traveled ways with turnouts. Segment 1and 2 are approximately 14' wide. Segment 3 is approximately 14 – 16 feet wide.

6. Intersections with other roads and trails:

The sight distances at the managed intersections are rated good. The intersection with NFSR 32N75Y allows for higher merging speeds since the road lacks the proper entrance treatment. Within the first study segment, there are multiple unauthorized routes accessing 32N13 that exist in association with uncontrolled dispersed camping along Lost Creek.

7. Other roadway factors:

- None

8. Roadside conditions:

- On segment one and two the design prism is typical of side hill construction with inboard ditch plus x-drain relief
- Raised route typical of turnpike construction (1 foot average fill) on segment three

9. Risk without mitigation if designating the roadway "open to all motor vehicles":

Segment one
Crash probability: ☐ High ☒ Med ☐ Low

Crash severity: ☐ High ☒ Med ☐ Low

Segment two
Crash probability: ☐ High ☒ Med ☐ Low

Crash severity: ☒ High ☐ Med ☐ Low

Segment three
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 and trees, especially along curves and at intersections, to improve sight distance.
  warning: improved sight distance may result in higher speeds
- Removal of roadside hazards such as boulders, trees, and debris.
- 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". Continue to manage the road in accordance with maintenance level 3 standards.

- Maintain all roadway signing to MUTCD standards.
- Approximate Implementation Cost: $ 0
- Expected risk:
  Segment one
  Crash probability: ☐ High ☐ Med ☒ Low

  Crash severity: ☐ High ☒ Med ☐ Low

  Segment two
  Crash probability: ☐ High ☐ Med ☒ Low

  Crash severity: ☒ High ☐ Med ☐ Low

Segment three
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. Continue to maintain the road in accordance with maintenance level 3 standards.

- 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.
- Coordinate with the State and revise existing agreements with Caltrans as applicable.
- Notify the Commissioner of the California Highway Patrol and review their opinion.
- Approximate Implementation Cost: $ 6500
  This does not account for the additional long-term annual maintenance cost increase associated with maintaining these critical safety corridors.
- Expected risk:
  Segment one
  Crash probability: ☐ High ☒ Med ☐ Low

  Crash severity: ☐ High ☒ Med ☐ Low

  Segment two
  Crash probability: ☐ High ☒ Med ☐ Low

  Crash severity: ☒ High ☐ Med ☐ Low

  Segment three
  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 segments in accordance with maintenance level 2 standards. This would require removing culverts and ditches, reconstructing the template and narrowing the roadway.

- Based on the quality of the road, the amount of thru traffic, the distinctive

- Approximate Implementation Cost: $ 95,000
- Expected risk on both segments

Crash probability: ☐ High ☐ Med ☒ Low

Crash severity: ☐ High ☒ Med ☐ Low

Alternative 4: Construct trail segments to allow non-highway-legal vehicles to bypass the road and access adjacent maintenance level 2 roads.

Segment one

- The terrain in this area is on moderate slopes and would provide for a parallel trail system.
- Approximate implementation cost: $8000 *per mile*
  This does not include the planning, agreements, and long term maintenance costs associated with a new NFS trail.

Crash probability: ☐ High ☐ Med ☒ Low

Crash severity: ☐ High ☐ Med ☒ Low

Segment two

- The terrain in this area is on moderate slopes and would provide for a parallel trail system.
- Approximate implementation cost: $8000 *per mile*
  This does not include the planning, agreements, and long term maintenance costs associated with a new NFS trail.

Crash probability: ☐ High ☐ Med ☒ Low

Crash severity: ☐ High ☐ Med ☒ Low

Segment three

- The terrain in this area is on flat slopes and would provide for a parallel trail system.
- Approximate implementation cost: $8000 *per mile*
  This does not include the planning, agreements, and long term maintenance costs associated with a new NFS trail.

Crash probability: ☐ High ☐ Med ☒ Low

Crash severity: ☐ High ☐ Med ☒ Low

Final Comments:

Signing on national forest system roads will 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:

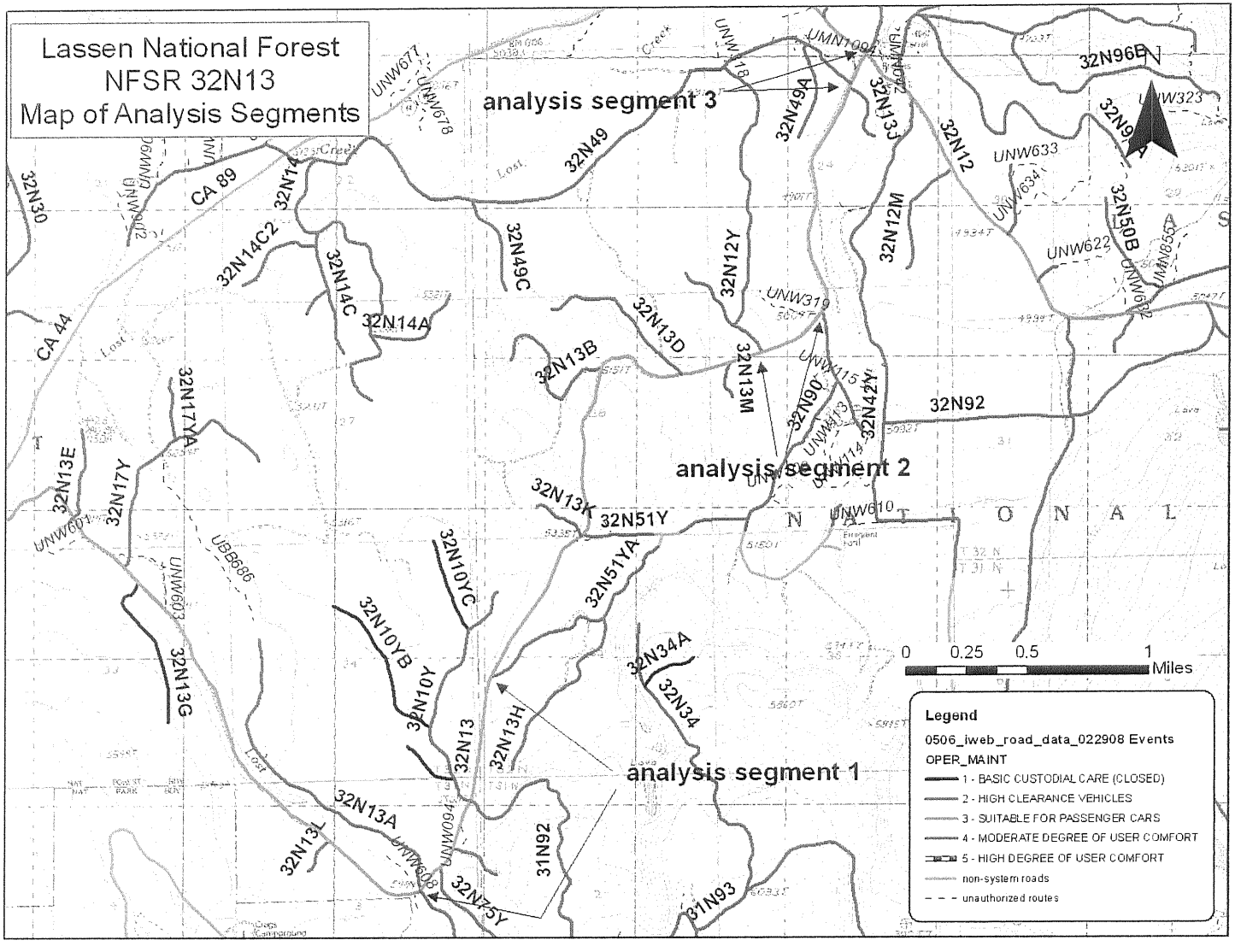


Figure 1: Map of road segments analyzed.

Prepared by:
Chris Bielecki, Supervisory Civil Engineer

Engineering Report:

Lassen National Forest

Eagle Lake & Hat Creek Ranger Districts

Analysis of

National Forest System Road (NFSR)

 # 32N21

for Motorized Mixed Use Designation

Forest: **Lassen** District: **Eagle Lake and Hat Creek**

Road Number: **32N21** Road Name: **Butte Lake**

Introduction: The Butte Lake Road connects California State Highway Route 44 with Lassen National Park. The study segment is currently managed by LNF as open only to highway-legal vehicles.

The road segment was 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, that are not licensed or certified for general operation on public roads within the State) from the beginning termini to the end termini. The LNF Travel Analysis (June 2008) identified this road section as a connection for recreational off-highway vehicle (OHV) loop opportunities on the adjacent 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:

Beginning Mile Post: **3.4** Ending Mile Post: **3.8**

The following is applicable to both study 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:

None on this segment

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

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 provides access to NFS lands on two ranger districts, as well as National Park Service lands within Lassen Volcanic National Park (LVNP).

The road has traditionally served as the main recreational and administrative access to Butte Lake Campground (within LVNP), as well as NFS functions including commodity extraction, fire suppression, and recreation.

The road was previously selected by the Pacific Southwest Regional Forester for funding support to improve the road as a "Public Forest Service Road" (PFSR). Initial survey and design work has been completed; however, the environmental analysis has yet to be completed. This effort would improve the roadway to a paved, double lane facility for management as a "Public Road".

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 skiers and over-snow vehicles (including snowmobiles). The study segment portion of 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 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.

The study segment is managed in accordance with the assigned operational maintenance level 3 standards.

The surfacing is generally reconditioned on an annual basis. The road is maintained to a standard allowing efficient passenger car through traffic at speeds of 45 mph for reasonable and prudent drivers. Based on speeds and their associated risk for crash severity, designating the road 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. Culverts are common drainage features on maintenance level 2 roads and standard on maintenance level 3 roads. Often roads on this national forest could be classified one maintenance level higher.
- Allowing non-highway-legal vehicles to use the road segments 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 appears to be consistent with state law and forest policy for operational maintenance level 3 roads.
- During the summer season, operators can expect recreational vehicles, trailers, and passenger car vehicle traffic traveling to and from the Butte Lake Campground.

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 3 hour observation, beginning Saturday 6/28/08 @ 1730 and ending @ 2030.

4 passenger car vehicles (including 3 SUVs)

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

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

45 mph

Speeds are based on observation, vehicular operation, and engineering judgment. Straightaways allow for higher speeds.

5. Road surface type:

The traveled way was surfaced with aggregate and had a width of approximately 22 feet. The road surface was well graded and appeared recently reconditioned.

6. Intersections with other roads and trails:

The study segment begins at the intersection with NFSR 32N92Y and connects to the next inventoried intersection to the south with NFSR 32N61.

These 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 intersections may result in higher traffic merging speeds.

7. Other roadway factors:

- Roadway alignment was adequate for the assigned maintenance level.
- Summer and fall seasons will experience peak use, winter and spring can bring snowy and icy conditions along with skier and snowmobile traffic.

8. Roadside conditions:

- The roadway utilized an insloped template with an inside ditch for drainage.

9. Risk without mitigation:

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; replace inappropriate signs.
- 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 segment 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 (i.e., 'Share the Road") 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: $ 4500

- Expected risk:

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)
- Coordinate with the Regional Forester staff to explain reasoning why moving away from PFSR management.
- Coordinate with LVNP staff, explaining expected implications with park visitors and administration.
- Approximate Implementation Cost: $ 35,000
- Expected risk

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

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

Alternative 4: Construct trail segments to allow non-highway-legal vehicles to bypass the road and access adjacent maintenance level 2 roads.

- Due to the high volume of maintenance level 2 roads in the vicinity, the amount of new construction would be limited and would provide extensive contiguous OHV opportunities with minimal effort.
- Gentle terrain on the west side of the road would allow for a feasible trail location.
- Approximate Implementation Cost: $10,000.

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:

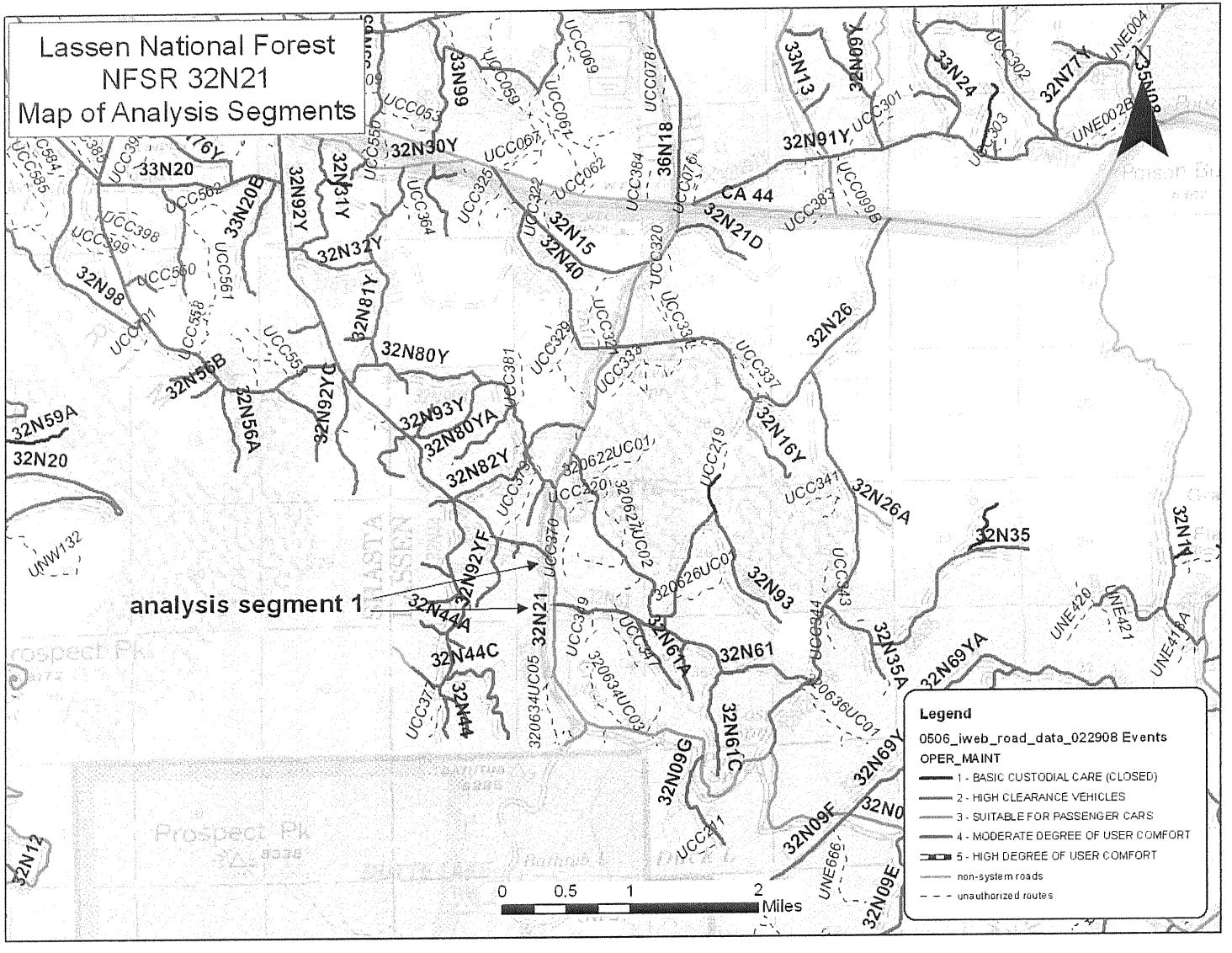


Figure 1: Map of road segments analyzed.

Figure 2: Proper route identification along NFSR 32N21.

Figure 3: Intersection with NFSR 32N92Y.

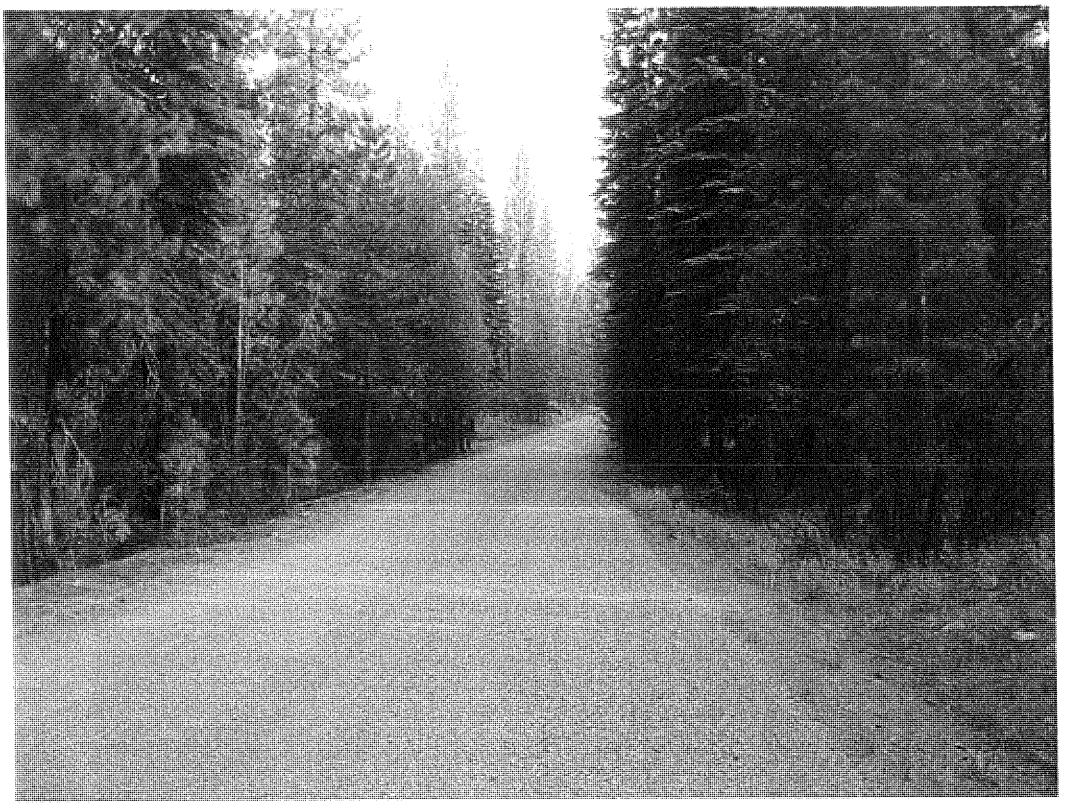


Figure 4: Gentle curve within the study segment.

Figure 5: Looking at the study segment from the intersection with NFSR 32N61.

Figure 6: Intersection with NFSR 32N61.

Prepared by:
Chris Bielecki, Supervisory Civil Engineer

Engineering Report:

Lassen National Forest

Eagle Lake Ranger District

Analysis of

National Forest System Road (NFSR)

32N22

for Motorized Mixed Use Designation

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

Road Number: **32N22** Road Name: **Westwood Logging Road**

Introduction: This report documents the engineering analysis for two segments of the "Westwood Logging Road", totaling 0.4 miles in length. NFSR 32N22 is located near Bogard Buttes, and connects California State Highway Route 44 with Lassen County Road A-21. Lassen National Forest (LNF) currently manages this road as open only to highway-legal vehicles.

The study 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, that are not licensed or certified for general operation on public roads within the State) from the beginning termini to the end termini.

The LNF Travel Analysis identified these road sections as potential connections for recreational off-highway vehicle (OHV) loop opportunities on the adjacent road network, which is currently managed as open to non-highway-legal vehicle use. In the vicinity, a segment of Distinctive Route 10 (NFSR 32N10) was also recommended for an engineering analysis of motorized mixed use. The results can be found in a separate engineering report.

Study Segment road data from the forest transportation atlas:

Segment 1: Beginning Mile Post: **1.2** Ending Mile Post: **1.4**

Segment 2: Beginning Mile Post: **2.2** Ending Mile Post: **2.4**

The following applies 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:

The Forest Service (USA) has been granted an unlimited exclusive easement over Fruit Growers Supply Company land. This overlaps with segment 1. Fruit Growers Supply Co. has been granted limited non-exclusive easements over Forest Service (USA), which involve both segments.

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

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 provides a connection between California State Highway Route 44 and Lassen County Road A-21.

The road was designed as a single-lane road but now is nearly double-lane (width varied from 19' to 25') with periodic turnouts.

NFSR 32N22 has traditionally served administration of the LNF, including fuels and vegetation management, commodity extraction, fire suppression, and recreation. It also serves as an access and haul route for Fruit Growers Supply Company.

The road is considered a highway by the forest service and is managed in accordance with the Highway Safety Act. The road is managed for passenger car vehicles and is appropriately posted with horizontal route identification markers. Most of the year it is currently managed as open only to highway-legal vehicles; however, when snow-covered the road provides winter use including skiers, atvs, and snowmobiles.

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 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 improving sight distance by removing brush, maintaining proper signing, and providing better communication, will reduce crash probability.

Road hazard 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

The road is maintained to a standard allowing efficient passenger car through traffic at speeds up to 40 mph for reasonable and prudent drivers on straightaways. Based on speeds and their associated risk for crash severity, designating the road 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. Culverts are common drainage features on maintenance level 2 roads and standard on maintenance level 3 roads. Often roads on this national forest could be classified one maintenance level higher.
- Allowing non-highway-legal vehicles to use the road segments 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 current use on NFSR 32N22 appears to be consistent with State law and Forest Service policy for operational maintenance level 3 roads.
- The roadbed is raised and appears to provide for sufficient drainage and passenger car travel.

2. Crash history:

At the time of this analysis, there is no record of a crash on this road.

3. Observed 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 an observation, 6/25/08 @ 1900-1945 & 6/29/08 @.1220-1300

None observed

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

The road segments were driven at various speeds to simulate conditions encountered by a reasonable and prudent driver in a passenger car.

40 mph based on observation and engineering judgment.

5. Road surface type: coordinate

Aggregate, well maintained

6. Intersections with other roads and trails:

The sight distances at the intersections are rated fair to good. The intersection with NFSR 32N29 could use some sight distance clearing and minor tree removal. The unauthorized road that connects with segment 1 was not found; without improvement work to define this route users would be expected to continue following NFSR 32N22 beyond the study segment.

7. Other roadway factors:

- Roadway alignment was adequate for the assigned maintenance level; however, a vertical curve did limit sight distance and needs to be maneuvered at a safe speed.
- There is evidence of past forest management and vegetation treatments along the route, on both NFS lands and private lands.

8. Roadside conditions:

- The route identification marker at SR-44 incorrectly identifies the road as a maintenance level 2 road (vertical marker).
- The embankments were gentle.
- Double ditches were constructed throughout most of the study segment.
- Small trees (,12") were found encroaching along the shoulders.
- Larger trees (>24") are located along the segments outside of clearing limits.

9. Risk without mitigation if designating the roadway "open to all motor vehicles":

Both segments:

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

- Clear brush and trees, especially along curves and at intersections, to improve sight distance.

  warning: improved sight distance may result in higher speeds
- Remove of roadside hazards such as boulders, trees, and debris.
- 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". Continue to manage the road in accordance with maintenance level 4 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. Continue to maintain the road in accordance with maintenance level 4 standards.

- Work with Fruit Growers Supply Company to modify the various

- 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: $ 4500

  This does not account for the additional long-term annual maintenance cost increase associated with maintaining these critical safety corridors.
- Expected risk:

  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 segments in accordance with maintenance level 2 standards. This would require removing culverts and ditches, reconstructing the template and narrowing the roadway.

- Based on the quality of the road, the amount of thru traffic, the Forest Highway status, and the change from the rest of the arterial route, this change would not be consistent with the road management objectives.
- Work with Fruit Growers Supply Company to make necessary adjustments to existing agreements.
- Approximate Implementation Cost: $ 18,000 (~$45k per mile)
- Expected risk

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

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

Alternative 4: Construct trail segments to allow non-highway-legal vehicles to bypass the road and access adjacent maintenance level 2 roads.

- The terrain in this area is relatively gentle and would provide for a parallel trail system. However, avoiding segment 1 will require another agreement to construct a trail on private land.
- Approximate implementation cost: $4000 (~ $10,000 per mile)

  This does not include the planning, agreements with private landowners, and long term maintenance costs associated with a new NFS trail.

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

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

Final Comments:

Signing on national forest system roads will 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:

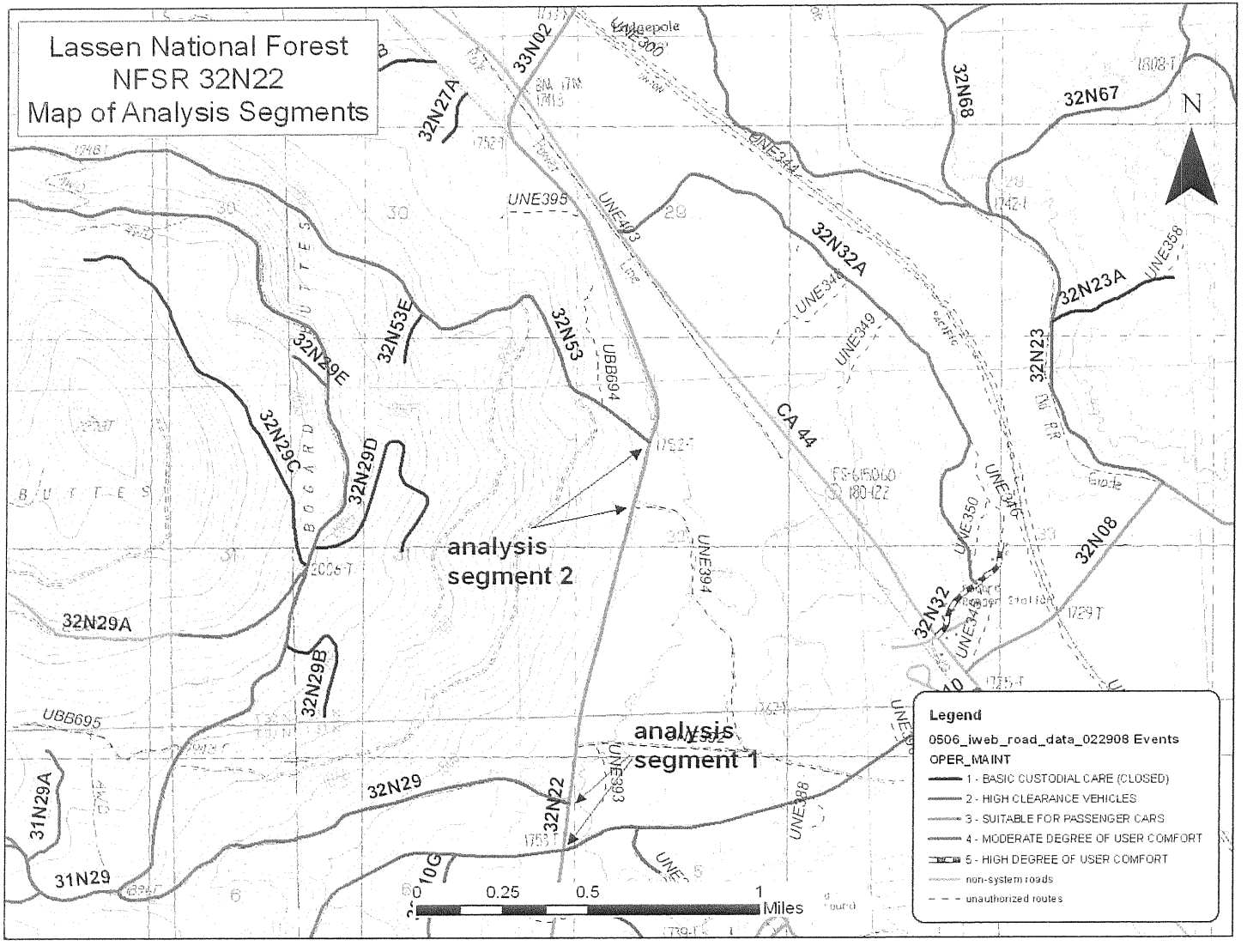


Figure 1: Map of road segments analyzed.

Figure 2: Looking towards segment 1 (left), with the intersection of NFSR 32N53 on the right.

Figure 3: Looking down study segment 1.

Figure 4: Looking at study segment 2 (straight), with the intersection of NFSR 32N20Y on the right.

Figure 5: Forest route identification and road destination signing, NFSR 32N22 at the intersection with 32N29.

Figure 6: Looking at study segment 2 (straight), across the intersection with NFSR 32N10.

Prepared by:
Chris Bielecki, Supervisory Civil Engineer

Engineering Report:

Lassen National Forest

Eagle Lake Ranger District

Analysis of

National Forest System Road (NFSR)

32N60

for Motorized Mixed Use Designation

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

Road Number: **32N60** Road Name: **Grays Flat**

Introduction: The Grays Flat Road is located west of Bogard Buttes, and connects California State Highway Route 44 with NFSR 32N09. The study segments are currently managed by LNF as open only to highway-legal vehicles. The road segment was 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, that are not licensed or certified for general operation on public roads within the State) from the beginning termini to the end termini. The LNF Travel Analysis (June 2008) identified this road section as a connection for recreational off-highway vehicle (OHV) loop opportunities on the adjacent 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: **1.5** Ending Mile Post: **3.2**

Segment 2 Beginning Mile Post: **4.6** Ending Mile Post: **5.2**

The following is applicable to both study 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:

The first segment is located on Fruitgrowers Supply Company land. The Forest Service possesses an unlimited exclusive easement over this portion of private land to manage NFSR 32N60.

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

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 provides access to NFS lands and private lands south of California State Highway Route 44.

The road has traditionally served commodity extraction, fire suppression, and recreation.

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 over-snow vehicles (including snowmobiles). The study segment portion of 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 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.

The study segment is managed in accordance with the assigned operational maintenance level 3 standard, and transitions from a higher standard road (near PL 318) to a lower standard road (north of the intersection with NFSR 29N65).

The surfacing is generally reconditioned on an annual basis. The road is maintained to a standard allowing efficient passenger car through traffic at speeds of 40 mph for reasonable and prudent drivers. Based on speeds and their associated risk for crash severity, designating the road 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. Culverts are common drainage features on maintenance level 2 roads and standard on maintenance level 3 roads. Often roads on this national forest could be classified one maintenance level higher.
- Allowing non-highway-legal vehicles to use the road segments 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 32N60 appears to be consistent with state law and forest policy for operational maintenance level 3 roads.

- The road is inappropriately signed with vertical fiberglass markers.
- The road is not signed at the intersection with SR-44.
- The study segment could serve as a bypass or alternative to NFSR 32N10 for those traveling between SR-44 and Silver Lake.
- On both segments there was evidence of recent forest vegetation treatments; haul would have occurred on this route.

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 1.75 hour observation, beginning Sunday 6/29/08 @ 1030 and ending @ 1215.

No vehicles encountered

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

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

Segment 1: 40 mph (30 mph on steeper grades)

Segment 2: 35 mph

Speeds are based on observation, vehicular operation, and engineering judgment. Straightaways allow for higher speeds.

5. Road surface type:

Segment 1: The traveled way was surfaced with worn aggregate and had a width of 15 - 18 feet. The road surface appeared recently reconditioned.

Segment 2: The traveled way was surfaced with worn aggregate with significant fines. The road was well maintained and smooth, with a width of approximately 16'.

6. Intersections with other roads and trails:

Study segment 1 begins at the intersection with NFSR 32N73Y, the loop road which connects at the beginning and end of the segment. The intersection with NFSR 32N53 is visible for less than 20' before encountering. The 4-way intersection at the end involves NFSR 32N73Y crossing; this maintenance level 2 road lacks appropriate entrance treatments and the condition can lead to higher merging speeds.

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 intersections may result in higher traffic merging speeds.

7. Other roadway factors:

- Roadway alignment was adequate for the assigned maintenance level.
- Summer and fall seasons will experience peak use, winter and spring can bring snowy and icy conditions along with snowmobile traffic.

- Segment 1 includes a hill climb with surface washboarding.

8. Roadside conditions:

- Seg 1: gentle terrain, raised road with ditches, ditches overgrown with brush, double ditches and leadouts drains encountered.Snowbrush encroachment, moderate short sections of ponderosa pine up to 3' diameter inside the roadway.
- Seg 2: snowbrush and manzanita encroachment from growth in ditches limits visibility.

9. Risk without mitigation:

Segment 1:

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; replace inappropriate signs.
- 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 segment 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 segments 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: $ 4500
- Expected risk:

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)
- Work with Fruitgrowers Supply Company to change road management on their land and downgrade the shared road.
- Approximate Implementation Cost: $ 76,000
- Expected risk

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

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

Alternative 4: Construct trail segments to allow non-highway-legal vehicles to bypass the road and access adjacent maintenance level 2 roads.

- Due to the high volume of maintenance level 2 roads in the vicinity, the amount of new construction would be limited and would provide extensive contiguous OHV opportunities with minimal effort.
- Private land in the area would eliminate the potential to construct parallel trail along segment 1.
- Approximate Implementation Cost: $10,000 (*covers segment 2 only*).

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:

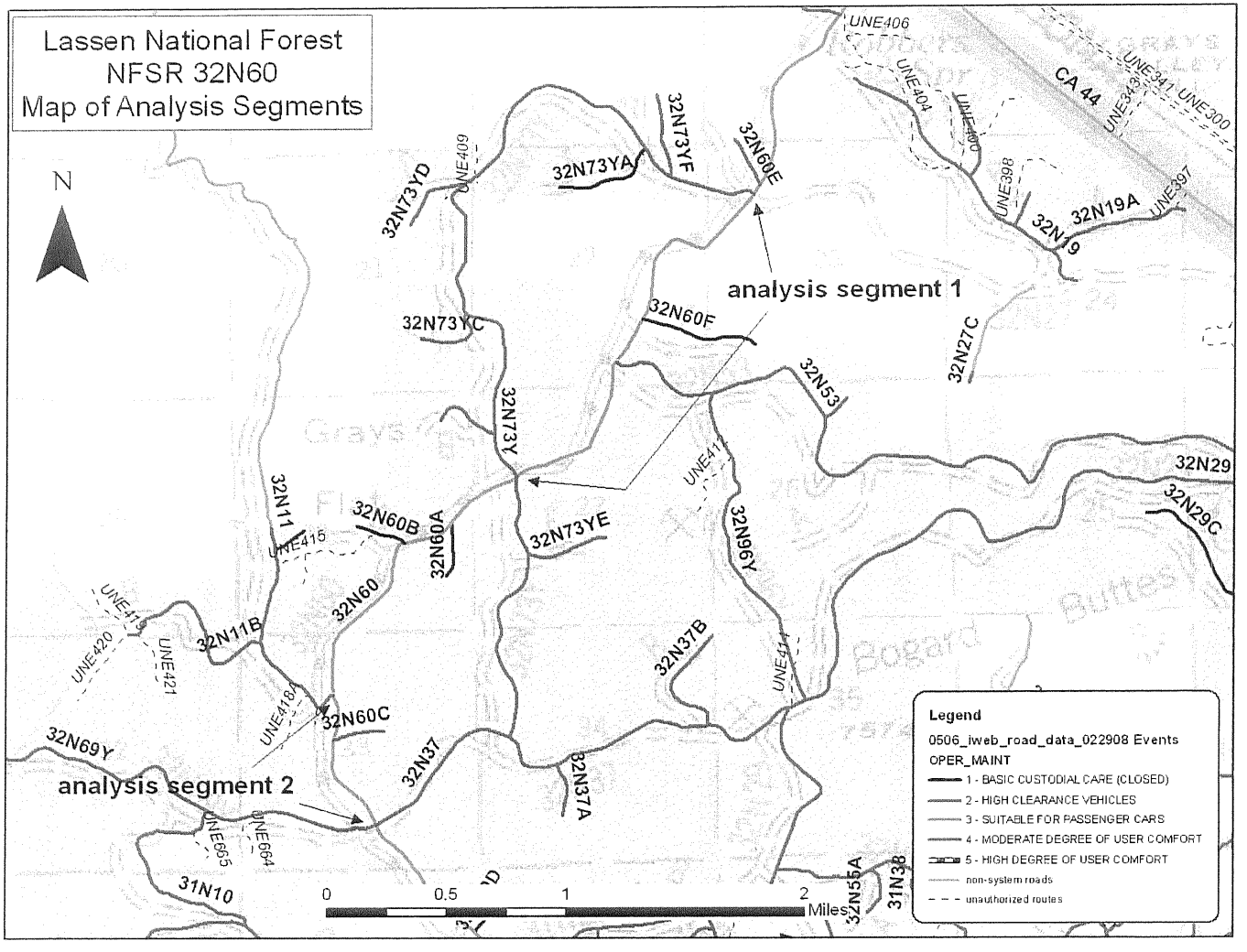


Figure 1: Map of road segments analyzed.

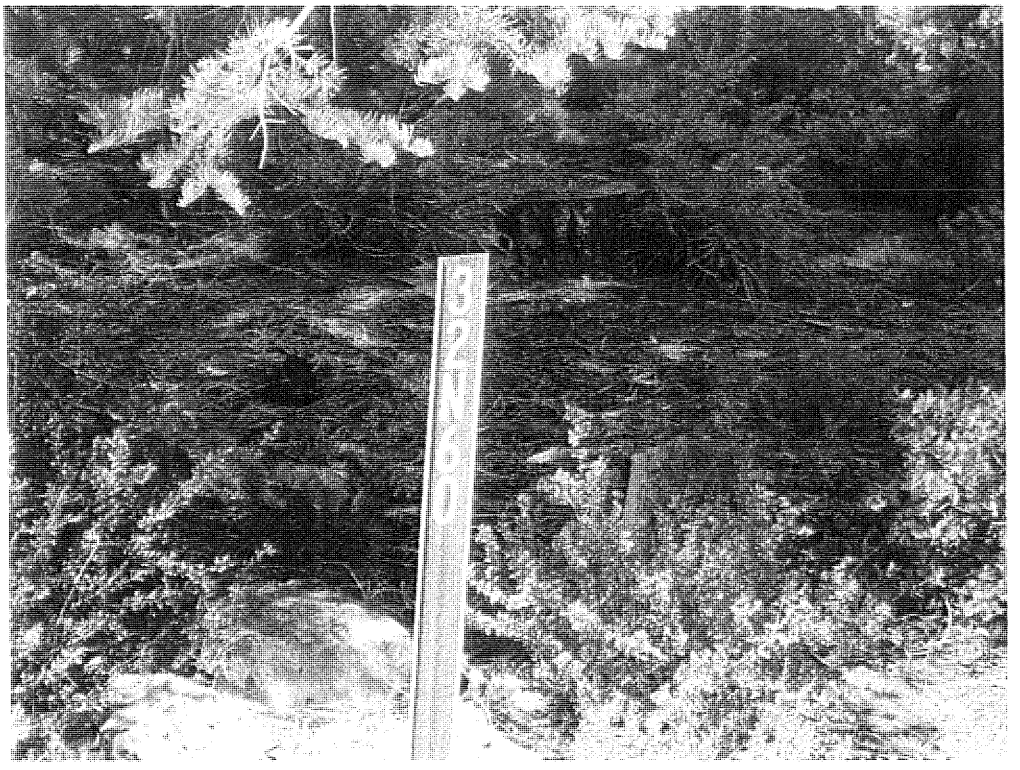


Figure 2: Incorrect vertical route identification signing.

Figure 3: Looking at segment 1, with the intersection of NFSR 32N37Y on the right.

Figure 4: Entrance of NFSR 32N37Y.

Figure 5: Straightaway, segment 1.

Figure 6: Private land property boundary, segment 1.

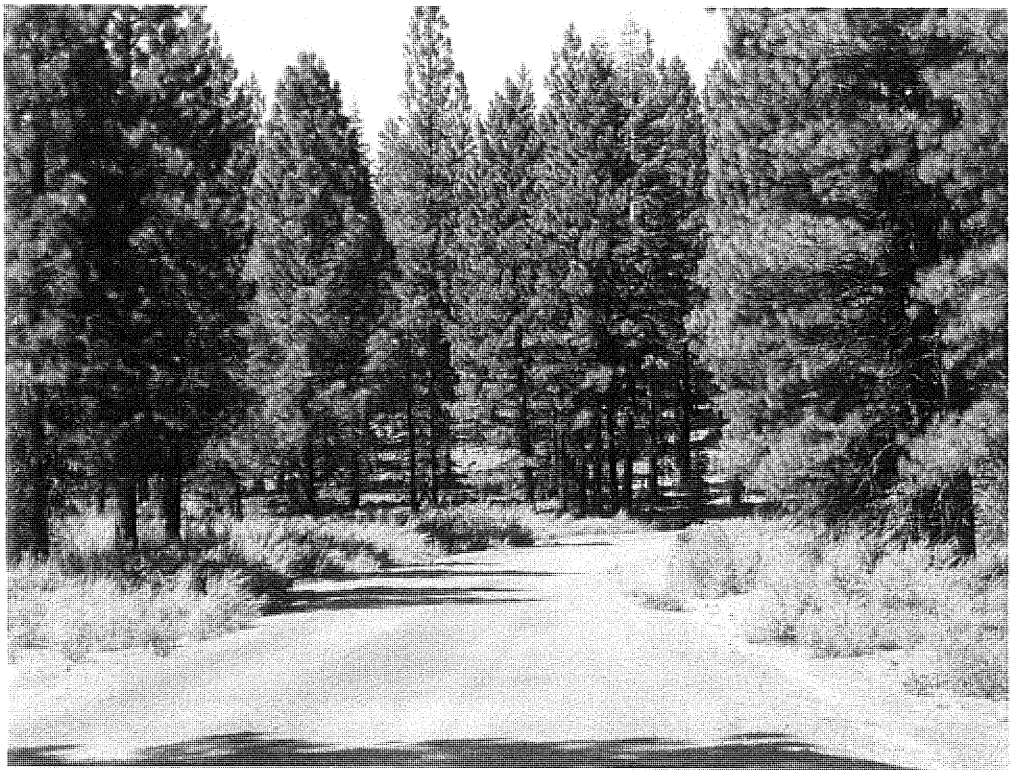


Figure 7: Curve approach, segment 1.

Figure 8: Straightaway, segment 1.

Figure 9: Forest road destination signing, with inappropriate route identification signing.

Figure 10: Looking at segment 2, with the intersection of NFSR 32N11 on the right.

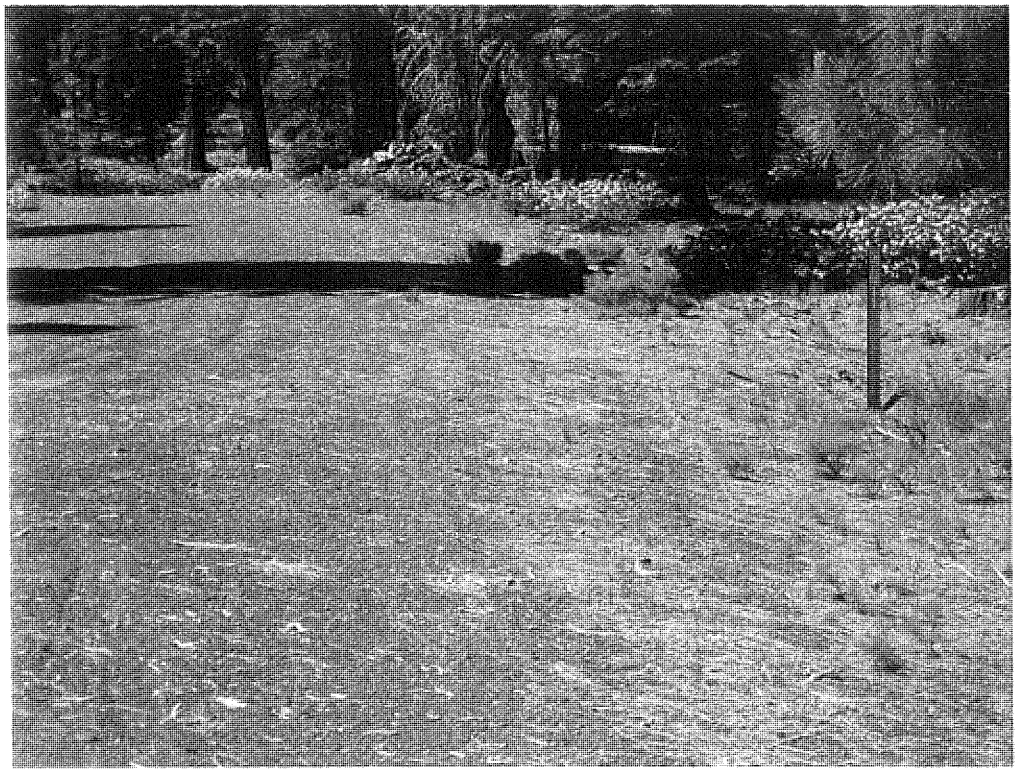


Figure 11: Entrance of NFSR 32N11.

Figure 12: Alignment along segment 2.

Figure 13: Straightaway, segment 2.

Figure 14: Brush encroachment, segment 2.

Figure 15: End of segment 2, intersection with NFSR 32N37 (left and right).

Figure 16: Forest route destination signing for through traffic, study segment 2.

Prepared by:
Chris Bielecki, Supervisory Civil Engineer

Engineering Report:

Lassen National Forest

Eagle Lake Ranger District

Analysis of

National Forest System Road (NFSR)

32N73

for Motorized Mixed Use Designation

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

Road Number: **32N73** Road Name: **Antelope Mountain Lookout Road**

Introduction: The 32N73 Road segments studied are located on the east side of Lassen National Forest (LNF) in the Antelope Mountain quadrangle, on Antelope Mountain.

NFSR 32N73 begins at the intersection of DR21 33N02/ML3 in Section 24 of the Antelope Mountain quadrangle and runs southeast to the south center quarter corner of S24, then proceeds due east for a short distance and turns due south and runs one mile through the east half of S25, the road then winds its way up the east and south flanks of Antelope Mountain to it's terminus at the summit and the fire lookout facility. This road is approximately 2.5 miles in length.

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 2 segments of 32N73, from the intersection of UNE637A Unauthorized Route to UNE636 Unauthorized Route and the intersection of 32N74/ML2 to UNE636 Unauthorized Route. The

LNF Travel Analysis (June 2008) identified these road sections as connectors 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: **0.50** Ending Mile Post: **1.00**

UNE637A to UNE636

Traffic Service Level: ☐ A ☐ B ☒ C ☐ D

Objective Maintenance Level: ☐ 1 ☐ 2 ☒ 3 ☐ 4 ☐ 5

Operational Maintenance Level: ☐ 1 ☐ 2 ☒ 3 ☐ 4 ☐ 5

Segment 2: Beginning Mile Post: **1.50** Ending Mile Post: **2.50**

32N74 to UNE636

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 and operational ML3 local collector road and functions as ingress/egress access for the Antelope Mountain Fire Lookout, commodity extraction/forest management for Antelope Mountain.

Road 32N73 provides access from 33N02/ML3-4 for a short distance of approximately two and a half miles from the forest through-road, south and easterly around Antelope Mountain toe of slope and then up the southern flank of Antelope Mountain. Speeds are approximately 15-20 mph with a travel way consisting of primarily red volcanic cinder aggregate and some areas of exposed base-rock.

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 32N73/ML3 identified in this analysis is to authorize motorized mixed vehicle class use. The proposal is to utilize the ML3 road segments to connect adjacent non-system Unauthorized Routes and ML2 roads into loops 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 32N73 is an observed 1 lane objective and operational maintenance level 3 standard throughout it's extents to the summit of the mountain and the fire lookout.

The road is maintained to a standard allowing efficient passenger car through traffic at speeds up to 20 mph for reasonable and prudent drivers on straightaways. The road grade is steep with segments that are approximately 12%. The road grade and loose surface of the travel way dramatically limit vehicle adhesion to the travel way, road is steep and loose with much associated wash-boarding. Sight distance is poor with numerous tight horizontal and vertical curves. Vegetation encroaches upon travel way in many locations. 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 it's road system's adherence to maintenance levels. This road is an objective ML3 as it provides fire lookout tower access which necessitates a high level ingress/egress emergency access road.
- Topologically, the unit is a series of midlevel volcanic peaks with semi-arid open pine forests and manzanita brushfields vegetating the intervening lower elevations and mountain flanks. There is a predominance of manzanita brush covering the slopes of Antelope Mountain. The operational level of this road is classified as a 3. 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 emergency fire detection and suppression response, wildlife management, private property access, and commodity extraction.
- 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 32N73 appears to be consistent with state law and forest policy for operational maintenance level 3 roads.
- Many roads in this vicinity, including the study segment, were dry and contributed significant dust when driven over.

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 29, 2008.

4 pickup trucks were observed on this road.

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

The speed greatly varies, depending on the roadway conditions. The 85th percentile would be estimated at: 15 mph.

5. Road surface type:

The road has a predominance of red volcanic cinder aggregate surfacing, minor areas with native crushed rock, and portions of exposed base-rock. Portions of the traveled way are raised and the shoulders are soft and non-compacted. The road is approximately 12' wide. The grade is consistently steep with pitches up to 12%. New road construction requires that road grades over 8% require approval of the Regional Engineer. The steep grade and loose surface material have produced a consistent wash-boarding of the steeper pitches of the travel way. Vehicle speed and control is limited due to surface steepness, cinder material, and tight vertical and horizontal curves.

6. Intersections with other roads and trails:

The segment intersects with the following forest roads.

- 32N02/ML3-4
- UNE637A Unauthorized Route
- UNE636 Unauthorized Route
- 32N74/ML2
- 32N03/ML2

The maintenance level 2 roads have historically provided forest management access, fire suppression access, commodity access, and hunting and firewood gathering access.

The proposed MMU intersections of 32N73/ML3 may result in higher traffic merging speeds.

7. Other roadway factors:

- Substantial horizontal and 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 12+', approximately.
- Cross slope of approximately 40% in stretches of alignment.
- Grade of road is up to 12+%.
- The road provides administrative access for fire lookout access. Summer and fall seasons will experience peak use, winter and spring can bring snowy and icy conditions.

8. Roadside conditions:

- The segment runs through both open pine forest and manzanita brush.
- Cross slope is 5-40%.
- Grade is up to 12+%.
- Pine trees are ≥18", encroaching roadside manzanita, volcanic rocks.

- Emergency run-out is limited as the steep cross-slope 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.
- Remove cinder material and replace with compacted crushed rock aggregate.
- Notify the Commissioner of the California Highway Patrol and review their opinion.
- Approximate Implementation Cost: $ 50,000
- 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

0 0.5 1 Miles

Antelope Mtn

NFS Surfaced Roads or Non-NFS Jurisdiction Roads Open to Highway Legal Vehicles Only (Includes NFS Maintenance Level 3-5 Roads, State and County Roads, etc.)

Mixed Use Analysis Pending

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

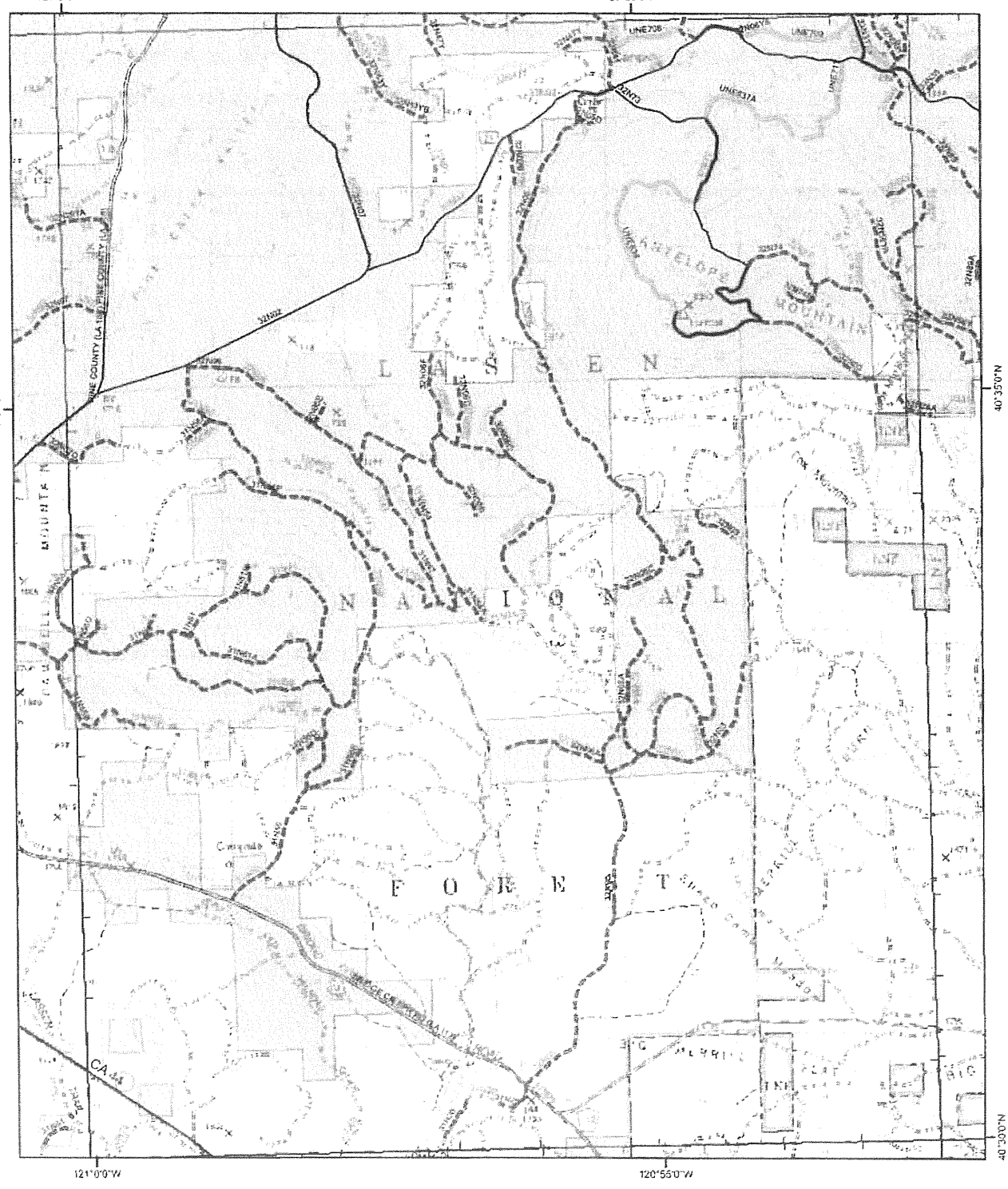
Restrict Season of Use to Summer/Fall (Winter Rec Trail)

Motor Vehicles Prohibited

Lassen National Forest

Private Land

! Areas Open to Motorized Vehicle Use



Prepared by
Tim Dedrick

Forest Transportation Planner/Civil Engineer
Lassen National Forest

Date 9/29/08

Reviewed by
George Kulick

Date

Region 5 Qualified Engineer
Region 5 Office of Engineering

Engineering Report:

Lassen National Forest

Eagle Lake Ranger District

Analysis of

National Forest System Road (NFSR)

 # 33N02

for Motorized Mixed Use Designation

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

Road Number: **33N02** Road Name: **Harvey Mountain Road**

Introduction: The 33N02 Road segments studied are located on the east side of Lassen National Forest (LNF) in the Harvey Mountain quadrangle, on the western boundary of Harvey Valley.

NFSR 33N02 begins at State Highway 44 in Section 29 of the Bogard Buttes Quadrangle and continues into the Harvey Mountain Quadrangle due north on the western boundary of Harvey Valley, then continues north and east past Aspen Well, continues east past Dixie Springs and Burgess Springs to an intersection with NFSR 33N06/ML3 at which point the road continues north past Burgess Well then due east past Stanford Springs into the Champs Flat Quadrangle and due north to the eastern toe of slope of Ashurst Mountain. 33N02 then makes an acute change of direction at an intersection with NFSR 33N52Y/ML2, continuing to south south-east for a short distance to an intersection with NFSR 33N61/ML2, changes direction again to the north then east to a terminus at an intersection with NFSR 34N02/ML2 in Section 11 of the Champs Flat Quadrangle. Road 33N02 is approximately 14 miles in length as described above.

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 33N02, from the intersection of 33N11 to 33N04YB for Segment 1, and from 33N81 to 34N01 for Segment 2. The LNF Travel Analysis (June 2008) identified these road sections as connectors 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: **4.20** Ending Mile Post: **4.90**

35N04 to 33N04YB

Traffic Service Level: ☐ A ☐ B ☒ C ☐ D

Objective Maintenance Level: ☐ 1 ☐ 2 ☒ 3 ☐ 4 ☐ 5

Operational Maintenance Level: ☐ 1 ☐ 2 ☐ 3 ☒ 4 ☐ 5

Segment 2: Beginning Mile Post: **6.40** Ending Mile Post: **7.70**

33N81 to 34N01

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 Harvey Mountain Fire Lookout, commodity extraction/forest management for Cone Mountain, Harvey Mountain, Ashurst Mountain, and range allotments/livestock water in Harvey Valley, Burgess Meadow, Squaw Valley, and Champs Flat Meadows.

Road 33N02 provides access from State Highway 44, a two-lane all weather asphalt surfaced highway, through the middle of the Eagle Lake Ranger District as a continuous ML3-4 forest highway (with changes to and connections to 33N06 and Lassen County Road 105) with speeds up to 45 mph. This forest highway, as parts of the three roads listed herein, provides a 25 mile long critical mid-District transportation network to pine forest, rangeland, and dispersed recreation sites. This highway is utilized heavily by District personnel for fire detection, fire suppression, hazardous fuels reduction, wildlife management, livestock allotments, and recreation. At mile 25 this route connects to Lassen County Road A1 which is a two-lane all weather asphalt surfaced highway.

Road 33N02's intersection with State Highway 44 is approximately 2 miles west of the forest service Bogard Work Center which is home to the Lassen Hotshot fire crew as well as Engine xx and Water Tender xx.

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 2 segments of 33N02/ML3 identified in this analysis is to authorize motorized mixed vehicle class use. The proposal is to utilize the ML3 road segments 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 33N02 is an observed 1+ lane operational maintenance level 3+ standard to approximate road mile 8.5 where it connects/intersects with NFSR 33N06/ML3. 33N02 continues as a maintenance level 2 from this intersection to it's terminus with 34N02 at approximate road mile 14.

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 it's road system's adherence to maintenance levels. This road is an objective ML3 as it provides fire lookout tower access which necessitates a high level ingress/egress emergency access road.
- Topologically, the unit is semi-mountainous, fairly dry, and sandwiched between 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 rangeland of the Harvey Valley area to the east. The operational level of this road is classified as a 3+. 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 emergency fire detection and suppression response, wildlife management in conjunction with the State Game Refuge, commodity extraction, forest management, rangeland allotments, and dispersed recreation.
- 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 33N02 appears to be consistent with state law and forest policy for operational maintenance level 3 roads.
- Many roads in this vicinity, including the study segment, were dry and contributed significant dust when driven over.

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.

No vehicles observed.

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

The speed greatly varies, depending on the roadway conditions. The 85th percentile would be estimated at: 25 mph.

5. Road surface type:

The road has a combination of crushed rock aggregate and red volcanic cinder aggregate surfacing. Portions of the traveled way are raised and the shoulders are soft and non-compacted. The road is approximately 16' wide. The surface appeared well-maintained.

6. Intersections with other roads and trails:

Segment 1 intersects with the following forest roads.

- 33N11/ML2
- 33N04YB/ML2

Segment 2 intersects with the following forest roads.

- 33N81/ML2
- 33N97/ML2
- 35N04/ML3
- 34N01/ML2

The maintenance level 2 roads have historically provided forest management access, fire suppression access, commodity 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 horizontal and 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 fire lookout access. 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 0-6%.
- Grade is 0-2%.
- Pine trees are ≥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:

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

0 0.5 1 Miles

Bogard Buttes

NFS Surfaced Roads or Non-NFS Jurisdiction Roads Open to Highway Legal Vehicles Only (includes NFS Maintenance Level 3-5 Roads, State and County Roads, etc.)

Mixed Use Analysis Pending

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

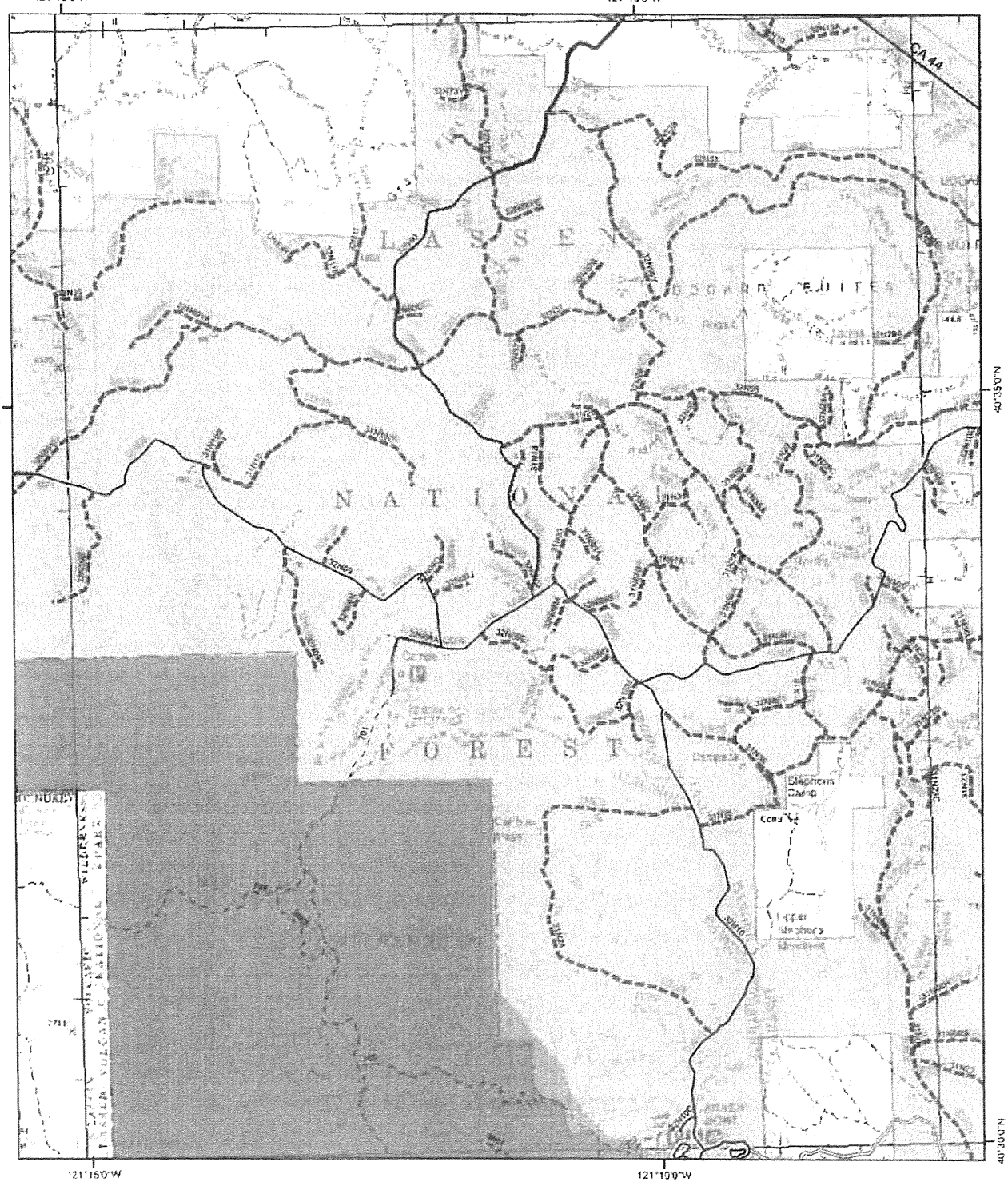
Restrict Season of Use to Summer/Fall (Winter Rec Trail)

Motor Vehicles Prohibited

Lassen National Forest

Private Land

Areas Open to Motorized Vehicle Use



May 2008 DRAFT

Alternative 5
(Motorized Emphasis)
Travel Management
Lassen National Forest

0 0.5 1 Miles

Harvey Mtn

NFS Surfaced Roads or Non-NFS Jurisdiction Roads Open to Highway Legal Vehicles Only (Includes NFS Maintenance Level 3-5 Roads State and County Roads, etc.)

Mixed Use Analysis Pending

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

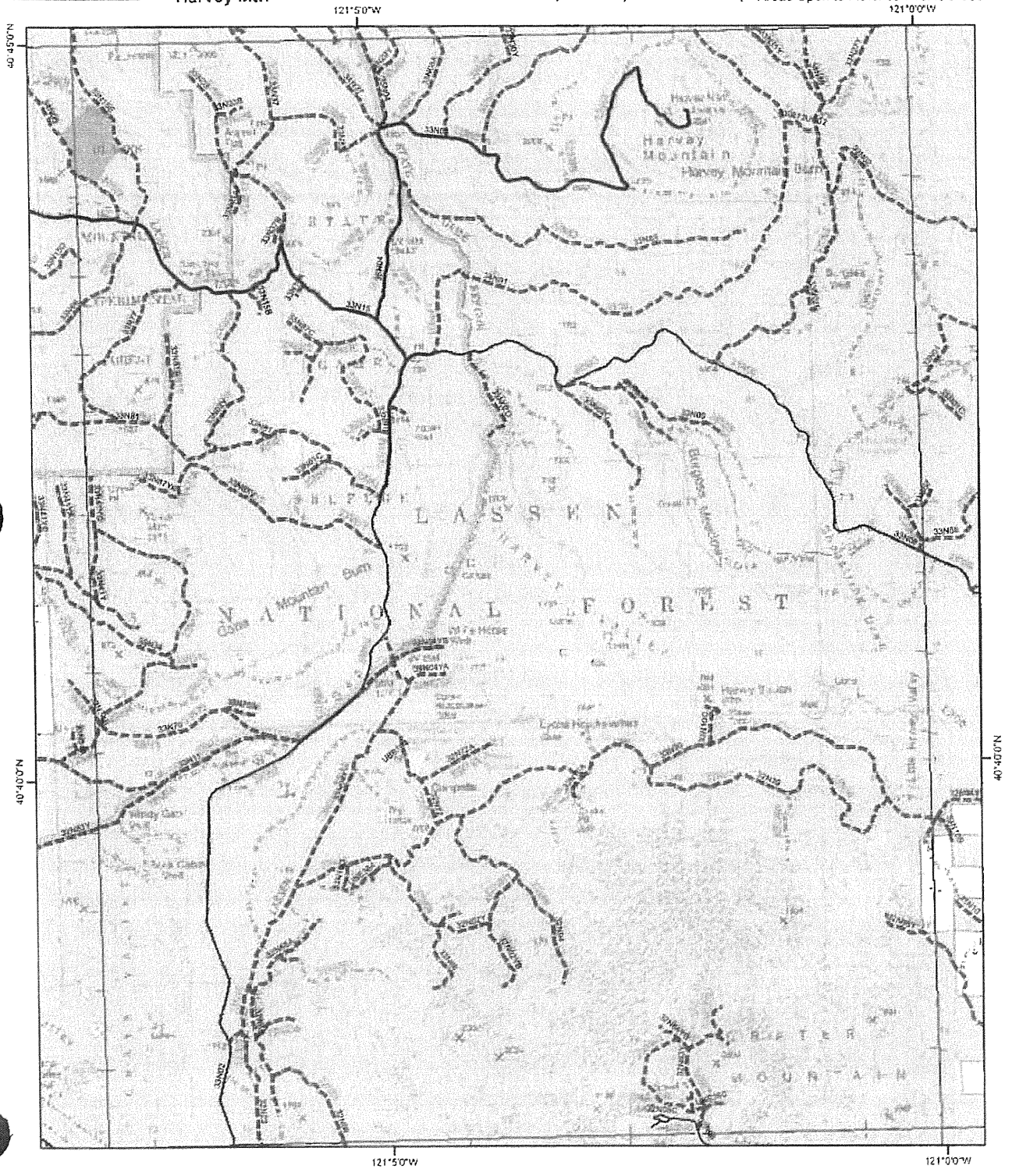
Restrict Season of Use to Summer/Fall (Winter Rec Trail)

Motor Vehicles Prohibited

Lassen National Forest

Private Land

Areas Open to Motorized Vehicle Use



May 2008 DRAFT

Alternative 5
(Motorized Emphasis)
Travel Management
Lassen National Forest

0 0.5 1 Miles

Champs Flat

NFS Surfaced Roads or Non-NFS Jurisdiction Roads Open to Highway Legal Vehicles Only (Includes NFS Maintenance Level 3-5 Roads, State and County Roads, etc.)

Mixed Use Analysis Pending

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

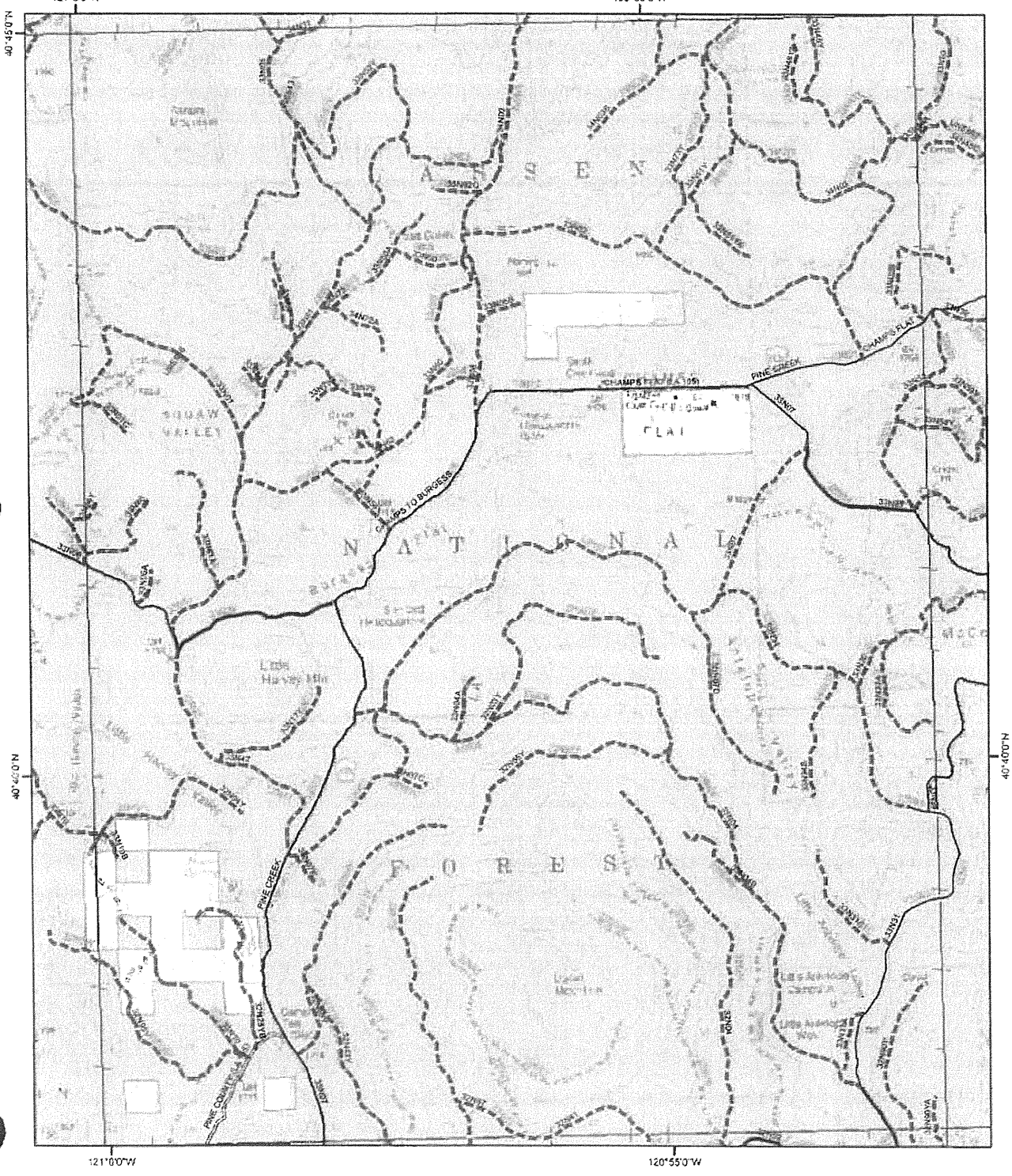
Restrict Season of Use to Summer/Fall (Winter Rec Trail)

Motor Vehicles Prohibited

Lassen National Forest

Private Land

Areas Open to Motorized Vehicle Use




← ASHURST LAKE 6
SHOESTRING DRAW 1 →
CHAMPS FLAT 7 →
← 33N02
33N06 →

Prepared by
Tim Dedrick

Forest Transportation Planner/Civil Engineer
Lassen National Forest

Date 9/29/08

Reviewed by
George Kulick

Date

Region 5 Qualified Engineer
Region 5 Office of Engineering

Engineering Report:

Lassen National Forest

Eagle Lake Ranger District

Analysis of

National Forest System Road (NFSR)

33N06

for Motorized Mixed Use Designation

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

Road Number: **33N06** Road Name: **Little Harvey Mountain**

Introduction: This segment of Little Harvey Mountain Road is located on the east side of Lassen National Forest (LNF) in the Champs Flat quadrangle, approximately .5 miles northwest of Little Harvey Mountain. NFSR 33N06 begins at an intersection with NFSR 33N02 near Burgess Well and ends at an intersection with NFSR 33N50 near Salt Cabin. The road starts in Section 24, southwest of Burgess Well and travels southeast to Little Harvey Mountain and an intersection with Lassen County Road 105. County Road 105 then utilizes 33N06 as it's alignment as it trends northeast past the Champs Flat Meadow and the intersection with 35N05. The road provides an easy grade access from the pine forest around Burgess Well to the grazing land of Champs Flat/Fleming Well. The entire road is currently managed by LNF as an ML3 open only to highway-legal vehicles.

The road segment was 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, that are not licensed or certified for general operation on public roads within the State) from the intersection of Lassen County Road 105 approximately 1 mile to the

intersection of 33N61. The LNF Travel Analysis (June 2008) identified this road section as a connector for recreational off-highway vehicle (OHV) loop opportunities on the adjacent 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: **1.65** Ending Mile Post: **2.40**

33N61 to Lassen County Road 105

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 in this segment.

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 serves as a ML3 collector road and functions as access from the pine forest area by Burgess Well and 33N02, unto the meadow/grazing area by Champs Flat and the Salt Cabin. Situated near the mid western boundary of the Champs Flat quadrangle in the Eagle Lake Ranger District, this route connects to a network of lower standard ML2 system roads that access NFS lands near Little Harvey Mountain, Logan Mountain, and Squaw Valley.

The road has traditionally served range access to Salt Cabin and Fleming Well as well as the pine forest by Burgess Well for commodity extraction, fire suppression, and recreation.

The road is signed at each end with correct horizontal ML3 route identification markers, but along the road's alignment the route identification marker's are vertical ML2 fiberglass posts with reflective number stickers.

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 accordance with the Highway Safety Act.

Proposed use is to allow mixed motor vehicle use on this segment to connect from NFSR ML2 33N61 to Lassen County Road 105 and then to connect through Road 105 to NFSR ML2 33N07 as a connector to an existing NFSR ML2 road system. This ML3 connector as described above is not a legal possibility as half of the segment resides on Lassen County Road 105 and Lassen County has not approved motor vehicle mixed use on it's forest highway system. As-is the segment of 33N06 that is NFSR will not provide access to anywhere but a County forest highway where it is currently against California Motor Vehicle Code to operate a non-highway legal vehicle upon forest highways.

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. The other portion of this connector route proposed to connect 33N61 via 33N06 to 33N07 is Lassen County Road 105. Lassen County currently manages the road as a highway and the provisions of the California Vehicle Code 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.

The road is an observed 1-lane operational maintenance level 3 standard throughout the selected segment.

The road is maintained to a standard allowing efficient passenger car through traffic at speeds up to 30 mph for reasonable and prudent drivers on straightaways. Based on speeds and their associated risk for crash severity, designating the road 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. Topologically, the unit is dry and flat with pronounced relief features, once roads are improved for management activities, the improvements are long lasting. Culverts are common drainage features on maintenance level 2 roads and standard on maintenance level 3 roads. Often roads on this national forest could be classified one maintenance level higher.
- 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 33N06 appears to be consistent with state law and forest policy for operational maintenance level 3 roads.
- Many roads in this vicinity, including the study segment, were dry and contributed significant dust when driven over.

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 29, 2008.

No vehicles observed.

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

The speed greatly varies, depending on the roadway conditions. The 85th percentile would be estimated at: 30 mph.

5. Road surface type:

The segment has a combination of native rock and red volcanic cinder aggregate surfacing. Portions of the traveled way are raised and the shoulders are soft and non-compacted. The segment was approximately 16' wide. The surface appeared well-maintained.

6. Intersections with other roads and trails:

The study segment begins at an intersection with NFSR ML2 33N61 and ends with an intersection with Lassen County Road 105.

33N61 and 33N47 are maintenance level 2 roads. They intersect with 33N06 which is signed on this segment as a maintenance level 2 road as well. 33N06 lacks the appropriate intersection signing needed to provide for the appropriate traffic management strategies of discourage off highway vehicle use.

33N06 is a maintenance level 3 road and lacks the appropriate ML3 route identification signing along it's alignment of discourage off highway vehicles.

7. Other roadway factors:

- Low vertical curves are present.
- Roadway alignment was adequate for the assigned maintenance level.
- The road was maintained with a traveled way width of 16', approximately.
- The road provides administrative access for a range allotment and commodity extraction. 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 segment runs from rangeland to an open pine forest.
- Cross slope is 0-5%.
- Grade is 0-2%.
- Pine trees are ≤ 18" and numerous volcanic rocks. Emergency run-out is possible.

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 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**

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

0 0.5 1 Miles

Champs Flat

NFS Surfaced Roads or Non-NFS Jurisdiction Roads Open to Highway Legal Vehicles Only (Includes NFS Maintenance Level 3-5 Roads, State and County Roads, etc.)

Mixed Use Analysis Pending

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

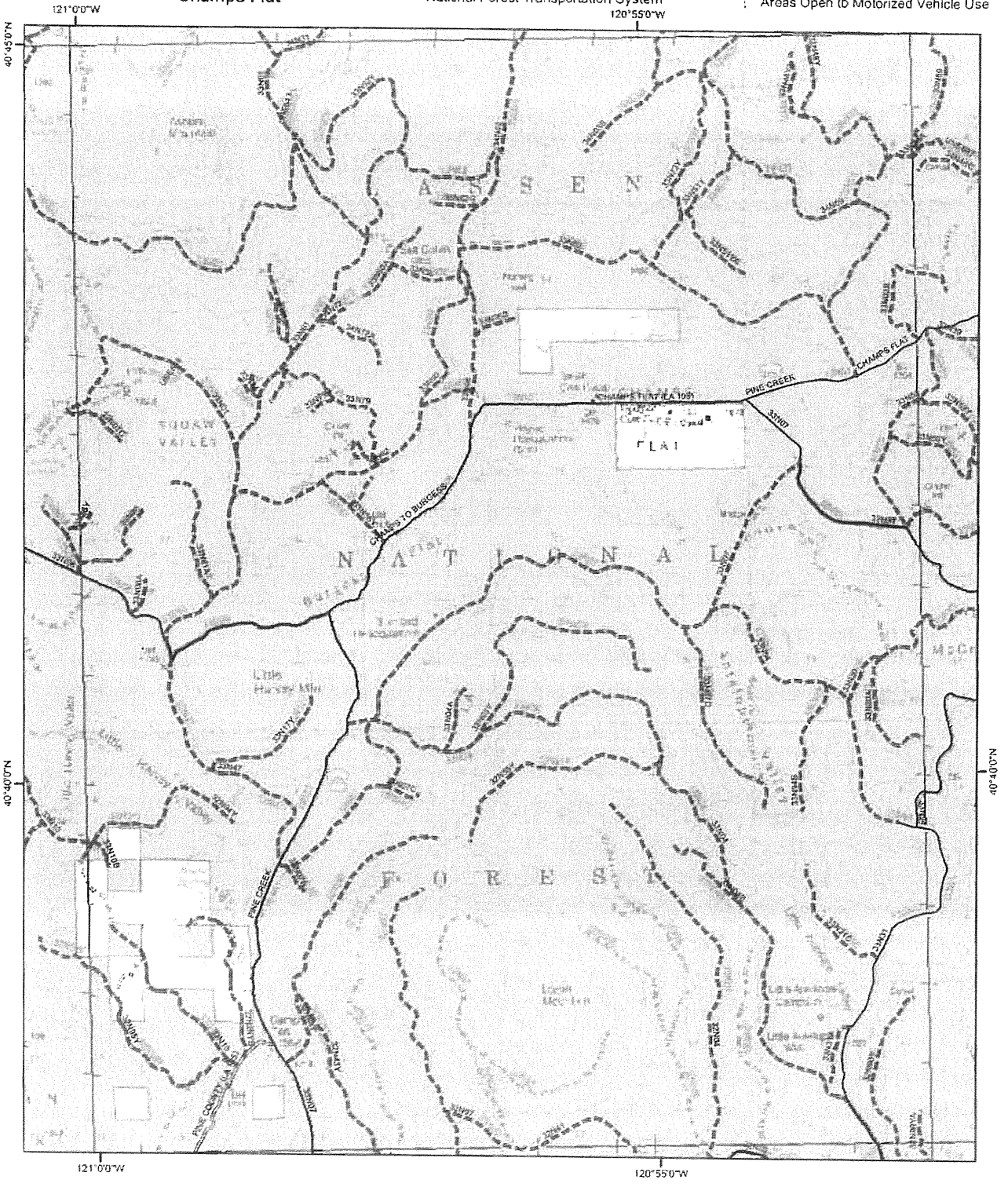
Restrict Season of Use to Summer/Fall (Winter Rec Trail)

Motor Vehicles Prohibited

Lassen National Forest

Private Land

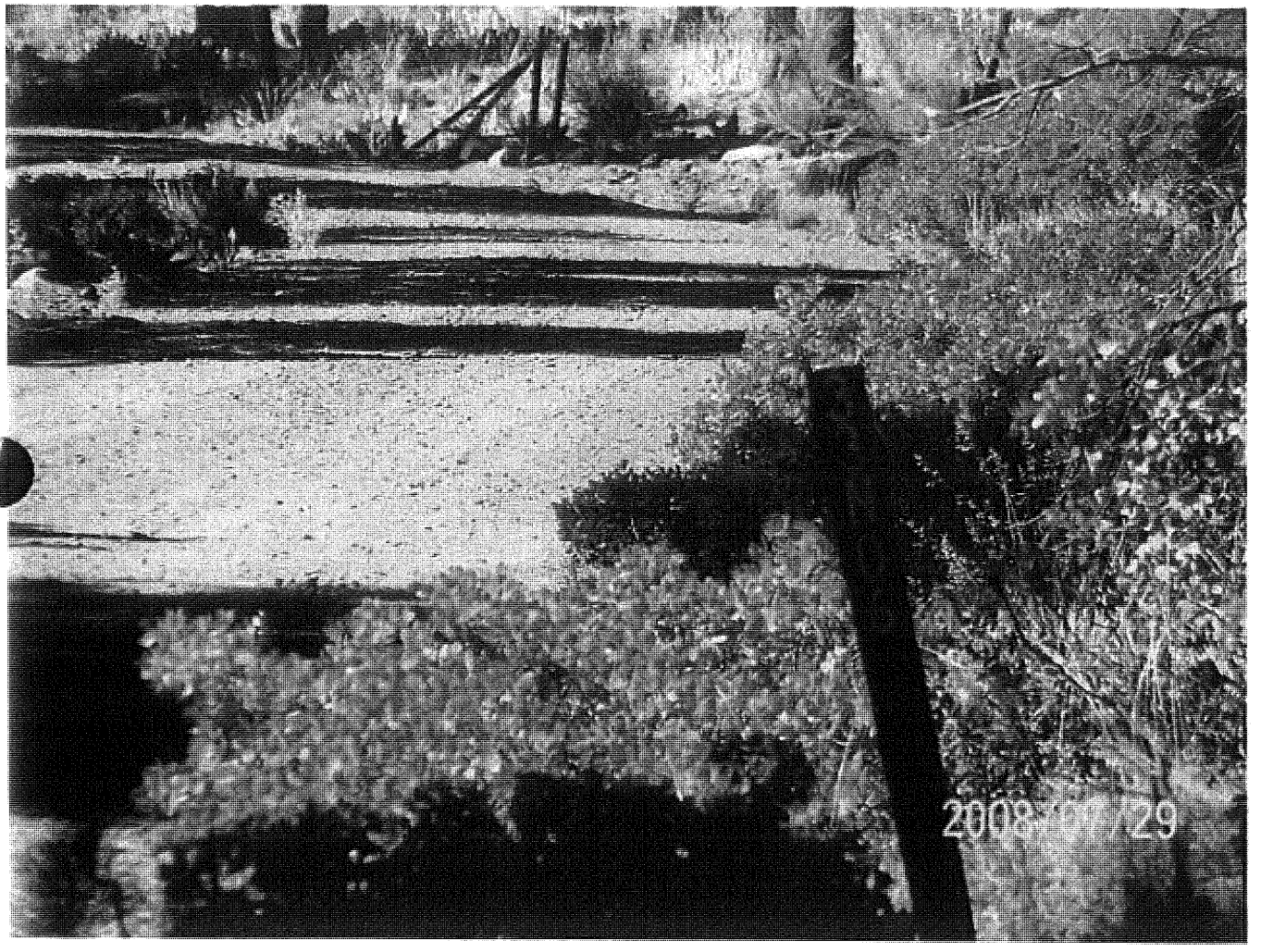
Areas Open to Motorized Vehicle Use




33N06
2008/07/29


2008/07/29


3
N
0
8
2008/07/29


2008-07-29


ASHURST LAKE 6
HIGHWAY 44 14
CHAMPS FLAT 4
2008/07/29


2008/07/29

Prepared by
Tim Dedrick
Tim Dedrick
Forest Transportation Planner/Civil Engineer
Lassen National Forest

Date 9/29/08

Reviewed by
George Kulick

Date

Region 5 Qualified Engineer
Region 5 Office of Engineering

Engineering Report:

Lassen National Forest

Eagle Lake Ranger District

Analysis of

National Forest System Road (NFSR)

 # 33N08

for Motorized Mixed Use Designation

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

Road Number: **33N08** Road Name: **Harvey Mountain Lookout Road**

Introduction: The 33N08 Road segment studied is located on the east side of Lassen National Forest (LNF) in the Harvey Mountain quadrangle, on the flanks of Harvey Mountain. NFSR 33N08 begins at a 5-way intersection, primary of which is 35N04, and ends at Harvey Mountain Lookout. The road starts approximately 10 miles due north of State Highway 44, approximately 1.5 miles south of the Eagle Lake RD and Hat Creek RD boundary on NFSR ML3 35N04. From this point the 33N08 road travels east approximately 2 miles to the toe of slope of Harvey Mountain where the road follows a due north traverse up the west flank of the mountain approximately 1 mile to the summit.

The entire road is currently managed by LNF as open only to highway-legal vehicles. The road segment analyzed was 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 33N08, from the intersection of 35N04 to the summit of the mountain. The LNF Travel Analysis (June 2008) identified this road section as a connector for recreational off-

highway vehicle (OHV) loop opportunities on the adjacent 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: **2.47**

35N04 to terminus/summit

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 serves as a ML3 local road and functions as a fire lookout station access as well as commodity extraction from Harvey Mountain to the State of California Highway 44.

The road provides summit access from a saddle on the west flank of Harvey Mountain which is the intersections of 35N04/ML3, 33N85/ML2, 34N37/ML2, 35N04/ML3, and 33N08A/ML2. Road 33N08 provides an important function as an ML3 local road providing access to a staffed fir lookout tower. From the lookout tower it is approximately 12.5 miles on NFSR maintenance level 3 roads to State Highway 44 which is an all-weather two lane asphalt highway. This intersection is approximately 2 miles west of the forest service Bogard Work Center which is home to the Lassen Hotshot fire crew as well as Engine xx and Water Tender xx.

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 accordance with the Highway Safety Act.

The proposed use for 33N08/ML3 identified in this analysis is to authorize motorized mixed vehicle class use. The proposal is to utilize the ML3 road 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.

The road is an observed 1-lane operational maintenance level 2+ standard throughout it's length.

The road is maintained to a standard allowing efficient passenger car through traffic at speeds up to 25 mph for reasonable and prudent drivers on straightaways. Based on speeds and their associated risk for crash severity, designating the road 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. A "typical ML2" road is a two-track through the forest, usually without culverts, and many times without a constructed road-prism. The Lassen is not "typical" in it's road's adherence to maintenance levels. This road is an objective ML3 as it provides fire lookout tower access which necessitates a higher level emergency access road that is not a recreational opportunity and is not identified in the ROS or Recreational Opportunity Spectrum. As a remote emergency fire detection and communication station the road does not receive much public traffic but does provide daily access in all-weather spring-summer-fall conditions for the lookout's staff as well as weekly deliveries of drinking/cooking/bathing potable water via a large commercial water truck as well as regular deliveries of propane via a large commercial propane gas truck. Topologically, the unit is semi-mountainous, fairly dry, and sandwiched between the Pacific Southwest Research Station's research forest, Black's

Mountain Experimental Forest to the west, and the forest rangeland of the Champs Flat area to the east. The operational level of this road is classified as a 2+ or 3-, something we call a Super-2 here on the Lassen. 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 emergency fire detection access. Lookout tower staff perform a vital fire crew communication, area dispatch, and area navigation function for interagency Wildland fire suppression forces. As an existing ML3 road public access for visitors is provided to visit the lookout which provides a public educational opportunity as well as a scenic driving opportunity for highway legal vehicles. All-terrain vehicle access may not benefit unrestricted access of professional forest fire detection and suppression staff and large fire vehicles.

- 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 33N08 appears to be consistent with state law and forest policy for operational maintenance level 3 roads.
- Many roads in this vicinity, including the study segment, were dry and contributed significant dust when driven over.

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.

No vehicles observed.

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

The speed greatly varies, depending on the roadway conditions. The 85th percentile would be estimated at: 25 mph.

5. Road surface type:

The road has a combination of crushed rock aggregate and red volcanic cinder aggregate surfacing. Portions of the traveled way are raised and the shoulders are soft and non-compacted. The road is approximately 16' wide. The surface appeared well-maintained.

6. Intersections with other roads and trails:

The beginning of 33N08 is a five-way intersection with the following;

- 35N04/ML3
- 35N04/ML2
- 33N85/ML2
- 34N37/ML2
- 33N08A/ML2

There are also four additional forest roads with access from 33N08, they are;

- 33N30Y/ML2
- 34N01/ML2
- 33N08B/ML2
- 33N32Y/ML2

These maintenance level 2 roads have historically provided forest management access, fire suppression access, commodity 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 horizontal and vertical curves are present.
- Roadway alignment was adequate for the assigned maintenance level.
- The road was maintained with a traveled way width of 16', approximately.
- The road provides administrative access for fire lookout access. 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 0-35%.
- Grade is 0-8%.
- Pine trees are ≥18" and numerous rocks. Emergency run-out is not possible for the majority of the road as it climbs up the flank of Harvey Mountain and vertical drops are commonplace.

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**

- Approximate Implementation Cost: $ 50,000
- 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

0 0.5 1 Miles

Harvey Mtn

NFS Surfaced Roads or Non-NFS Jurisdiction Roads Open to Highway Legal Vehicles Only (Includes NFS Maintenance Level 3-5 Roads State and County Roads, etc.)

Mixed Use Analysis Pending

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

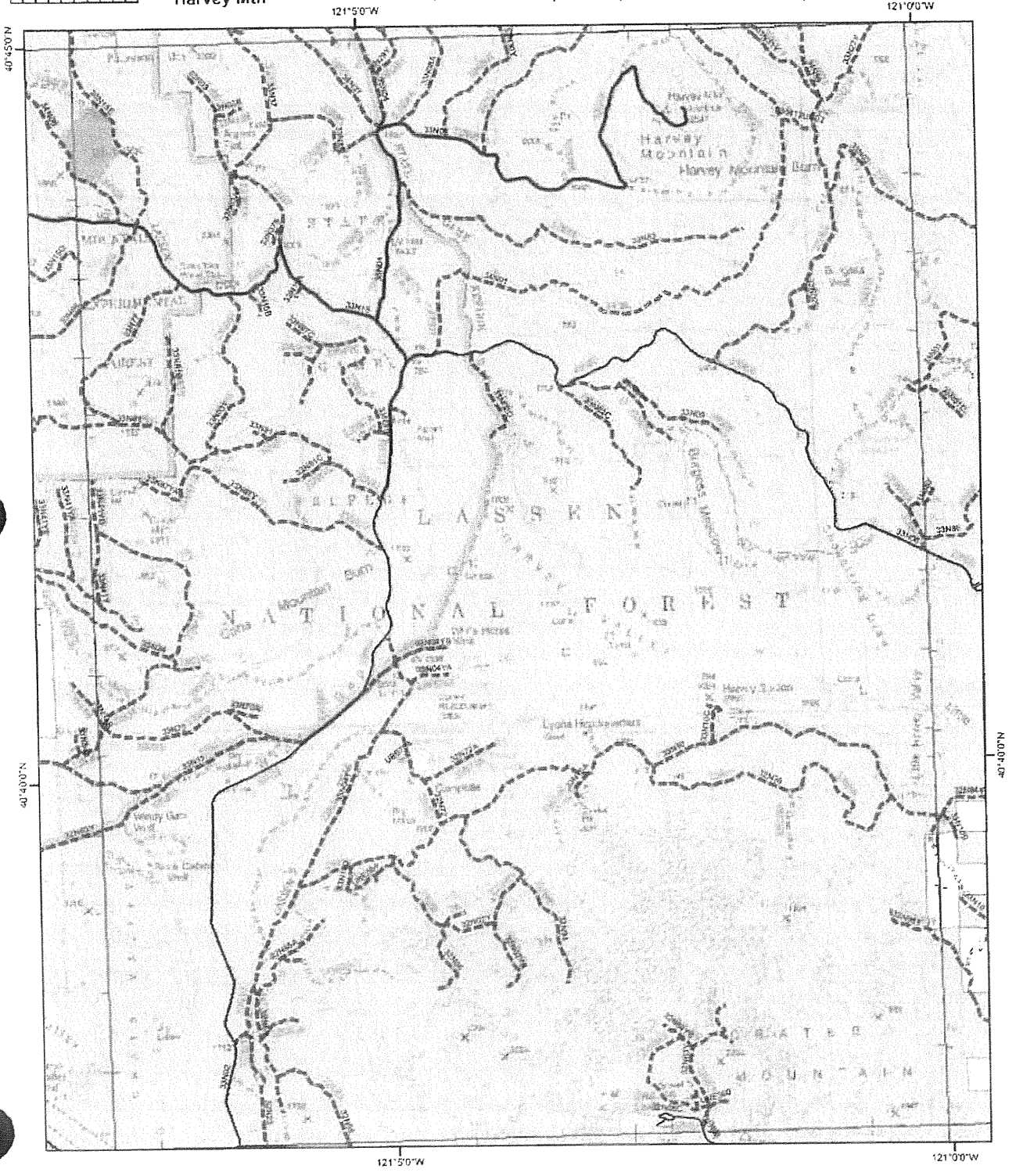
Restrict Season of Use to Summer/Fall (Winter Rec Trail)

Motor Vehicles Prohibited

Lassen National Forest

Private Land

Areas Open to Motorized Vehicle Use




2008/07/29

Prepared by
Tim Dedrick

Forest Transportation Planner/Civil Engineer
Lassen National Forest

Date 9/29/08

Reviewed by
George Kulick

Date

Region 5 Qualified Engineer
Region 5 Office of Engineering

Engineering Report:

Lassen National Forest

Hat Creek Ranger District

Analysis of

National Forest System Road (NFSR)

33N13

for Motorized Mixed Use Designation

Forest: **Lassen** District: **Eagle lake/Hat Creek**

Road Number: **33N13** Road Name: **Swains Hole Road**

Introduction: The 33N13 Road segments studied are located on the east side of Lassen National Forest (LNF) in the Swains Hole quadrangle, on the eastern/western boundary of the Hat Creek/Eagle Lake Ranger Districts respectively.

NFSR 33N13/ML3 begins at the intersection of State Highway 44 in Section 12 of the Swains Hole quadrangle on the Eagle Lake Ranger District and trends due north and west to the Swains Hole, then trends north along the eastern upper extents of the Butte Creek Rim, continuing north through Halls Flat rangeland, and turns towards the northeast at Bufflehead Reservoir and continues northeast a short distance to Halls Flat Well and it's terminus at the intersection of Lassen County Road 111. The road length is approximately 10 miles.

Segment one starts on the Eagle Lake Ranger District at the intersections of 33N52/ML2 to 33N18Y/ML2 for approximately 0.25 miles.

Segment two starts on the Hat Creek Ranger District at the intersections of 33N27/ML2 to Unauthorized Route UNC401 for approximately 0.33 miles, respectively.

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 33N13. 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: **3.00** Ending Mile Post: **3.25**

33N52 to 33N18Y

Traffic Service Level: ☐ A ☐ B ☒ C ☐ D

Objective Maintenance Level: ☐ 1 ☐ 2 ☒ 3 ☐ 4 ☐ 5

Operational Maintenance Level: ☐ 1 ☐ 2 ☒ 3 ☐ 4 ☐ 5

Segment 1: Beginning Mile Post: **7.00** Ending Mile Post: **7.33**

33N27 to UNC401

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 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 possession of a valid driver's license.

Based on the Forest Service Directives and Travel Management purpose and need, to allow all motor vehicles on this segment with a designation of motorized mixed use for a segment or segments with a cumulative distance of 3 miles or less could be consistent with state and federal laws and directives with appropriate mitigation for safety concerns.

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

The road currently encourages use as an objective and operational ML3 collector road and functions as ingress/egress access for the Swains Hole, Bufflehead Reservoir, and Halls Flat grazing allotment areas.

Road 33N13 provides access from State Highway 44, a two lane all weather asphalt surfaced highway, to the Swains Hole reservoir in a northwesterly alignment along the east upper elevations of the Butte Creek Rim, through the Halls Flat grazing allotments, to the Bufflehead Reservoir, and then in a northeasterly direction to Halls Flat Well and the terminus of the road with an intersection of Lassen County Road 111. 33N13 is utilized by forest personnel for access to/from the Halls Flat grazing allotments, wildlife management, fire detection and suppression. The road is a transportation corridor for livestock commodity management that runs 10 miles between a State Highway and County forest highway.

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 33N13/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 33N13 is an observed 1+ lane operational maintenance level 3 standard throughout its extent.

The road is maintained to a standard allowing efficient passenger car through traffic at speeds up to 40 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 livestock grazing area access 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.
- Although the road rests upon the top of the fault block of the Butte Creek Rim, topologically the unit is dry and flat and contains the Halls Flat meadows. The operational level of this road is classified as a 3. The road has a management objective and maintenance level of 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 livestock grazing, wildlife management, emergency fire detection and suppression response.
- 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 33N13 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.

1 Forest Service Fire Patrol vehicle was observed along the road.

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 combination of native crushed rock aggregate and red volcanic cinder surfacing. Portions of the traveled way are raised and the road has culverts. The road is approximately 16' wide. The road traveled way is very dry and contains many fine aggregate components and produces prodigious quantities of dust when driven over. Road shoulders are soft and unconsolidated.

6. Intersections with other roads and trails:

Road segment 1 intersects with the following forest roads.

- 33N52/ML2
- 33N18Y/ML2

Road segment 2 intersects with the following forest roads.

- 33N27/ML2
- UNC401/Unauthorized Route

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 intersections of 33N13/ML3 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 16', approximately.
- Raised roadbed creates soft unconsolidated shoulders and emergency run-out among numerous lava rocks and brush, all of which may lead to loss of control for vehicle operators.
- The road provides administrative access for the Hall Flat meadows, fire suppression access, 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 high elevation native grass with brush meadows.
- Cross slope is 0-1%.
- Grade is 0-2%.
- Pine trees are ≤18" and numerous lava ejecta rocks.
- 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.).
- 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:

Tim Dedrick Sept. 14, 2009

Prepared by
Tim Dedrick Civil Engineer

Date

George Kulick
Region 5 Qualified Engineer

Date

May 2008 DRAFT

Alternative 5
(Motorized Emphasis)
Travel Management
Lassen National Forest

0 0.5 1 Miles

Swains Hole

NFS Surfaced Roads or Non-NFS Jurisdiction Roads Open to Highway Legal Vehicles Only (Includes NFS Maintenance Level 3-5 Roads, State and County Roads, etc.)

Mixed Use Analysis Pending

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

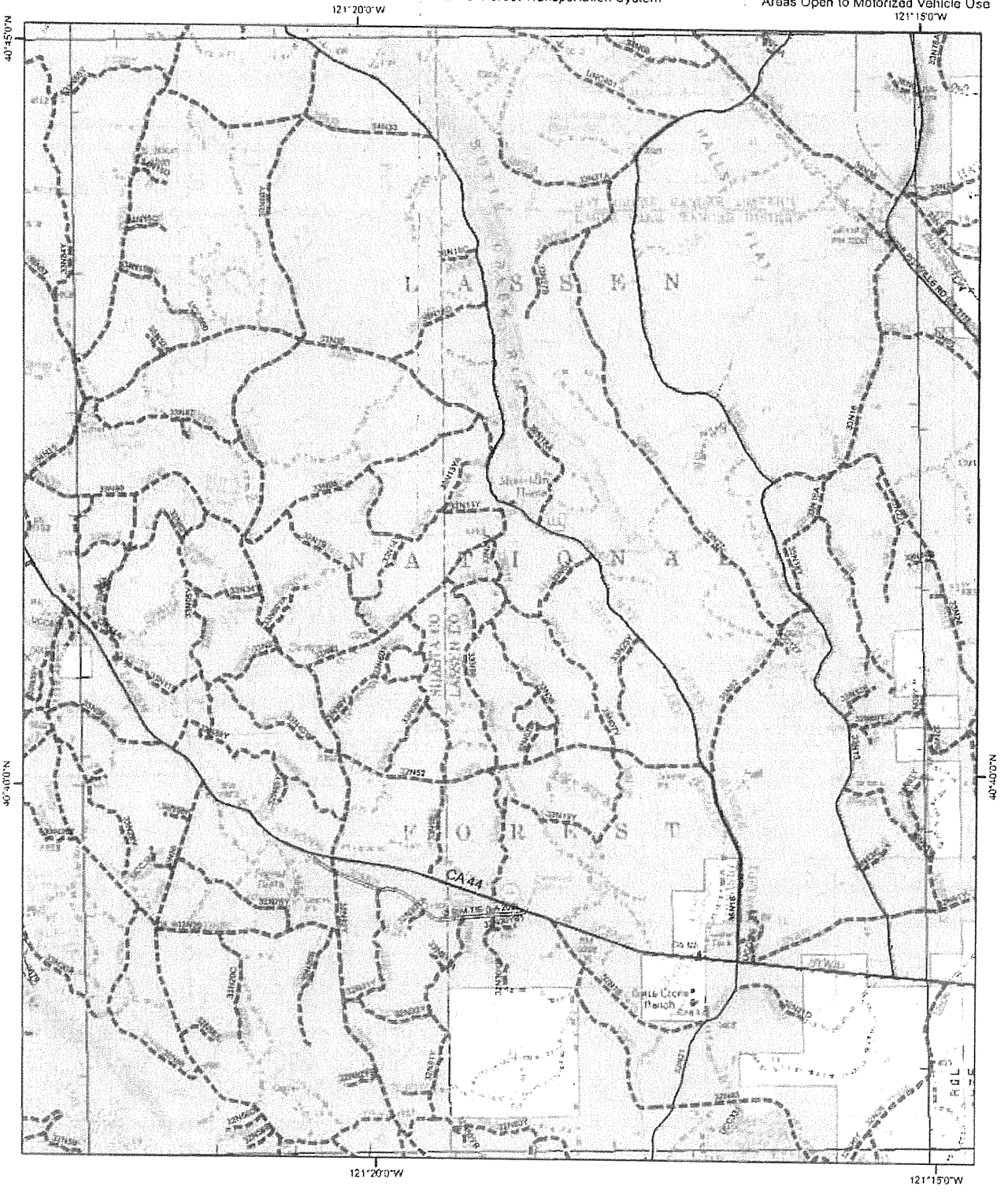
Restrict Season of Use to Summer/Fall (Winter Rec Trail)

Motor Vehicles Prohibited

Lassen National Forest

Private Land

Areas Open to Motorized Vehicle Use



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 ≥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

0 0.5 1 Miles

Harvey Mtn

NFS Surfaced Roads or Non NFS Jurisdiction Roads Open to Highway Legal Vehicles Only (Includes NFS Maintenance Level 3-5 Roads, State and County Roads, etc.)

Mixed Use Analysis Pending

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

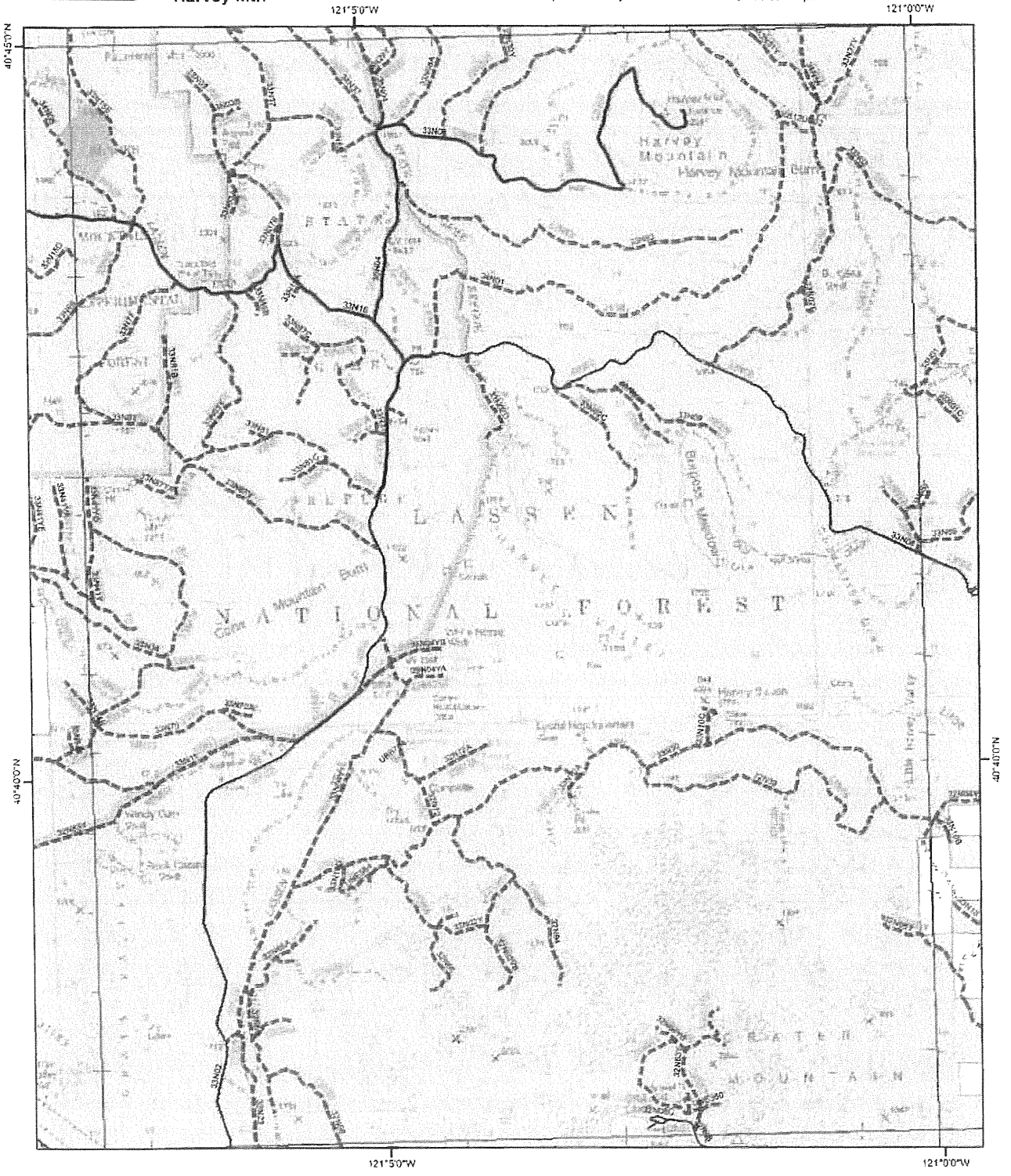
Restrict Season of Use to Summer/Fall (Winter Rec Trail)

Motor Vehicles Prohibited

Lassen National Forest

Private Land

Areas Open to Motorized Vehicle Use



Prepared by
Tim Dedrick

Forest Transportation Planner/Civil Engineer
Lassen National Forest

Date 9/29/08

Reviewed by
George Kulick

Date

Region 5 Qualified Engineer
Region 5 Office of Engineering

Engineering Report:

Lassen National Forest

Hat Creek Ranger District

Analysis of

National Forest System Road (NFSR)

34N13

for Motorized Mixed Use Designation

Forest: **Lassen** District: **Hat Creek**

Road Number: **34N13** Road Name: **Jelly Camp**

Introduction: This report documents the engineering analysis for a segment of 34N13 – Jelly Camp totaling 1.2 miles in length. This total route is a minor collector road connecting NFSR road 36N18 (Distinctive Route 18) on the west to NFSR road 33N13 on the east in the area of Halls Flat. Lassen National Forest (LNF) currently manages this road as open only to highway-legal vehicles.

The study segment was 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, that are not licensed or certified for general operation on public roads within the State) from the beginning termini to the end termini.

The LNF Travel Analysis identified this road section as a potential connection for recreational off-highway vehicle (OHV) loop opportunities on the adjacent road network, which is currently managed as open to non-highway-legal vehicle use.

Study Segment road data from the forest transportation atlas:

Segment: Beginning Mile Post: 1.6 Ending Mile Post: 2.8

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: **None**

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 ☐

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 tie road between NFSR roads 36N18 and 33N13. The road is a single-lane road with turnouts.

NFSR 34N13 has traditionally served administration of the LNF, including fuels and vegetation management, commodity extraction, fire suppression, and recreation.

The road is considered a highway by the Forest Service and is managed in accordance with the Highway Safety Act. The road is managed for passenger car vehicles and is appropriately posted with horizontal route identification markers. Most of the year it is currently managed as open only to highway-legal vehicles.

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 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 improving sight distance by removing brush, maintaining proper signing, and providing better communication, will reduce crash probability.

Road hazard 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.

The road is maintained to a standard allowing efficient passenger car through traffic at speeds up to 40 mph for reasonable and prudent drivers on straightaways.

Designating the road segment for motorized mixed use, with mitigation, results in a risk assessment of low crash probability and high crash severity.

Factors Considered:

1. Operator considerations:

- The current use on NFSR 34N13 appears to be consistent with State law and Forest Service policy for operational maintenance level 3 roads.
- The roadbed is raised and appears to provide for sufficient drainage and passenger car travel.
- Commercial, recreational, and administrative traffic is expected along this segment.

2. Crash history:

No record of accidents

3. Observed 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)

One administrative pickup, one grazing permittee pickup.

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

The road segment was driven at various speeds to simulate conditions encountered by a reasonable and prudent driver in a passenger car.

30 mph on the grade
40 mph on the straightaways

***based on observation and engineering judgment.**

5. Road surface type: coordinate

Segment has cinder surfacing and single lane traveled ways with turnouts. Segment is approximately 14 feet wide.

6. Intersections with other roads and trails:

The sight distances at the managed intersections are rated good

7. Other roadway factors:

- **There is evidence of cattle and cattle trails adjacent to the study segment**
- **A single-lane cattleguard within the segment forces a speed reduction**

8. Roadside conditions:

- **The segment has a design prism that is typical of through fill on the west and side hill construction with ditches and cross drain relief on the east.**

9. Risk without mitigation if designating the roadway "open to all motor vehicles":

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 and trees, especially along curves and at intersections, to improve sight distance.**
  warning: improved sight distance may result in higher speeds
- **Removal of roadside hazards such as boulders, trees, and debris.**
- **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". Continue to manage the road in accordance with maintenance level 3 standards.**

- **Maintain all roadway signing to MUTCD standards.**
- **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. Continue to maintain the road in accordance with maintenance level 3 standards.**

- **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.**

- **Coordinate with the State and revise existing agreements with Caltrans as applicable.**
- **Notify the Commissioner of the California Highway Patrol and review their opinion.**
- **Approximate Implementation Cost: $ 3500**
  This does not account for the additional long-term annual maintenance cost increase associated with maintaining these critical safety corridors.
- **Expected risk:**

  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 segments in accordance with maintenance level 2 standards. This would require removing culverts and ditches, reconstructing the template and narrowing the roadway.**

- **Based on the quality of the road, the amount of thru traffic, this change would not be consistent with the road management objectives.**
- **Approximate Implementation Cost: $8000**
- **Expected risk:**

  Crash probability: ☐ High ☐ Med ☒ Low

  Crash severity: ☐ High ☒ Med ☐ Low

Alternative 4: **Construct trail segments to allow non-highway-legal vehicles to bypass the road and access adjacent maintenance level 2 roads.**

- **The terrain in this area is on flat to steep slopes and would provide for a parallel trail system.**
- **Approximate implementation cost: $15,000**
  This does not include the planning, agreements, and long term maintenance costs associated with a new NFS trail.
- **Expected risk:**

  Crash probability: ☐ High ☐ Med ☒ Low

  Crash severity: ☐ High ☒ Med ☐ Low

Final Comments:

Signing on national forest system roads will 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:

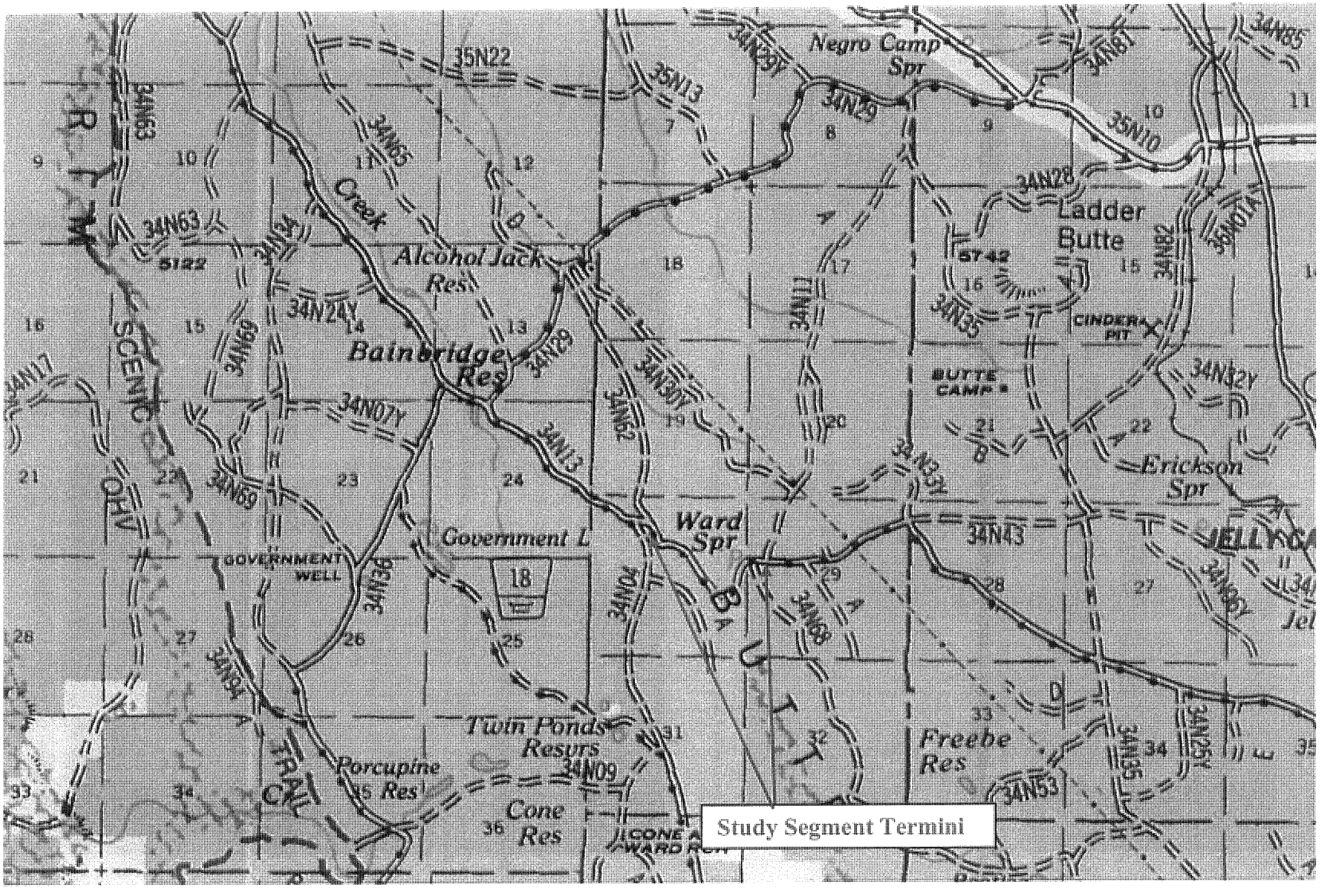


Figure 1: Map of road segments analyzed.

Figure 2: Intersection with NFSR 34N62 (right) and the study segment (behind).

Figure 3: Study segment straightaway.

Figure 4: Curve within the study segment.

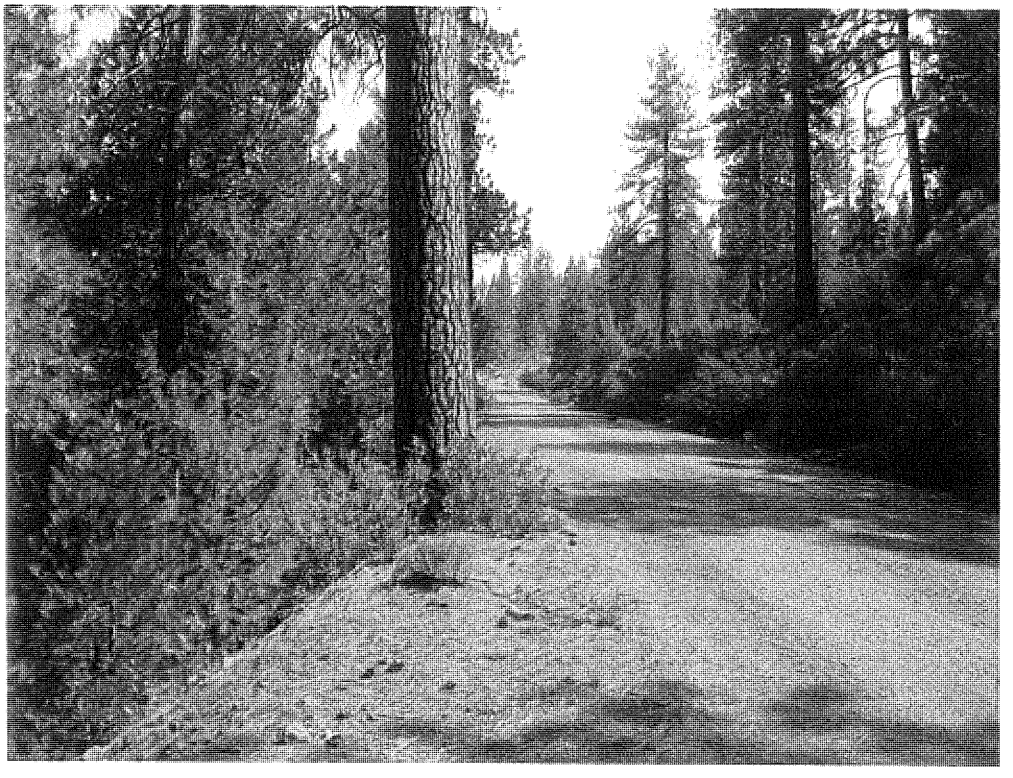


Figure 5: Roadside conditions.

Figure 6: More roadside conditions.

Figure 7: Cattleguard crossing.

Figure 8: Looking back at the study segment and the intersection with NFSR 34N11.

Figure 9: Forest road destination signing.

Prepared by:
Chris Bielecki, Supervisory Civil Engineer

Engineering Report:

Lassen National Forest

Hat Creek Ranger District

Analysis of

National Forest System Road (NFSR)

34N29

for Motorized Mixed Use Designation

Forest: **Lassen** District: **Hat Creek**

Road Number: **34N29** Road Name: **Bainbridge**

Introduction: This report documents the engineering analyses for 2 segments of NFSR 34N29, one 0.27 miles in length and the other 0.75 miles in length. This total route is a tie road connecting NFSR roads 35N10 (distinctive route 22) on the north to 34N13 on the south. Lassen National Forest (LNF) currently manages this road as open only to highway-legal vehicles.

The study 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, that are not licensed or certified for general operation on public roads within the State) from the beginning termini to the end termini.

The LNF Travel Analysis identified these road sections as potential connections for recreational off-highway vehicle (OHV) loop opportunities on the adjacent road network, which is currently managed as open to non-highway-legal vehicle use.

Study Segment information from the forest transportation atlas:

Segment 1: NFSR 34N35 to NFSR 34N47 0.75 miles

Segment 2: NFSR 34N62 to NFSR 34N30Y 0.27 miles

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: **None**

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

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 tie road between NFSR roads 35N10 and 34N13. The road is a single-lane road with turnouts.

NFSR 34N29 has traditionally served administration of the LNF, including fuels and vegetation management, commodity extraction, fire suppression, and recreation.

The road is considered a highway by the Forest Service and is managed in accordance with the Highway Safety Act. The road is managed for passenger car vehicles and is NOT appropriately posted with horizontal route identification markers. Most of the year it is currently managed as open only to highway-legal vehicles.

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 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 improving sight distance by removing brush, maintaining proper signing, and providing better communication, will reduce crash probability.

Road hazard 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.

The road is maintained to a standard allowing efficient passenger car through traffic at speeds up to 35 mph for reasonable and prudent drivers on straightaways.

Designating the road segments for motorized mixed use, with mitigation, results in a risk assessment of low crash probability and high crash severity for segment 1 and a risk assessment of low crash probability and moderate crash severity for segment 2.

Factors Considered:

1. Operator considerations:

- The current use on NFSR 35N29 appears to be consistent with State law and Forest Service policy for operational maintenance level 3 roads.
- The roadbed is raised and appears to provide for sufficient drainage and passenger car travel.
- Commercial, recreational, and administrative traffic is expected along this segment.

2. Crash history:

No record of accidents

3. Observed 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)

None was observed during field investigation to the site.

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

The road segments were driven at various speeds to simulate conditions encountered by a reasonable and prudent driver in a passenger car.

Segment 1: 35 mph based on observation and engineering judgment.
Segment 2: 30 mph based on observation and engineering judgment.

5. Road surface type: coordinate

Segments have cinder surfacing and single lane traveled ways with turnouts. Segments are approximately 12-16 feet wide.

6. Intersections with other roads and trails:

The sight distances at the managed intersections are rated good

7. Other roadway factors:

N/A

8. Roadside conditions:

- **The segment has a design prism is typical of side hill construction with inboard ditch plus x-drain relief. Ditch line has considerable buildup of vegetation.**

9. Risk without mitigation if designating the roadway "open to all motor vehicles":

Segment 1

Crash probability: ☐ High ☒ Med ☐ Low

Crash severity: ☒ High ☐ Med ☐ Low

Segment 2

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 and trees, especially along curves and at intersections, to improve sight distance.**
  warning: improved sight distance may result in higher speeds
- **Removal of roadside hazards such as boulders, trees, and debris.**
- **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". Continue to manage the road in accordance with maintenance level 3 standards.**

- **Maintain all roadway signing to MUTCD standards.**
- **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", including highway legal and non-highway-legal vehicles. Continue to maintain the road in accordance with maintenance level 3 standards.**

- **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**

- **Coordinate with the State and revise existing agreements with Caltrans as applicable.**
- **Notify the Commissioner of the California Highway Patrol and review their opinion.**
- **Approximate Implementation Cost: $ 5000**
  This does not account for the additional long-term annual maintenance cost increase associated with maintaining these critical safety corridors.
- **Expected risk:**

Segment 1

Crash probability: ☐ High ☐ Med ☒ Low

Crash severity: ☒ High ☐ Med ☐ Low

Segment 2

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 segments in accordance with maintenance level 2 standards. This would require removing culverts and ditches, reconstructing the template and narrowing the roadway.**

- **Based on the quality of the road, the amount of thru traffic, this change would not be consistent with the road management objectives.**
- **Approximate Implementation Cost: $ 10,000 per mile**
- **Expected risk**

Crash probability: ☐ High ☐ Med ☒ Low

Crash severity: ☐ High ☒ Med ☐ Low

Alternative 4: **Construct trail segments to allow non-highway-legal vehicles to bypass the road and access adjacent maintenance level 2 roads.**

- **The terrain in this area is on moderate slopes and would provide for a parallel trail system.**

- **Approximate implementation cost: $12,000 per mile**
  This does not include the planning, agreements, and long term maintenance costs associated with a new NFS trail.

  Crash probability: ☐ High ☐ Med ☒ Low

  Crash severity: ☐ High ☐ Med ☒ Low

Final Comments:

Signing on national forest system roads will 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:

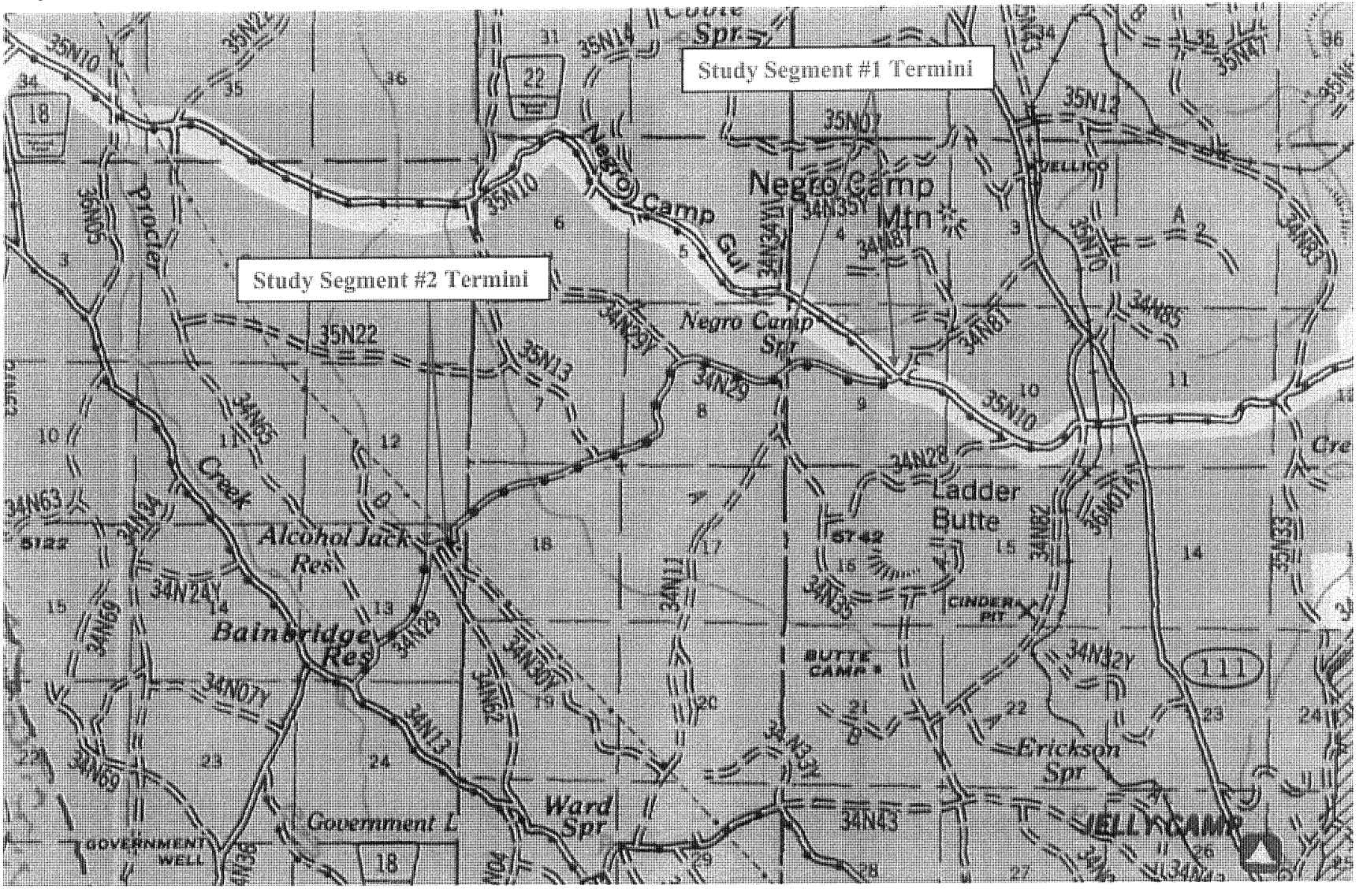


Figure 1: Map of road segments analyzed.

Figure 2: Looking at study segment 1 from NFSR 35N10.

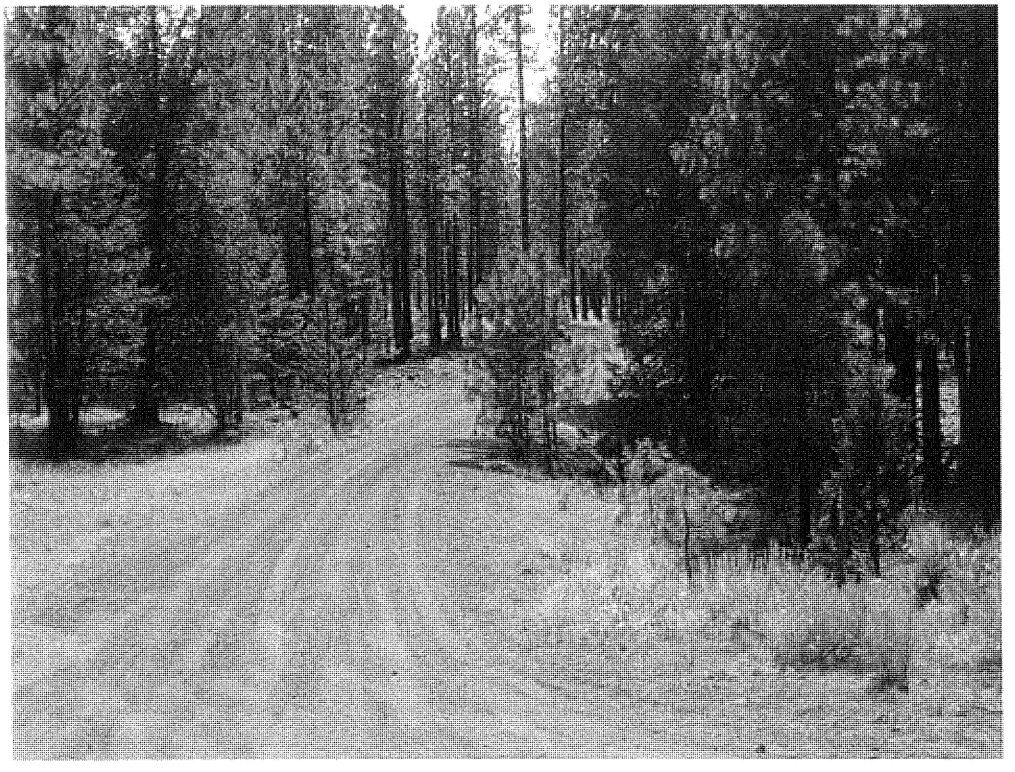


Figure 3: Beginning of study segment 1, from the intersection with NFSR 35N10.

Figure 4: Entering a curve along study segment 1.

Figure 5: Straightaway along study segment 1.

Figure 6: Looking at study segment 1 from the intersection with NFSR 34N35.

Figure 7: Forest route destination signing, segment 1.

Figure 8: Looking at study segment 2, with the intersections of NFSR 34N62 (right) and NFSR 34N29D (left).

Figure 9: Curve along study segment 2.

Figure 10: Looking back at study segment 2, with the intersection of NFSR 34N30Y (left).

Engineering Report:

Lassen National Forest

Hat Creek Ranger District

Analysis of

National Forest System Road (NFSR)

 # 34N34

for Motorized Mixed Use Designation

Forest: **Lassen** District: **Hat Creek**

Road Number: **34N34** Road Name: **West Government**

Introduction: This report documents the engineering analysis for a segment of 34N34 - West Government totaling 1.6 miles in length. This total route is a minor collector road connecting NFSR road 36N18 (distinctive route 18) on the north to California State Highway 44 on the south. Lassen National Forest (LNF) currently manages this road as open only to highway-legal vehicles.

The study segment was 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, that are not licensed or certified for general operation on public roads within the State) from the beginning termini to the end termini.

The LNF Travel Analysis identified this road section as a potential connection for recreational off-highway vehicle (OHV) loop opportunities on the adjacent road network, which is currently managed as open to non-highway-legal vehicle use.

Study Segment road data from the forest transportation atlas:

Segment: Beginning Mile Post: 3.6 Ending Mile Post: 5.2

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: **None**

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

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 tie road between NFSR road 36N18 and State highway 44. The road is a single-lane road with turnouts.

NFSR 34N34 has traditionally served administration of the LNF, including fuels and vegetation management, commodity extraction, fire suppression, and recreation. The road provides access to the Pacific Crest National Scenic Trail (NFSR 34N94) and parallels the Hat Creek Rim.

The road is considered a highway by the Forest Service and is managed in accordance with the Highway Safety Act. The road is managed for passenger car vehicles and is appropriately posted with horizontal route identification markers. Most of the year it is currently managed as open only to highway-legal vehicles.

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 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 improving sight distance by removing brush, maintaining proper signing, and providing better communication, will reduce crash probability.
Road hazard 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.
The road is maintained to a standard allowing efficient passenger car through traffic at speeds up to 40 mph for reasonable and prudent drivers on straightaways. Based on speeds and their associated risk for crash severity, designating the road 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. Culverts are common drainage features on maintenance level 2 roads and standard on maintenance level 4 roads. Often roads on this national forest could be classified one maintenance level higher.**
- **Allowing non-highway-legal vehicles to use the road segments 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 current use on NFSR 34N34 appears to be consistent with State law and Forest Service policy for operational maintenance level 3 roads.**
- **The roadbed is raised and appears to provide for sufficient drainage and passenger car travel.**
- **Commercial, recreational, and administrative traffic is expected along this segment.**

2. Crash history:

No record of accidents

3. Observed 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)

None was observed during field investigation to the site.

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

The road segment was driven at various speeds to simulate conditions encountered by a reasonable and prudent driver in a passenger car.

40 mph based on observation and engineering judgment.

5. Road surface type: coordinate

Segment has cinder surfacing and single lane traveled ways with turnouts. Segment is approximately 14 feet wide.

6. Intersections with other roads and trails:

The sight distances at the managed intersections are rated good

7. Other roadway factors:

- **Grass growing on parts of travel way indicate low traffic volumes.**
- **Dust "plumes" are obviously visible from oncoming traffic. If multiple cars are caravanning this could limit visibility.**

8. Roadside conditions:

- **The segment has a design prism is typical through fill construction with ditch plus x-drain relief.**

9. Risk without mitigation if designating the roadway "open to all motor vehicles":

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 and trees, especially along curves and at intersections, to improve sight distance.**
  warning: improved sight distance may result in higher speeds
- **Removal of roadside hazards such as boulders, trees, and debris.**
- **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". Continue to manage the road in accordance with maintenance level 3 standards.**

- **Maintain all roadway signing to MUTCD standards.**
- **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. Continue to maintain the road in accordance with maintenance level 3 standards.**

- **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.**

- **Coordinate with the State and revise existing agreements with Caltrans as applicable.**
- **Notify the Commissioner of the California Highway Patrol and review their opinion.**
- **Approximate Implementation Cost: $ 3500**
  This does not account for the additional long-term annual maintenance cost increase associated with maintaining these critical safety corridors.
- **Expected risk:**

  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 segments in accordance with maintenance level 2 standards. This would require removing culverts and ditches, reconstructing the template and narrowing the roadway.**

- **Based on the quality of the road, the amount of thru traffic, this change would not be consistent with the road management objectives.**
- **Approximate Implementation Cost: $ 9,000 per mile**
- **Expected risk**

  Crash probability: ☐ High ☐ Med ☒ Low

  Crash severity: ☐ High ☒ Med ☐ Low

Alternative 4: **Construct trail segments to allow non-highway-legal vehicles to bypass the road and access adjacent maintenance level 2 roads.**

- **The terrain in this area is on flat slopes and would provide for a parallel trail system.**
- **Approximate implementation cost: $8,000 per mile**
- ***This does not include the planning, agreements, and long term maintenance costs associated with a new NFS trail.***
- **Expected risk:**

  Crash probability: ☐ High ☐ Med ☒ Low

  Crash severity: ☐ High ☐ Med ☒ Low

Final Comments:

Signing on national forest system roads will 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:

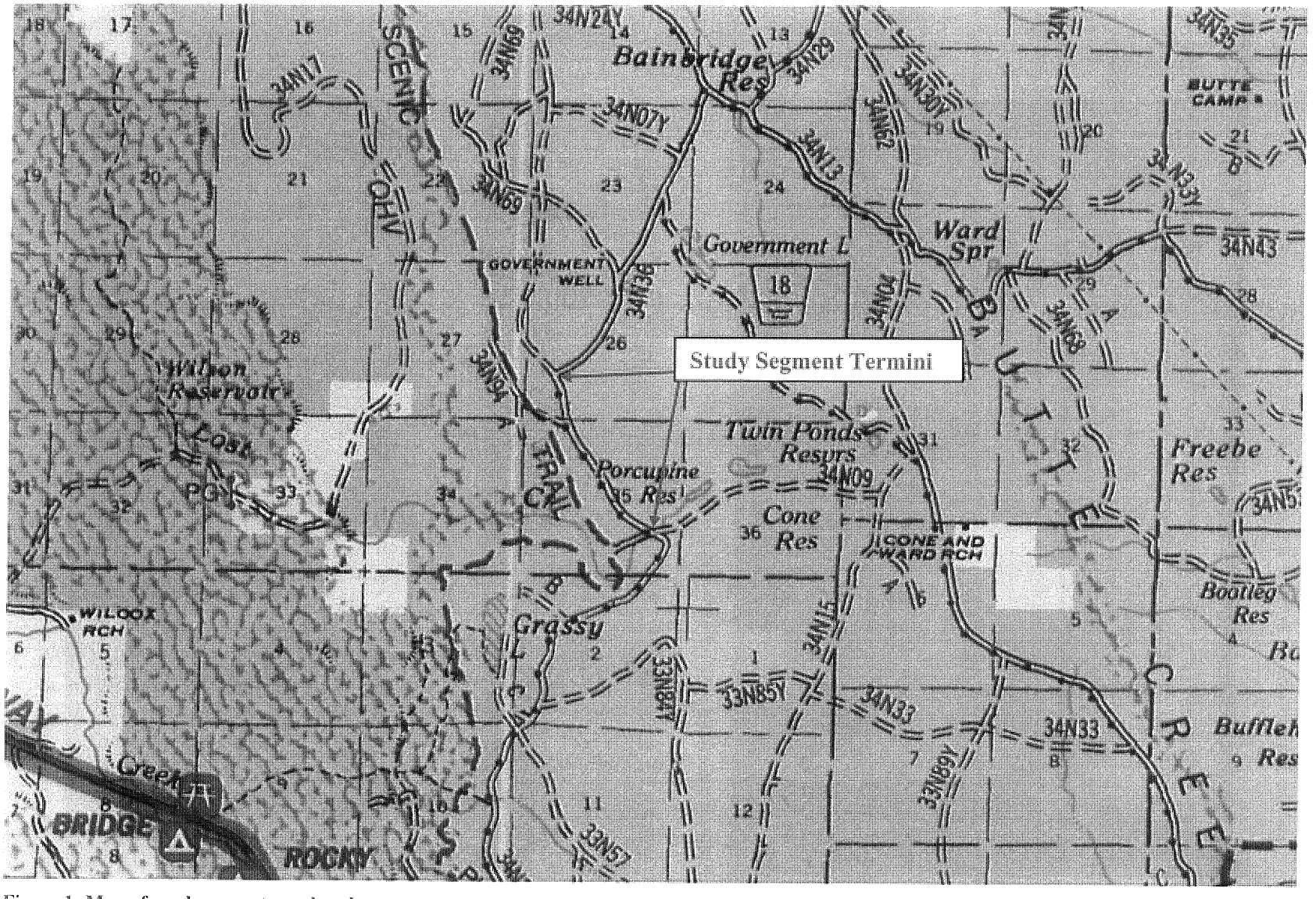


Figure 1: Map of road segments analyzed.

Figure 2: Intersection with NFSR 34N36 (left) and the study segment.

Figure 3: Straightaway along the study segment.

Figure 4: Intersection with NFSR 34N94 and the study segment.

Figure 5: Straightaway.

Figure 6: Entering a curve along the study segment. Note "washboarded" surface.

Figure 7: Cattleguard along the study segment.

Figure 8: South end of the study segment (left); intersection with NFSR 34N09 (right).

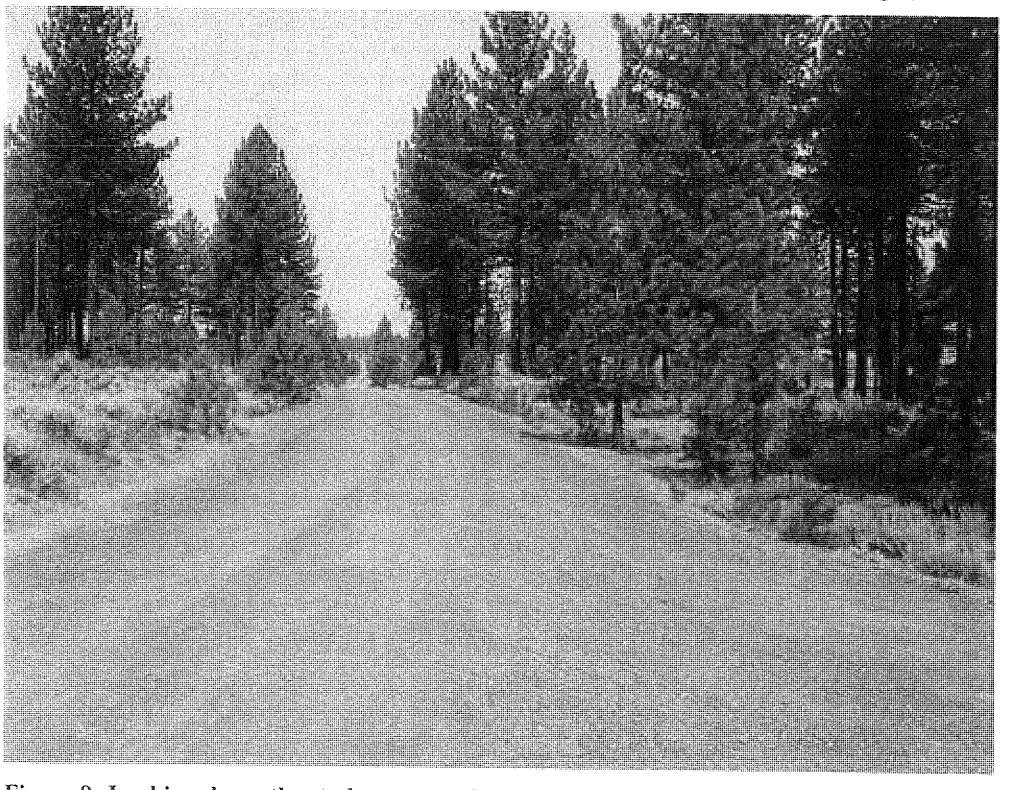


Figure 9: Looking down the study segment from the intersection with NFSR 34N09.

Prepared by:
Chris Bielecki, Supervisory Civil Engineer

Engineering Report:

Lassen National Forest

Eagle Lake Ranger District

Analysis of

National Forest System Road (NFSR)

 # 35N04

for Motorized Mixed Use Designation

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

Road Number: **35N04** Road Name: **Harvey Mountain Lookout Road**

Introduction: The 35N04 Road segment studied is located on the east side of Lassen National Forest (LNF) in the Harvey Mountain quadrangle, on the western boundary of Harvey Valley.

NFSR 35N04 begins at the intersection of 33N02/ML3 in Section 21 of the Harvey Mountain Quadrangle and runs northwest to an intersection with 33N15/ML3 and then turns due north up the western flank of Harvey Mountain to a four way intersection with 33N08/ML3, 33N85/ML2, 34N37/ML2, and 33N29Y/ML2. This road segment is approximately 2 miles in length.

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 35N04, from the intersection of 33N02 to 33N15 and the four way intersection and connection to 33N08. The LNF Travel Analysis (June 2008) identified these road sections as connectors 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: **2.10**

33N02 to 33N08

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 and operational ML3 local collector road and functions as ingress/egress access for the Harvey Mountain Fire Lookout, commodity extraction/forest management for Harvey Mountain and Aspen Flats.

Road 35N04 provides access from 33N02/ML3-4 for a short distance of approximately two miles from the Harvey Valley western margin, up the southwest and western flank of Harvey Mountain. Speeds are approximately 25-30 mph on native crushed rock and volcanic cinder aggregate.

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 35N04/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 35N04 is an observed 1+ lane operational maintenance level 3 standard to approximate road mile 2.2 where it intersects with four NFSR roads. 35N04 continues as a maintenance level 2 from this intersection to it's terminus with 34N12 at approximate road mile 3.

The road is maintained to a standard allowing efficient passenger car through traffic at speeds up to 30 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 it's road system's adherence to maintenance levels. This road is an objective ML3 as it provides fire lookout tower access which necessitates a high level ingress/egress emergency access road.
- Topologically, the unit is semi-mountainous, fairly dry, and sandwiched between 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 rangeland of the Harvey Valley area to the east. The operational level of this road is classified as a 3. 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 emergency fire detection and suppression response, wildlife management in conjunction with the State Game Refuge, commodity extraction, forest

management, rangeland allotments, and dispersed recreation.

- 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 35N04 appears to be consistent with state law and forest policy for operational maintenance level 3 roads.
- Many roads in this vicinity, including the study segment, were dry and contributed significant dust when driven over.

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.

No vehicles observed.

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

The speed greatly varies, depending on the roadway conditions. The 85th percentile would be estimated at: 25 mph.

5. Road surface type:

The road has a combination of crushed rock aggregate and red volcanic cinder aggregate surfacing. Portions of the traveled way are raised and the shoulders are soft and non-compacted. The road is approximately 16' wide. The surface appeared well-maintained.

6. Intersections with other roads and trails:

The segment intersects with the following forest roads.

- 33N15/ML3
- 34N37/ML2
- 35N85B/ML2
- 33N02Y/ML2
- 33N90Y/ML2
- 33N83/ML2
- 34N01/ML2

The maintenance level 2 roads have historically provided forest management access, fire suppression access, commodity 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 horizontal and 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 fire lookout access. 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 5-25%.
- Grade is 2-4%.
- Pine trees are ≥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

0 0.5 1 Miles

Harvey Mtn

NFS Surfaced Roads or Non-NFS Jurisdiction Roads Open to Highway Legal Vehicles Only (Includes NFS Maintenance Level 3-5 Roads, State and County Roads, etc.)

Mixed Use Analysis Pending

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

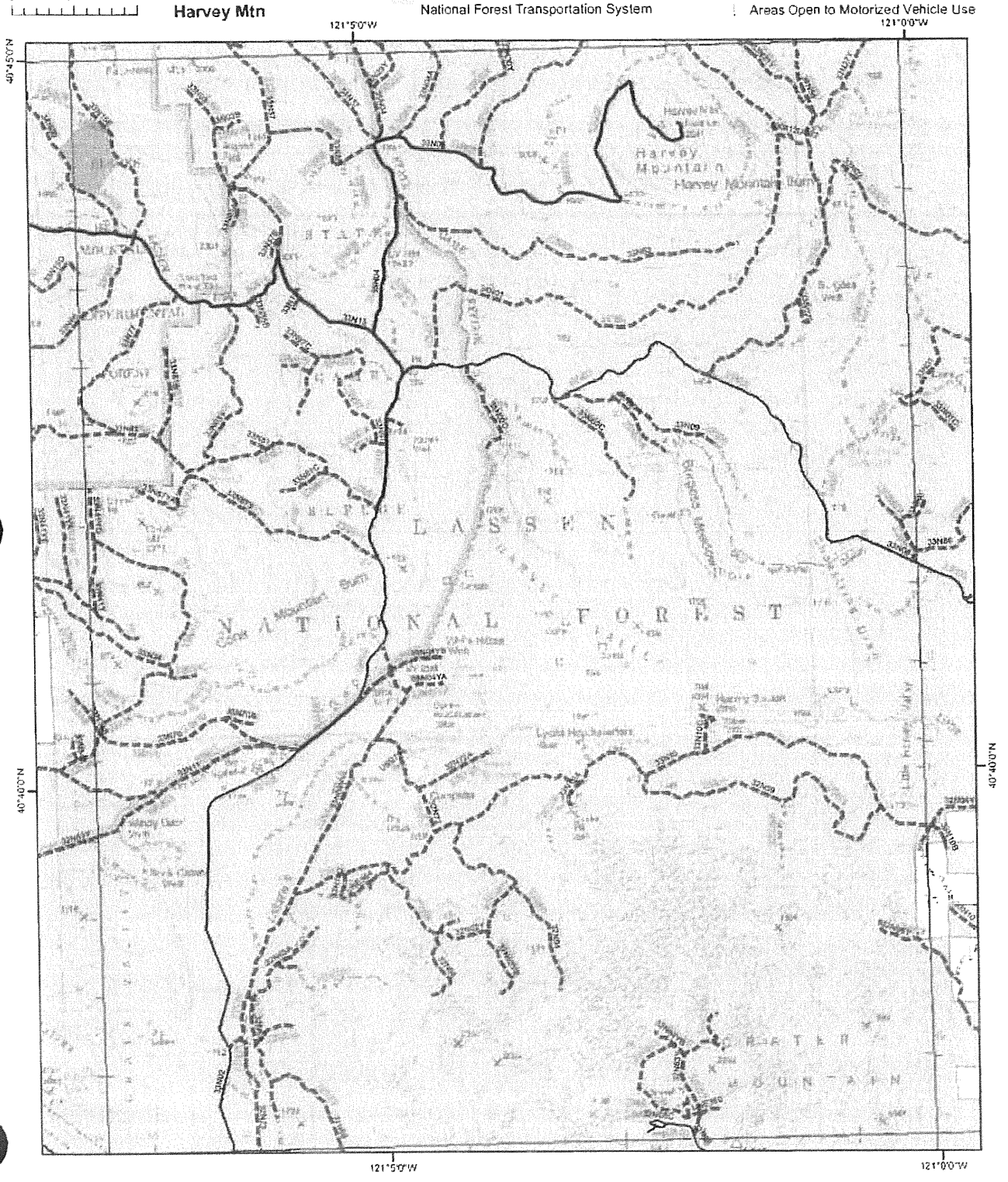
Restrict Season of Use to Summer/Fall (Winter Rec Trail)

Motor Vehicles Prohibited

Lassen National Forest

Private Land

Areas Open to Motorized Vehicle Use



May 2008 DRAFT

Alternative 5
(Motorized Emphasis)
Travel Management
Lassen National Forest

0 0.5 1 Miles

Straylor Lake

NFS Surfaced Roads or Non-NFS Jurisdiction Roads Open to Highway Legal Vehicles Only (Includes NFS Maintenance Level 3-5 Roads, State and County Roads, etc.)

Mixed Use Analysis Pending

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

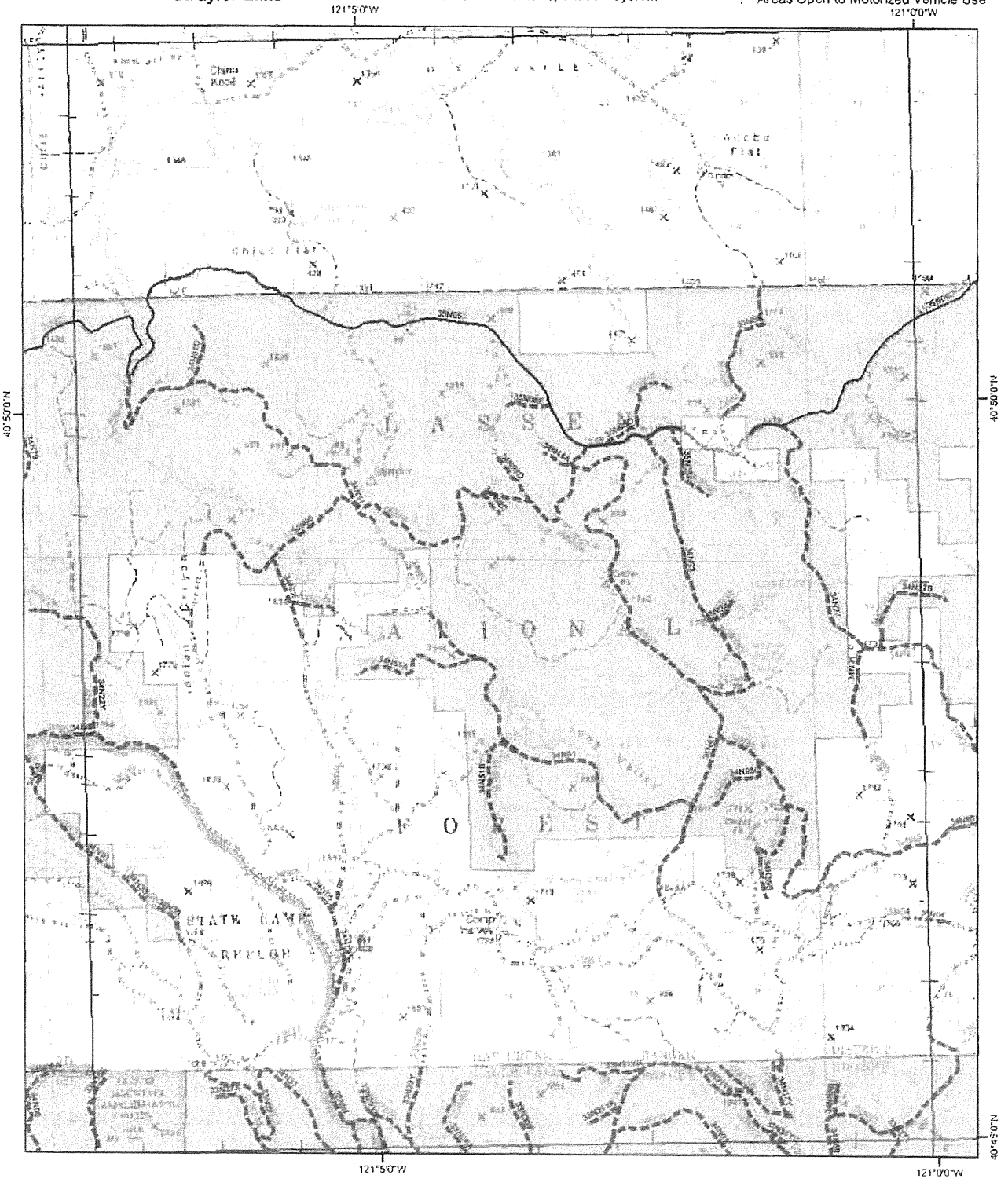
Restrict Season of Use to Summer/Fall (Winter Rec Trail)

Motor Vehicles Prohibited

Lassen National Forest

Private Land

Areas Open to Motorized Vehicle Use



Prepared by
Tim Dedrick

Forest Transportation Planner/Civil Engineer
Lassen National Forest

Date 9/29/08

Reviewed by
George Kulick

Date

Region 5 Qualified Engineer
Region 5 Office of Engineering

Engineering Report:

Lassen National Forest

Eagle Lake Ranger District

Analysis of

National Forest System Road (NFSR)

 # 35N08

for Motorized Mixed Use Designation

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

Road Number: **35N08** Road Name: **Blacks Mountain Road**

Introduction: The 35N08 Road segments studied are located on the east side of Lassen National Forest (LNF) in the Poison Lake quadrangle.

NFSR 35N08 begins at the intersection of State Highway 44 in Section 9 of the Poison Lake quadrangle and runs northeast along the west boundary of Poison Lake, thence north parallel to and crossing the Burlington Northern Railroad tracks and into the State Game Refuge, thence runs north and northwest past the east boundary of Dry Lake, enters the southern extents of the Blacks Mountain Experimental Forest and continues along the western boundary of said experimental forest, thence turns northeast and exits the northern boundary of said experimental forest, road continues northeasterly into the Blacks Mountain quadrangle and the proximity of Bear Valley Reservoir, then continues east and north past the west side of Corders Reservoir and changes direction to the northwest and it's terminus in Section 35 with the intersection of NFSR 35N05ML3-4. This road is approximately 13.5 miles in length.

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 2 segments of 35N08, from the intersection of 33N28Y/ML2 to 35N08N/ML2 and the intersection of the Pittville Road – Lassen County Road 111 to 33N61Y/ML2. The LNF Travel Analysis (June 2008) identified these road sections as connectors 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: **0.50** Ending Mile Post: **1.50**

33N28Y to 35N08N

Traffic Service Level: ☐ A ☐ B ☒ C ☐ D

Objective Maintenance Level: ☐ 1 ☐ 2 ☒ 3 ☐ 4 ☐ 5

Operational Maintenance Level: ☐ 1 ☐ 2 ☒ 3 ☐ 4 ☐ 5

Segment 2: Beginning Mile Post: **2.25** Ending Mile Post: **2.75**

Lassen County Road 111 to 33N61Y

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 and operational ML3 local collector road and functions as ingress/egress access to the west shore of Poison Lake, commodity extraction, wildlife management, and forest management activities.

Road 35N08 provides access from State Highway 44 which is a two lane all weather asphalt surfaced highway, through the Poison Lake and Blacks Mountain quadrangles. This collector road serves as the only maintenance level 3 through-road that connects these two quadrangles and provides primary access to Poison Lake, Dry Lake, Blacks Mountain Experimental Forest, Blacks Mountain, Bear Valley Reservoir, Busters Reservoir, Corders Reservoir, and NFSR 35N05 a forest perimeter ML4 forest highway. Speeds are approximately 25-45 mph with a travel way consisting primarily of red volcanic cinder aggregate and some areas of native crushed rock.

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 these segments of 35N08/ML3 identified in this analysis is to authorize motorized mixed vehicle class use. The proposal is to utilize the ML3 road segments to connect adjacent non-system Unauthorized Routes and ML2 roads into loops 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 35N08 is an observed 1.5 lane objective and operational maintenance level 3-4 standard throughout its extents.

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. The road grade is fairly flat with segments that may approach 3%. Sight distance is limited along the extents of the road alignment with numerous horizontal and vertical curves. Vegetation encroaches upon travel way in many locations. 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 it's road system's adherence to maintenance levels. This road is an objective ML3 and operational ML3-4.
- Topologically, the unit is a series of ephemeral small-lake drainage basins with semi-arid meadows in the lower elevations and open pine forests and manzanita brushfields vegetating the low-mid elevations and mountain flanks. 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) forest management activities. The objective of the road is to provide access for emergency fire suppression response, wildlife management, private property access, and commodity extraction.
- Road is a high-level forest collector/arterial ML3-4 haul through-road to Blacks Mtn Experimental Forest.
- 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 35N08 appears to be consistent with state law and forest policy for operational maintenance level 3 roads.
- Many roads in this vicinity, including the study segment, were dry and contributed significant dust when driven over.

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.

1 agency pickup truck was observed on this road.

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

The speed greatly varies, depending on the roadway conditions. The 85th percentile would be estimated at: 45 mph.

5. Road surface type:

The road has a predominance of red volcanic cinder aggregate surfacing with minor areas with native crushed rock. Portions of the traveled way are raised and the shoulders are soft and non-compacted. The road is approximately 15'-18' wide. The grade is consistently flat with pitches up to 3%. The dry travel way, loose surface material, and higher vehicle driving speeds have produced a consistent wash-boarding of the acceleration/deceleration zones (horizontal

curves) along the road. Vehicle control is limited due to loose travel way surface material (volcanic cinder aggregate) and horizontal curves.

6. Intersections with other roads and trails:

Segment 1 intersects with the following forest roads.

- 33N28Y/ML2
- 35N08M/ML2
- 35N08N/ML2

Segment 2 intersects with the following forest roads.

- Lassen County Road 111, (Pittville Rd.)
- 33N61Y/ML2

The maintenance level 2 roads have historically provided forest management access, fire suppression access, commodity access, and hunting and firewood gathering access.

The proposed MMU intersections of 35N08/ML3 may result in higher traffic merging speeds.

7. Other roadway factors:

- Substantial horizontal and 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 15'-18', approximately.
- Cross slope of approximately 6% in stretches of alignment.
- Grade of road is up to approximately 3%.
- The road provides administrative access for forest management activities, wildlife management, fire suppression access, 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 along lake shores, through arid meadows, open pine forest and manzanita brush.
- Cross slope is maximum 6%.
- Grade is up to 3%.
- Pine trees are ≥18", encroaching roadside manzanita, volcanic rocks.
- Emergency run-out is limited as the roadbed is raised with vertical drop-offs of up to 6 feet from the road shoulders and associated culverts.

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.
- Remove cinder material and replace with compacted crushed rock aggregate.
- Notify the Commissioner of the California Highway Patrol and review their opinion.

- Approximate Implementation Cost: $ 50,000
- 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

0 0.5 1 Miles

Poison Lake

NFS Surfaced Roads or Non-NFS Jurisdiction Roads Open to Highway Legal Vehicles Only (Includes NFS Maintenance Level 3-5 Roads, State and County Roads, etc.)

Mixed Use Analysis Pending

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

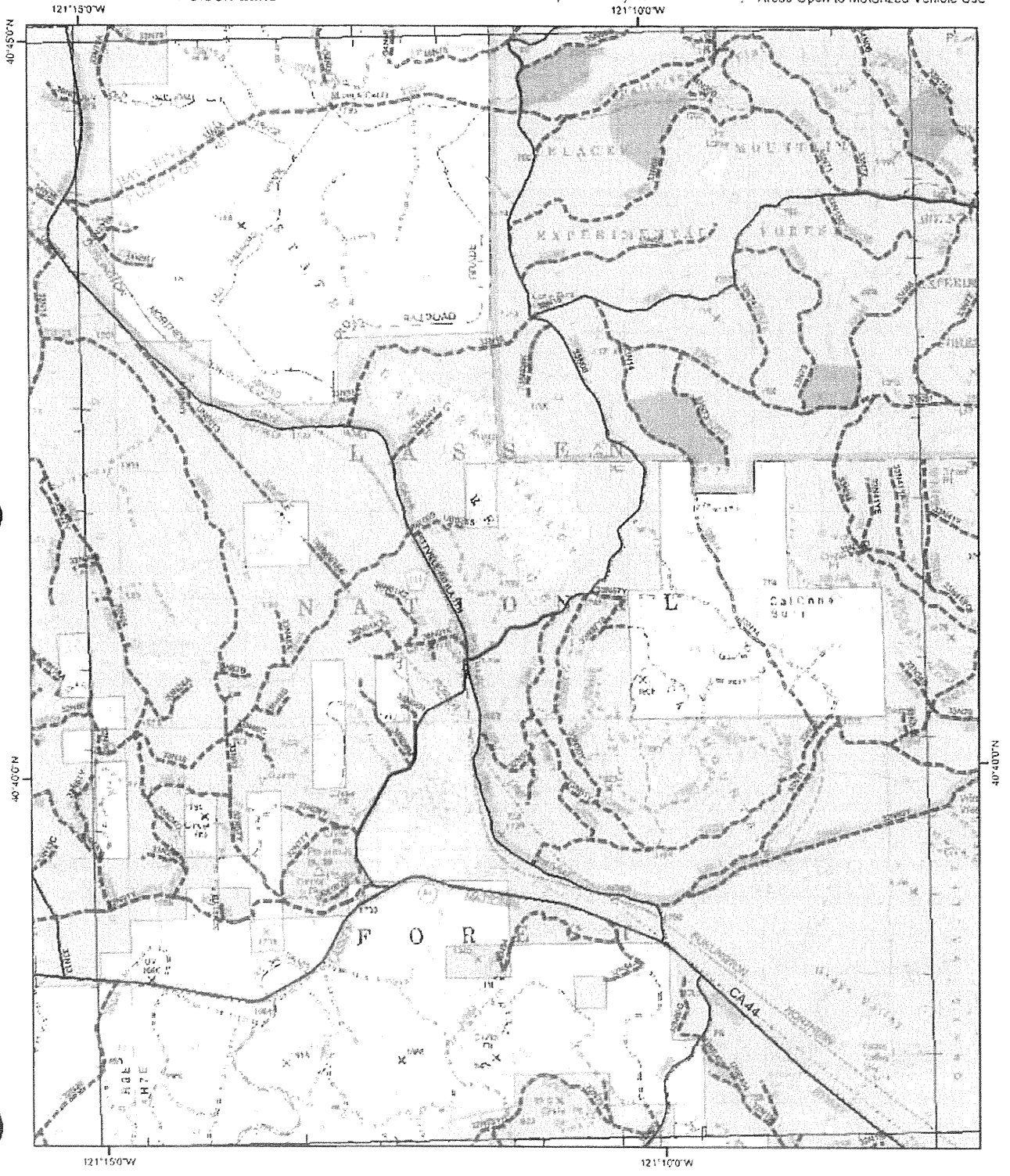
Restrict Season of Use to Summer/Fall (Winter Rec Trail)

Motor Vehicles Prohibited

Lassen National Forest

Private Land

Areas Open to Motorized Vehicle Use



Prepared by
Tim Dedrick

Forest Transportation Planner/Civil Engineer
Lassen National Forest

Date 9/29/08

Reviewed by
George Kulick

Date

Region 5 Qualified Engineer
Region 5 Office of Engineering

Engineering Report:

Lassen National Forest

Hat Creek Ranger District

Analysis of

National Forest System Road (NFSR)

35N10

for Motorized Mixed Use Designation

Forest: **Lassen** District: **Hat Creek**

Road Number: **35N10** Road Name: **Hat Creek – Little Valley Tie**

Introduction: This report documents the engineering analysis for 4 segments of 35N10 (Distinctive Route 22) Hat Creek – Little Valley Tie, totaling 3.83 miles in length. The total route encompasses from Little Valley on the east to Shasta County Road 6R201 in the Hat Creek Valley on the west. This is the western portion of distinctive route 22. The eastern portion is currently in the data base under NFSR 35N05. Lassen National Forest (LNF) currently manages this road as open only to highway-legal vehicles.

The study 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, that are not licensed or certified for general operation on public roads within the State) from the beginning termini to the end termini.

The LNF Travel Analysis identified these road sections as potential connections for recreational off-highway vehicle (OHV) loop opportunities on the adjacent road network, which is currently managed as open to non-highway-legal vehicle use.

Study Segment road data from the forest transportation atlas:

Segment 1: NFSR 35N38 to NFSR 35N40

Segment 2: NFSR 34N82 to NFSR 34N88

Segment 3: NFSR 35N13 to NFSR 35N14

Segment 4: NFSR 36N05 to NFSR 35N22

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:

There are utility and railroad corridor crossings along the roadway.

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

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 provides access from Little Valley to the Hat Creek Valley. The road is a single-lane road with turnouts. The favorable alignment along with greater than ordinary width (14 – 18 feet) provides for speeds up to 40 MPH.

NFSR 35N10 has traditionally served administration of the LNF, including fuels and vegetation management, commodity extraction, fire suppression, and recreation.

The road is considered a highway by the Forest Service and is managed in accordance with the Highway Safety Act. The road is managed for passenger car vehicles and is appropriately posted with horizontal route identification markers. Most of the year it is currently managed as open only to highway-legal vehicles.

The road is also managed as a Forest Distinctive Route (DR 22), which means that this serves as a primary route on the FS unit. The road segment is also part of the Lassen Backcountry Byway, a designated roadway for passenger car vehicles with a brochure highlighting attractions for visitors to see.

The study segments are 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 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 improving sight distance by removing brush, maintaining proper signing, and providing better communication, will reduce crash probability.

Road hazard 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.

The road is maintained to a standard allowing efficient passenger car through traffic at speeds up to 40 mph for reasonable and prudent drivers on straightaways.

Designating the road segment for motorized mixed use, with mitigation, results in a risk assessment of moderate crash probability and high crash 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. Culverts are common drainage features on maintenance level 2 roads and standard on maintenance level 4 roads. Often roads on this national forest could be classified one maintenance level higher.**
- **Allowing non-highway-legal vehicles to use the road segments 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 current use on NFSR 35N10 appears to be consistent with State law and Forest Service policy for operational maintenance level 3 roads.**
- **The roadbed is raised and appears to provide for sufficient drainage and passenger car travel.**
- **Commercial, recreational, and administrative traffic is expected along this segment.**

2. Crash history:

No record of accidents

3. Observed 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)

No traffic was observed during the field investigations on the segments.

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

The road segments were driven at various speeds to simulate conditions encountered by a reasonable and prudent driver in a passenger car.

Segment 1:
40 mph based on observation and engineering judgment.

Segment 2:
40 mph based on observation and engineering judgment.

Segment 3:
30 mph based on observation and engineering judgment.

Segment 4:
35 - 40 mph based on observation and engineering judgment.

5. Road surface type: coordinate

All segments have a combination of cinder and aggregate surfacing and single lane traveled ways with turnouts. Segment 1 and segment 2 is approximately 14 – 16 feet wide. Segment 3 is approximately 14 – 20 feet wide. Segment 4 is approximately 16 feet wide.

6. Intersections with other roads and trails:

The sight distances at the managed intersections are rated good. Many of the intersection with NFSR level 2 routes allows for higher merging speeds since the road lacks the proper entrance treatment.

7. Other roadway factors:

- **None**

8. Roadside conditions:

- **On all segments the design prism is typical of side hill construction with inboard ditch plus x-drain relief**

9. Risk without mitigation if designating the roadway "open to all motor vehicles":

Segment one
Crash probability: ☐ High ☒ Med ☐ Low

Crash severity: ☒ High ☐ Med ☐ Low

Segment two
Crash probability: ☐ High ☒ Med ☐ Low

Crash severity: ☒ High ☐ Med ☐ Low

Segment three
Crash probability: ☐ High ☒ Med ☐ Low

Crash severity: ☒ High ☐ Med ☐ Low

Segment four
Crash probability: ☐ High ☒ Med ☐ Low

Crash severity: ☒ High ☐ Med ☐ Low

Crash probability was assessed based on:

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

Crash severity was assessed based on:

- **Roadway geometry (embankments, slopes, horizontal and vertical alignments), 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 and trees, especially along curves and at intersections, to improve sight distance.**
  warning: improved sight distance may result in higher speeds
- **Removal of roadside hazards such as boulders, trees, and debris.**
- **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". Continue to manage the road in accordance with maintenance level 3 standards.**

- **Maintain all roadway signing to MUTCD standards.**
- **Approximate Implementation Cost: $ 0**
- **Expected risk:**
  All segments
  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. Continue to maintain the road in accordance with maintenance level 3 standards.**

- **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**

- **Coordinate with the State and revise existing agreements with Caltrans as applicable.**
- **Notify the Commissioner of the California Highway Patrol and review their opinion.**
- **Approximate Implementation Cost: $ 7500**
  This does not account for the additional long-term annual maintenance cost increase associated with maintaining these critical safety corridors.
- **Expected risk:**
  Segment one,two and four
  Crash probability: ☐ High ☒ Med ☐ Low

  Crash severity: ☒ High ☐ Med ☐ Low

  Segment three
  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 segments in accordance with maintenance level 2 standards. This would require removing culverts and ditches, reconstructing the template and narrowing the roadway.**

- **Based on the quality of the road, the amount of thru traffic, the distinctive route status, and the change from the rest of the collector route, this change would not be consistent with the road management objectives.**
- **This option is not currently feasible, based on the high standard of existing road**
- **Approximate Implementation Cost: $ 15,000 per mile**
- **Expected risk on all segments**

  Crash probability: ☐ High ☐ Med ☒ Low

  Crash severity: ☐ High ☒ Med ☐ Low

Alternative 4: **Construct trail segments to allow non-highway-legal vehicles to bypass the road and access adjacent maintenance level 2 roads.**
Segment one

- **The terrain in this area is flat and would provide for a parallel trail**

- **Approximate implementation cost: $8000 per mile**

Segment two

- **The terrain in this area is on moderate to flat slopes and would provide for a parallel trail system.**
- **Approximate implementation cost: $8000 per mile**

Segment three

- **The terrain in this area is on moderate to steep slopes and would not easily provide for a parallel trail system.**
- **Approximate implementation cost: $16,000 per mile**

Segment four

- **The terrain in this area is on moderate slopes and would provide for a parallel trail system.**
- **Approximate implementation cost: $8000 per mile**

These costs do not include the planning, agreements, and long term maintenance costs associated with a new NFS trail.
For all segments

Crash probability: ☐ High ☐ Med ☒ Low

Crash severity: ☐ High ☐ Med ☒ Low

Final Comments:

Signing on national forest system roads will 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:

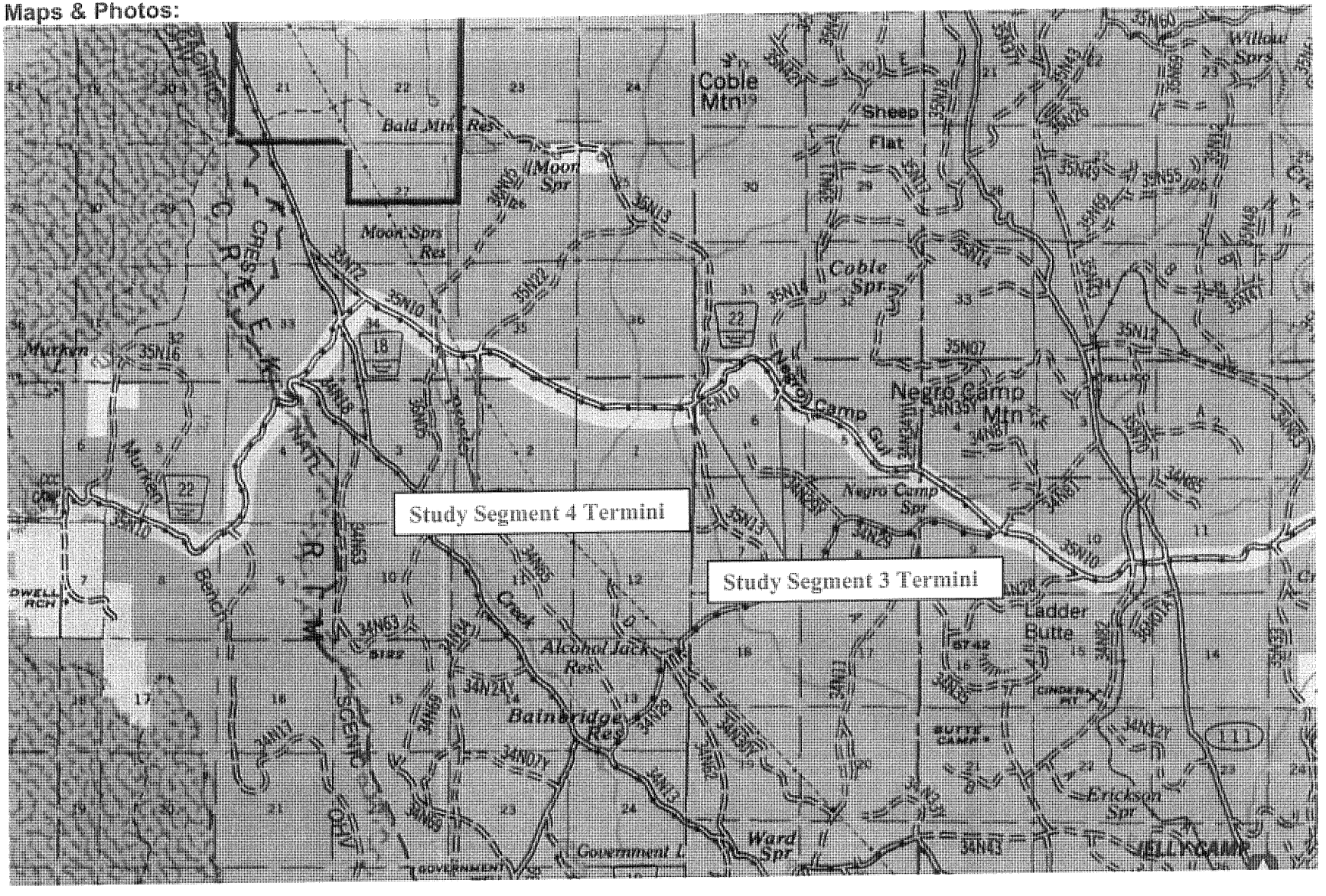


Figure 1: West half of NFSR 35N10.

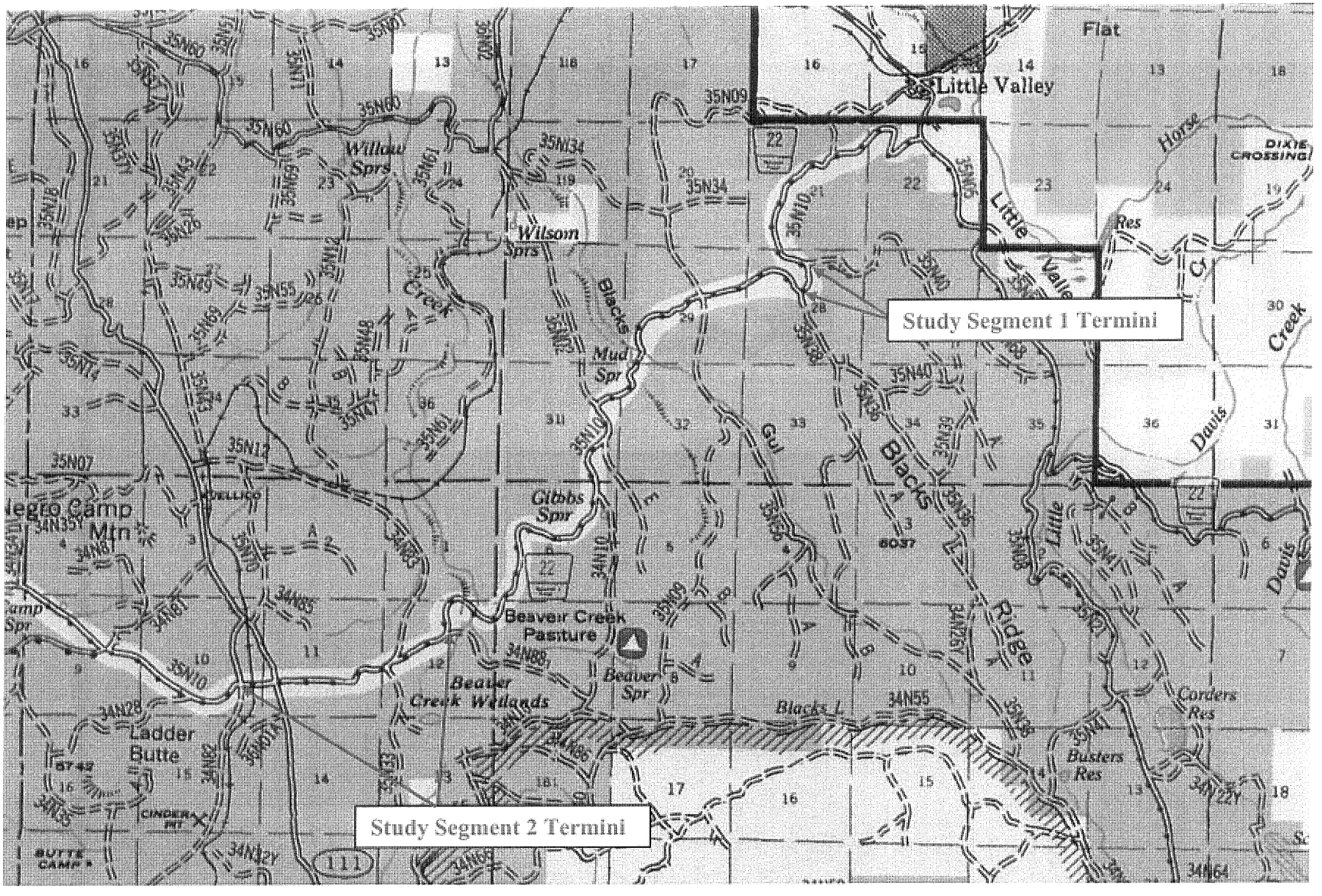


Figure 2: East half of NFSR 35N10.

Figure 3: Looking at study segment 4, with the intersection of NFSR 36N05 (left).

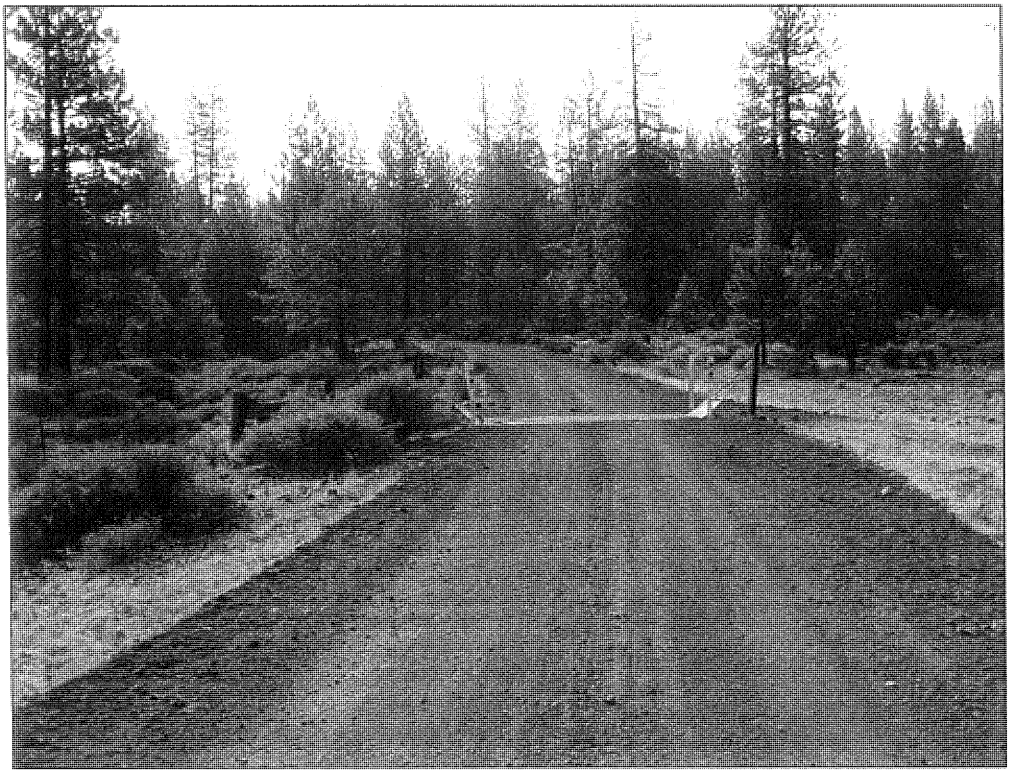


Figure 4: Cattleguard, section 4.

Figure 5: Looking back at segment 4, with the intersection of NFSR 35N22 on left. Note utility line crossing.

Figure 6: Looking at segment 3, with the intersection of NFSR 35N13 on the right.

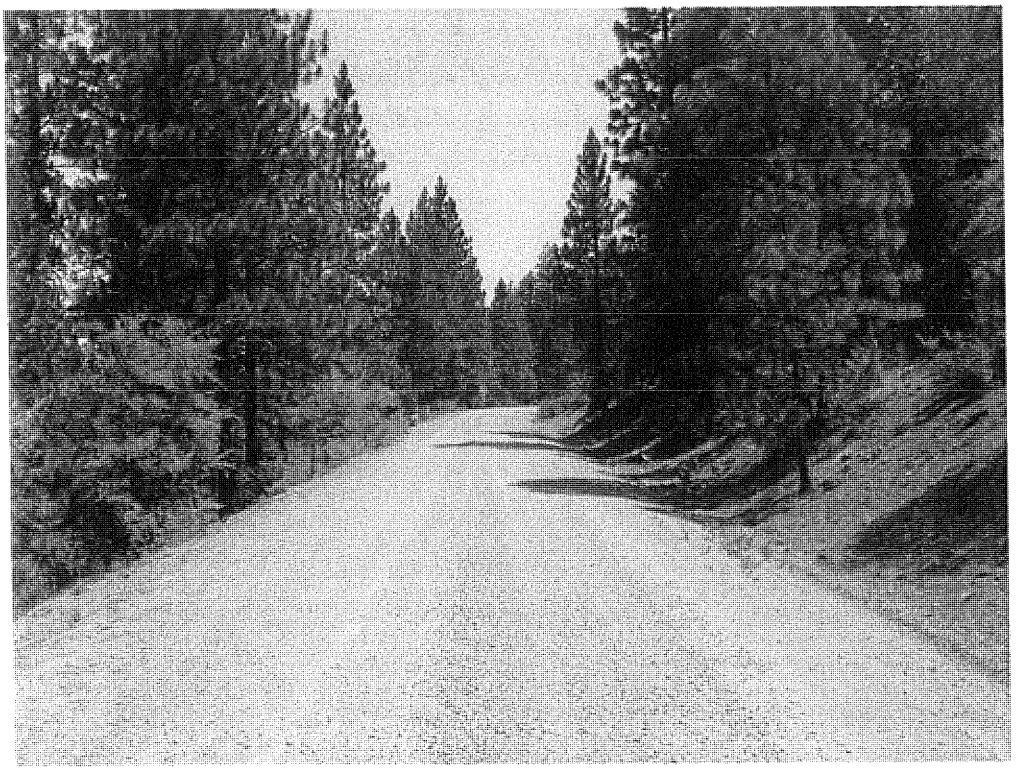


Figure 7: Segment 3 straightaway.

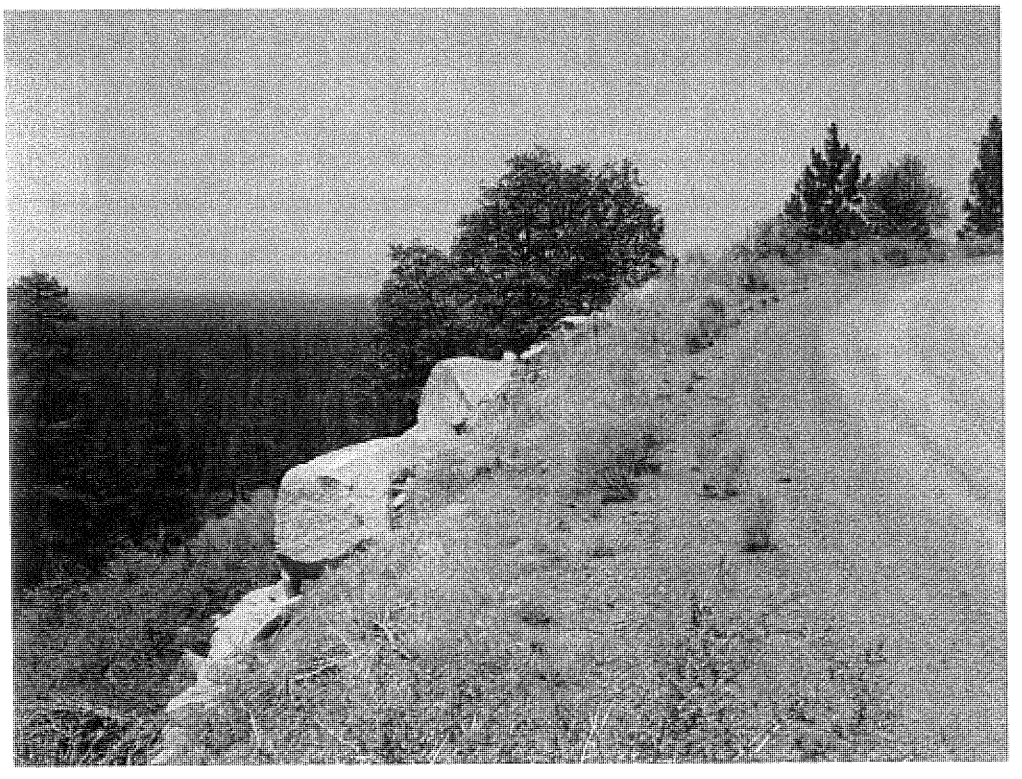


Figure 8: Segment 3 roadside conditions.

Figure 9: Looking back at segment 3 (ahead right), with the intersection of NFSR 35N14.

Figure 10: Looking at segment 2; intersection with NFSR 34N82 on right.

Figure 11: Segment 2 straightaway.

Figure 12: Curve along segment 2.

Figure 13: Looking back at segment 2, NFSR 34N88 on left.

Figure 14: Looking at segment 1 from the intersection with NFSR 35N38.

Figure 15: Looking at segment 1; intersection with NFSR 35N38 on left.

Prepared by:
Chris Bielecki, Supervisory Civil Engineer

Engineering Report:

Lassen National Forest

Hat Creek Ranger District

Analysis of

National Forest System Road (NFSR)

35N10

(Negro Camp Spring)

for Motorized Mixed Use Designation

Forest: **Lassen** District: **Hat Creek**

Road Number: **35N10** Road Name: **Hat Creek – Little Valley Tie**

Introduction: This report documents the engineering analysis for a segment of 35N10 (Distinctive Route 22) Hat Creek – Little Valley Tie, totaling 1.05 miles in length. The total route encompasses from Little Valley on the east to Shasta County Road 6R201 in the Hat Creek Valley on the west. This is the western portion of distinctive route 22. The eastern portion is currently in the data base under NFSR 35N05. Lassen National Forest (LNF) currently manages this road as open only to highway-legal vehicles.

The LNF Travel Analysis identified this road section as a potential connection for recreational off-highway vehicle (OHV) loop opportunities on the adjacent road network, which is currently managed as open to non-highway-legal vehicle use or proposed for motorized mixed use (NFSR 34N29).

Study Segment information from the forest transportation atlas:

Segment 1: NFSR 34N29 to NFSR 34N34Y 1.05 miles

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: **None**

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

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 provides access from Little Valley to the Hat Creek Valley. The road is a single-lane road with turnouts. The alignment provides for speeds up to 40 MPH on straightaways.
NFSR 35N10 has traditionally served administration of the LNF, including fuels and vegetation management, commodity extraction, fire suppression, and recreation.
The road is considered a highway by the Forest Service and is managed in accordance with the Highway Safety Act. The road is managed for passenger car vehicles and is appropriately posted with horizontal route identification markers. Most of the year it is currently managed as open only to highway-legal vehicles.
The road is also managed as a Forest Distinctive Route (DR 22), which means that this serves as a primary route on the FS unit. The road segment is also part of the Lassen Backcountry Byway, a designated roadway for passenger car

vehicles with a brochure highlighting attractions for visitors to see.
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 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 improving sight distance by removing brush, maintaining proper signing, and providing better communication, will reduce crash probability.

Road hazard 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.

The road is maintained to a standard allowing efficient passenger car through traffic at speeds up to 40 mph for reasonable and prudent drivers on straightaways.

Designating the road segment for motorized mixed use, with mitigation, results in a risk assessment of moderate crash probability and high crash severity.

Factors Considered:

1. Operator considerations:

- The current use on NFSR 35N10 appears to be consistent with State law and Forest Service policy for operational maintenance level 3 roads.
- The roadbed is raised and appears to provide for sufficient drainage and passenger car travel.
- Commercial, recreational, and administrative traffic is expected along this segment.

2. Crash history:

No record of accidents

3. Observed 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)

None was observed during field investigation to the site.

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

The road segments were driven at various speeds to simulate conditions encountered by a reasonable and prudent driver in a passenger car.

30 mph on curves
40 mph on straightaways

5. Road surface type: coordinate

Segments have cinder surfacing and single lane traveled ways with turnouts. Segments are approximately 12 feet wide.

6. Intersections with other roads and trails:

The sight distances at the managed intersections are rated good

7. Other roadway factors:

N/A

8. Roadside conditions:

- **The segment has a design prism is typical of side hill construction with inboard ditch plus x-drain relief.**

9. Risk without mitigation if designating the roadway "open to all motor vehicles":

Segment 1

Crash probability: ☐ High ☒ Med ☐ Low

Crash severity: ☒ High ☐ Med ☐ Low

Crash probability was assessed based on:

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

Crash severity was assessed based on:

- **Roadway geometry (embankments, slopes, horizontal and vertical alignments), 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 and trees, especially along curves and at intersections, to improve sight distance.**
  warning: improved sight distance may result in higher speeds
- **Removal of roadside hazards such as boulders, trees, and debris.**
- **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". Continue to manage the road in accordance with maintenance level 3 standards.**

- **Maintain all roadway signing to MUTCD standards.**
- **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", including highway legal and non-highway-legal vehicles. Continue to maintain the road in accordance with maintenance level 3 standards.**

- **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.**
- **Coordinate with the State and revise existing agreements with**

- **Notify the Commissioner of the California Highway Patrol and review their opinion.**
- **Approximate Implementation Cost: $ 4000**
  This does not account for the additional long-term annual maintenance cost increase associated with maintaining these critical safety corridors.
- **Expected risk:**

  Segment 1

  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 segments in accordance with maintenance level 2 standards. This would require removing culverts and ditches, reconstructing the template and narrowing the roadway.**

- **Based on the quality of the road, the amount of thru traffic, this change would <u>not</u> be consistent with the road management objectives.**
- **Approximate Implementation Cost: $ 12,000 per mile**
- **Expected risk**

  Crash probability: ☐ High ☐ Med ☒ Low

  Crash severity: ☐ High ☒ Med ☐ Low

Alternative 4: **Construct trail segments to allow non-highway-legal vehicles to bypass the road and access adjacent maintenance level 2 roads.**

- **The terrain in this area is on moderate slopes and would provide for a parallel trail system.**
- **Approximate implementation cost: $18,000 per mile**
  This does not include the planning, agreements, and long term maintenance costs associated with a new NFS trail.

  Crash probability: ☐ High ☐ Med ☒ Low

  Crash severity: ☐ High ☒ Med ☐ Low

Final Comments:

Signing on national forest system roads will 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:

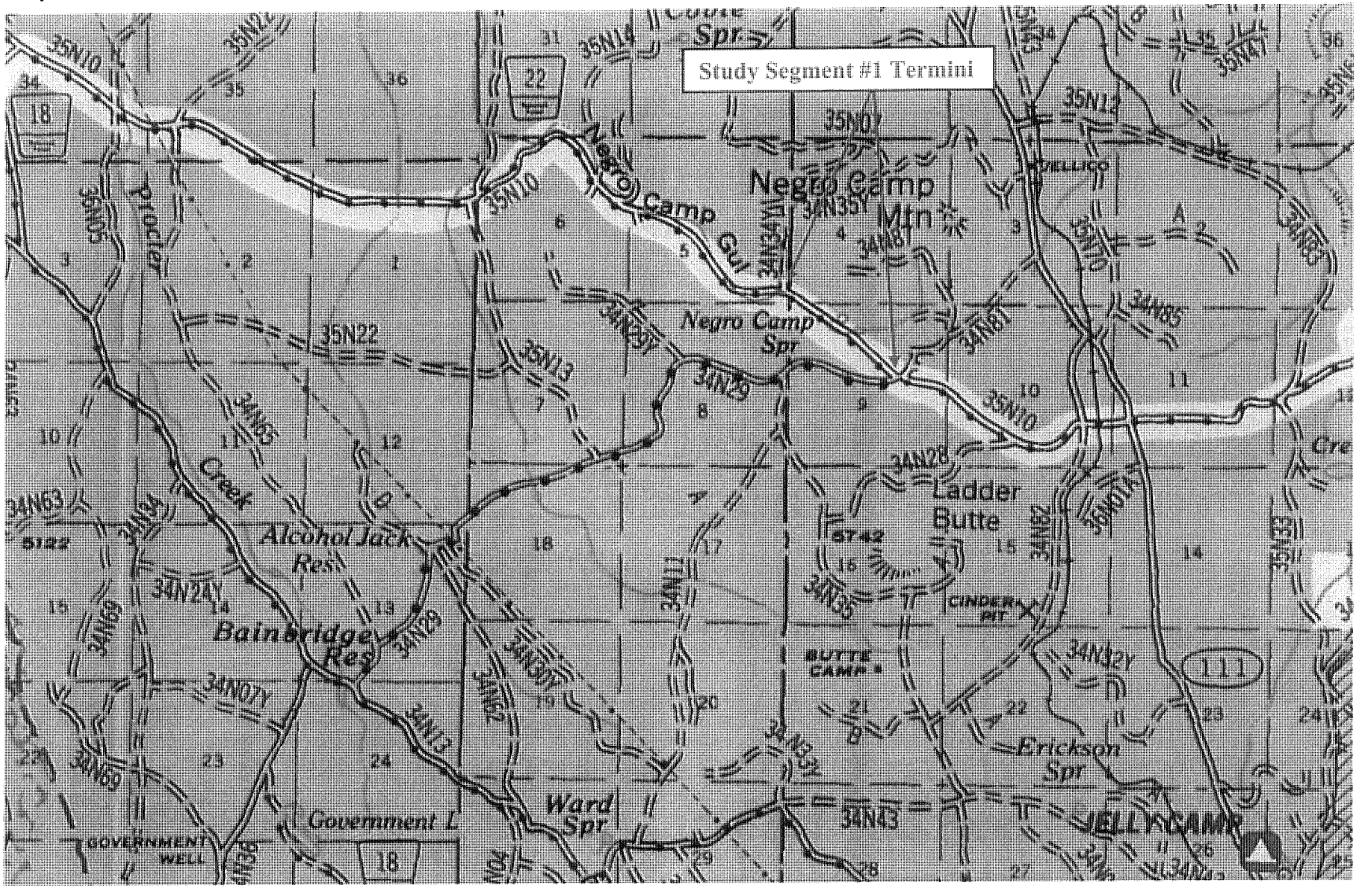


Figure 1: Map of road segment analyzed.

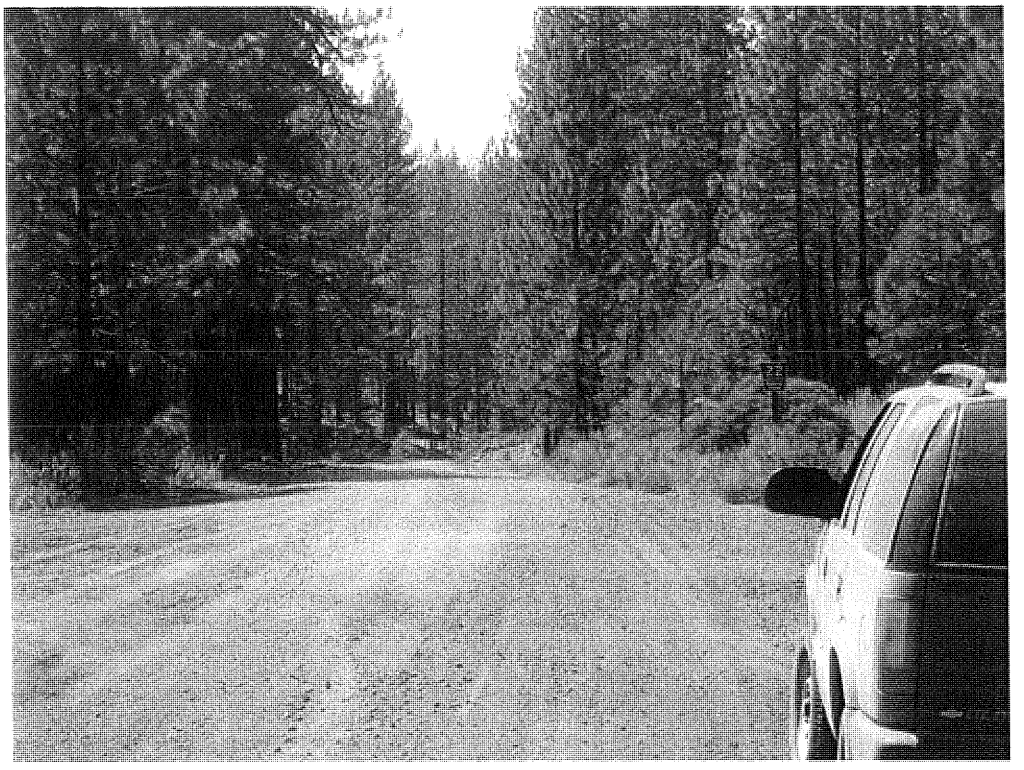


Figure 2: Looking west at the study segment, from the intersection with NFSR 34N29.

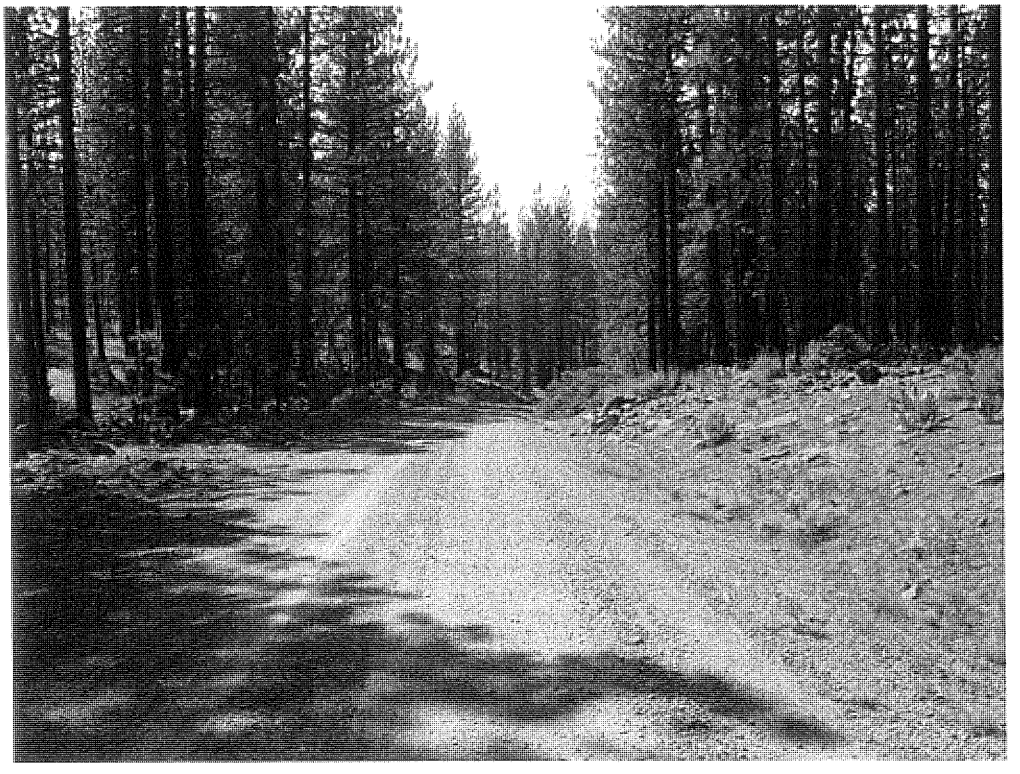


Figure 3: Straightaway along the study segment.

Figure 4: Curve along the study segment.

Figure 5: Gentle S-curve along the segment.

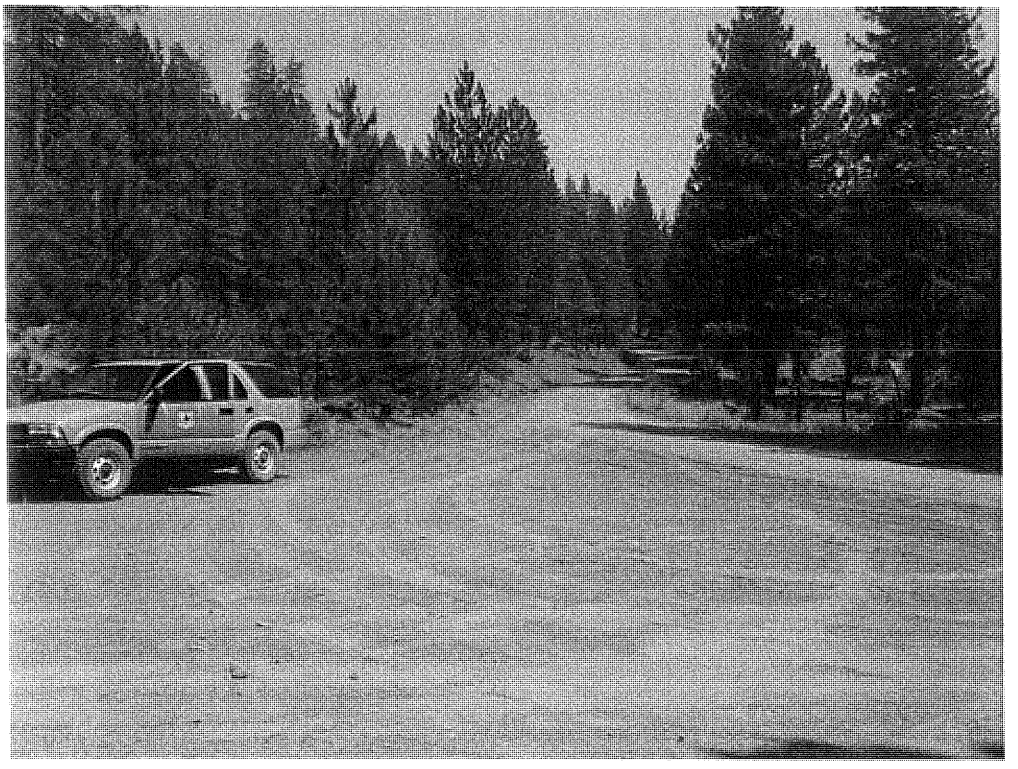


Figure 6: S-curve along the study segment, with the intersection of NFSR 34N34Y on the left.

Prepared by:
Chris Bielecki, Supervisory Civil Engineer

Engineering Report:

Lassen National Forest

Hat Creek Ranger District

Analysis of

National Forest System Road (NFSR)

36N18

for Motorized Mixed Use Designation

Forest: **Lassen** District: **Hat Creek**

Road Number: **36N18** Road Name: **Six Mile Hill**

Introduction: This report documents the engineering analysis for a segment of 36N18 Six Mile Hill, totaling 0.4 miles in length. This total route, which also serves as Distinctive Route 18, is an important collector connecting highway 44 on the south to Shasta County Road 7R02 on the north, which then continues north to Fall River Mills. Lassen National Forest (LNF) currently manages this road as open only to highway-legal vehicles.

The study segment was 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, that are not licensed or certified for general operation on public roads within the State) from the beginning termini to the end termini.

The LNF Travel Analysis identified this road section as a potential connection for recreational off-highway vehicle (OHV) loop opportunities on the adjacent road network, which is currently managed as open to non-highway-legal vehicle use. In the vicinity a segment of 35N10 was also recommended for an engineering analyzed of motorized mixed use. The results can be found in a separate engineering report.

Study Segment road data from the forest transportation atlas:

Segment : Beginning Mile Post: 7.2 Ending Mile Post: 7.6

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 (not within study area)

Description of agreements or encumbrances:

The northeast portion of the route passes through private land. The forest Service has a full public easement with jurisdiction. The study area is completely on NFSL.

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

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/distinctive route and provides through access from California State Highway Route 44 to the Shasta County Road 7R02. The road is a single-lane road with turnouts.

NFSR 36N18 has traditionally served administration of the LNF, including fuels and vegetation management, commodity extraction, fire suppression, and recreation. It also provides access to private land inholdings.

The road is considered a highway by the Forest Service and is managed in accordance with the Highway Safety Act. The road is managed for passenger car vehicles and is appropriately posted with horizontal route identification markers. Most of the year it is currently managed as open only to highway-legal vehicles.

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 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 improving sight distance by removing brush, maintaining proper signing, and providing better communication, will reduce crash probability.
Road hazard 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.
The road is maintained to a standard allowing efficient passenger car through traffic at speeds up to 40 mph for reasonable and prudent drivers on straightaways.
Designating the road segment for motorized mixed use, with mitigation, results in a risk assessment of moderate crash probability and high crash severity.

Factors Considered:

1. Operator considerations:

- **The current use on NFSR 36N18 appears to be consistent with State law and Forest Service policy for operational maintenance level 3 roads.**
- **The roadbed is raised and appears to provide for sufficient drainage and passenger car travel.**
- **Commercial, recreational, and administrative traffic is expected along this segment.**

2. Crash history:

There is a record of a severe accident on 4/19/05 involving a private vehicle somewhere on 36N18.

3. Observed 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)

None was observed during field investigation to the site.

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

The road segment was driven at various speeds to simulate conditions encountered by a reasonable and prudent driver in a passenger car.

35 - 40 mph based on observation and engineering judgment.

5. Road surface type: coordinate

Segment has aggregate surfacing and single lane traveled ways with turnouts. Segment is approximately 15 to 18 feet wide.

6. Intersections with other roads and trails:

The sight distances at the managed intersections are rated good.

7. Other roadway factors:

- **None**

8. Roadside conditions:

- **The design prism is typical of side hill construction with inboard ditch plus x-drain relief**

9. Risk without mitigation if designating the roadway "open to all motor vehicles":

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 and trees, especially along curves and at intersections, to improve sight distance.
  warning: improved sight distance may result in higher speeds
- Removal of roadside hazards such as boulders, trees, and debris.
- 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". Continue to manage the road in accordance with maintenance level 3 standards.

- Maintain all roadway signing to MUTCD standards.
- 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. Continue to maintain the road in accordance with maintenance level 3 standards.

- 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

- **Coordinate with the State and revise existing agreements with Caltrans as applicable.**
- **Notify the Commissioner of the California Highway Patrol and review their opinion.**
- **Approximate Implementation Cost: $ 7500**
  This does not account for the additional long-term annual maintenance cost increase associated with maintaining these critical safety corridors.
- **Expected risk:**

  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 segments in accordance with maintenance level 2 standards. This would require removing culverts and ditches, reconstructing the template and narrowing the roadway.**

- **Based on the quality of the road, the amount of thru traffic, the distinctive route status, and the change from the rest of the collector route, this change would <u>not</u> be consistent with the road management objectives.**
- **Approximate Implementation Cost: $6,000**
- **Expected risk:**

  Crash probability: ☐ High ☐ Med ☒ Low

  Crash severity: ☐ High ☒ Med ☐ Low

Alternative 4: **Construct trail segments to allow non-highway-legal vehicles to bypass the road and access adjacent maintenance level 2 roads.**

- **The terrain in this area is on moderate slopes and would provide for a parallel trail system.**
- **Approximate implementation cost: $8000 per mile**
  This does not include the planning, agreements, and long term maintenance costs associated with a new NFS trail.
- **Expected Risk:**

Crash probability: ☐ High ☐ Med ☒ Low

Crash severity: ☐ High ☐ Med ☒ Low

Final Comments:

Signing on national forest system roads will 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:

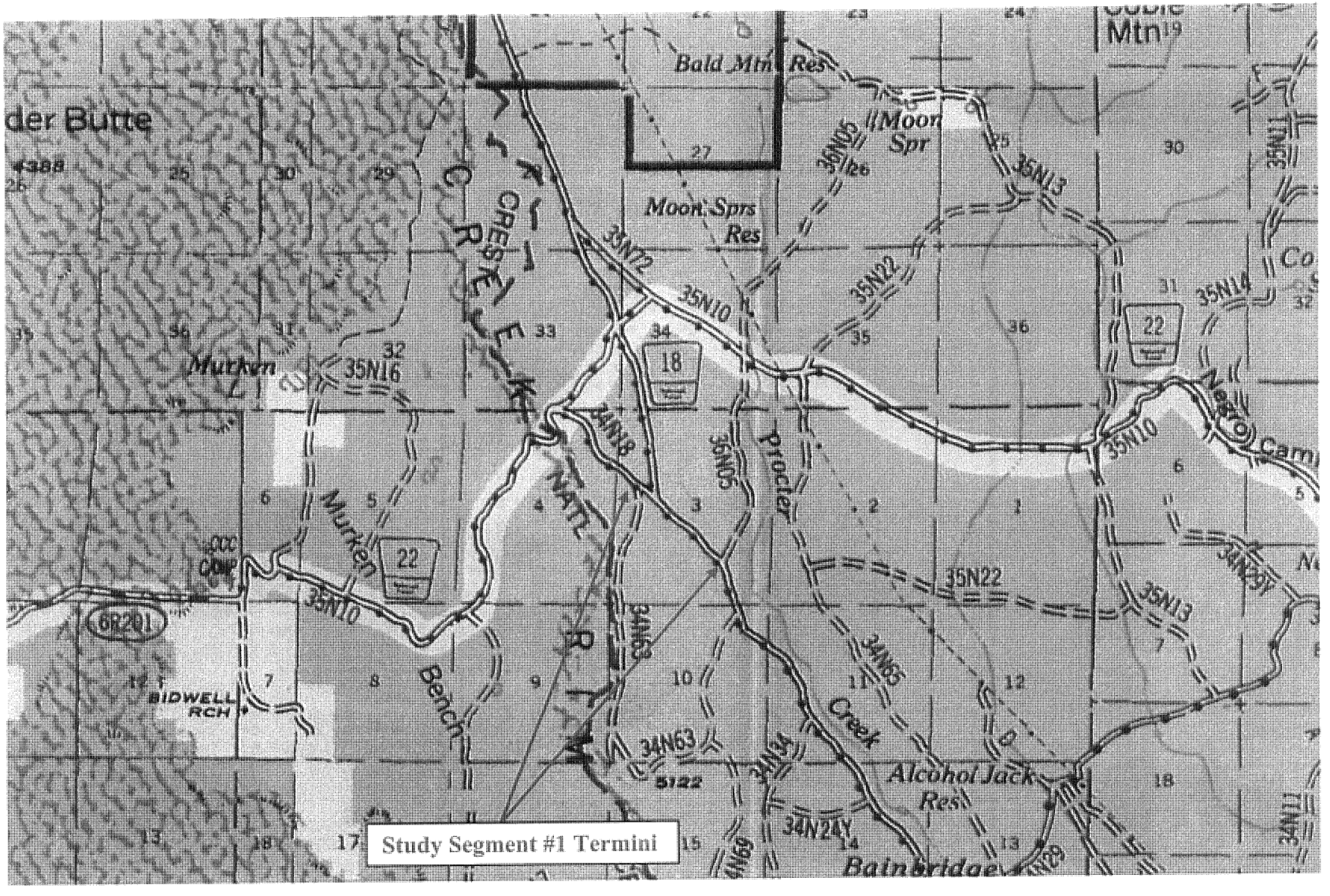


Figure 1: Map of road segments analyzed.

Figure 2: Curve within the study segment.

Figure 3: Cattleguard crossing.

Figure 4: Entering a curve along the study segment.

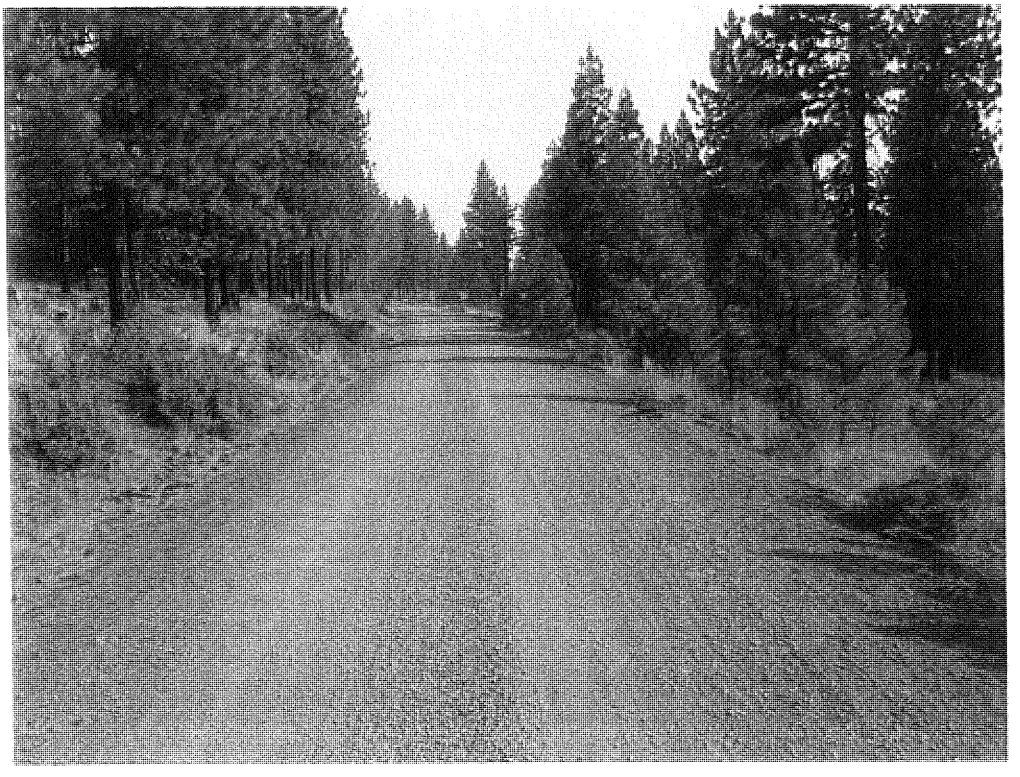


Figure 5: Study segment straightaway.

Figure 6: Forest Distinctive Route signing.

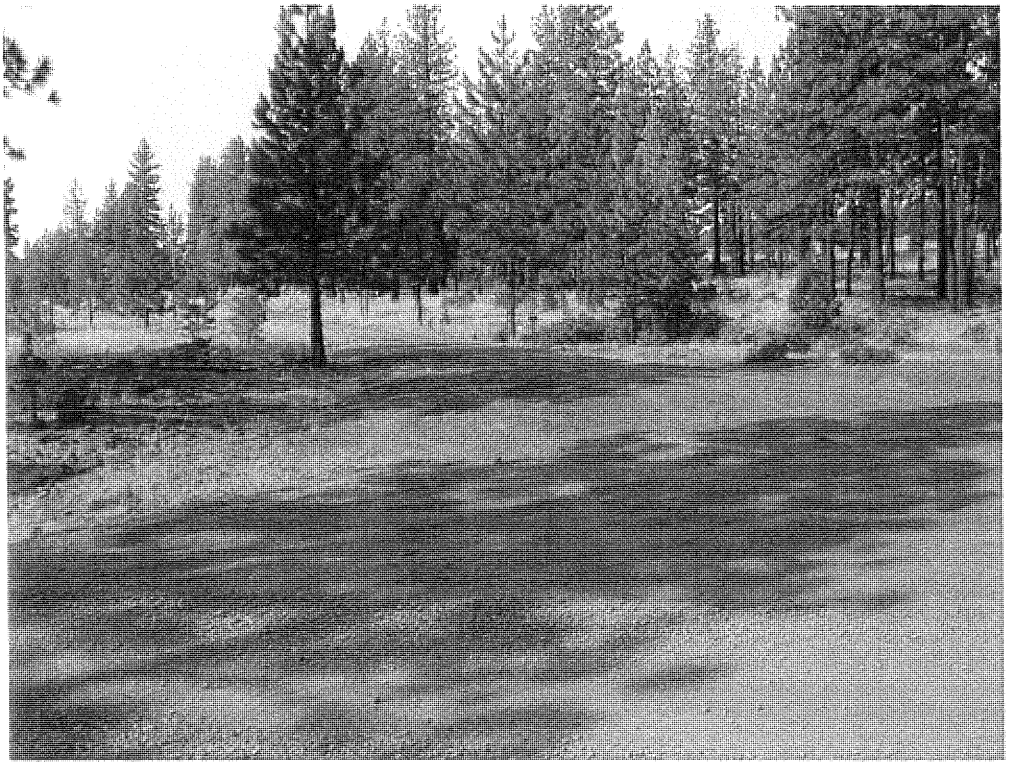


Figure 7: Intersecting maintenance level 2 road. Note lack of entrance treatment.

Figure 8: Typical terrain of study segment,

Prepared by:
Chris Bielecki, Supervisory Civil Engineer

Engineering Report:

Lassen National Forest

Hat Creek Ranger District

Analysis of

National Forest System Road (NFSR)

36N18

for Motorized Mixed Use Designation

Forest: **Lassen** District: **Eagle lake/Hat Creek**

Road Number: **36N18** Road Name: **DR 18 Road**

Introduction: The 36N18 Road segments studied are located on the east side of Lassen National Forest (LNF) in the Swains Hole quadrangle, on the eastern/western boundary of the Hat Creek/Eagle Lake Ranger Districts respectively.

NFSR 36N18/ML4 begins at the intersection of State Highway 44 in Section 11 of the Swains Hole quadrangle and trends due north and east to the Swains Hole, then trends northwest along the western base of the Butte Creek Rim to Mountain Home, continuing north along the western base of the fault block of Butte Creek Rim, past the Cone and Ward Ranch, continuing past Twin Ponds , Bainbridge, and Alcohol Jack Reservoirs in the Jellico quadrangle. 36N18/ML3 continues northwest into the Murken Bench quadrangle approaching the upper elevations and eastern extents of the Hat Creek Rim, where it parallels the Rim and the Pacific Crest National Scenic Trail until it's terminus in the Hogback Ridge quadrangle at the intersection with County Road 7RO2. The road length is approximately 23 miles.

The two road segments studied are both in the Swain's Hole quadrangle and start at the intersections of UCC706 an Unauthorized Route to 32N52/ML2 for approximately 1.25 miles and the intersections of 33N13YA/ML2 to 33N32/ML2 for approximately 0.25 miles respectively.

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 36N18/ML4. 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: **0.25** Ending Mile Post: **1.50**

UCC076 to 32N52

Traffic Service Level: ☐ A ☐ B ☒ C ☐ D

Objective Maintenance Level: ☐ 1 ☐ 2 ☒ 3 ☐ 4 ☐ 5

Operational Maintenance Level: ☐ 1 ☐ 2 ☒ 3 ☐ 4 ☐ 5

Segment 2: Beginning Mile Post: **3.50** Ending Mile Post: **3.75**

33N13YA to 33N32

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 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 possession of a valid driver's license.

Based on the Forest Service Directives and Travel Management purpose and need, to allow all motor vehicles on this segment with a designation of motorized mixed use for a segment or segments with a cumulative distance of 3 miles or less could be consistent with state and federal laws and directives with appropriate mitigation for safety concerns.

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

Road DR18 36N18/ML4 currently encourages use as an objective ML4 and operational ML4 collector/arterial road and functions as a forest throughway connecting the Hat Creek Ranger District and nearby State Highway 299 and County Road 7RO2 to the Eagle Lake Ranger District and nearby State Highway 44. This forest highway connects on each end to all weather asphalt surfaced State highways and provides ingress and egress to a myriad of Defensible Fuel Profile Zones – DFPZ's, forest plan units for timber harvesting, grazing allotments and livestock and wildlife watering holes.

36N18 is utilized by forest personnel for ingress and egress to Defensible Fuel Profile Zones – DFPZ's and their associated vegetation management and fire suppression functions, for range allotment management, for wildlife management at Buffelhead Reservoir, and for fire prevention patrol to a very large area that bisects two Ranger District's and two County boundaries.

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 these two segments of 36N18/ML4 identified in this analysis is to authorize motorized mixed vehicle class use. The proposal is to utilize the ML4 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 36N18 is an observed 1+ lane operational maintenance level 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 ML4 and an operational ML4. It provides forest commodity haul, livestock grazing area access 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.
- Although the road rests upon the top of the fault block of the Hat Creek Rim, topologically the unit is dry and flat. The objective level of this road is classified as a 4, and the operational level is a ML4. 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, livestock grazing, wildlife management, emergency fire detection and suppression response.
- 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 36N18 appears to be consistent with state law and forest policy for operational maintenance level 4 roads.

2. Crash history:

In April 2005 there was a single vehicle crash/collision with a roadside boulder. Vehicle was a passenger car traveling at 35-45 mph as estimated by the California Highway Patrol. Approximate location was on 36N18 about 4.4 miles east of Cassell California. The crash location was the approximate intersection with DR 22, forest highway 35N72/ML4.

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.

3 Forest Service Timber Sale Administration vehicles were observed along the 36N18 road.

An additional 3 log trucks were observed on road 36N18.

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

The speed greatly varies, depending on the roadway conditions. The 85th percentile would be estimated at: 45 mph.

5. Road surface type:

The road has a combination of native crushed rock aggregate and red volcanic cinder surfacing. The majority of the traveled way is constructed upon a raised roadbed and the road has drainage ditches, singular culverts, and ditch-relief culverts. The road is approximately 16'-20' wide. The road traveled way is very dry and contains many fine aggregate components and produces prodigious quantities of dust when driven over. Road shoulders are soft and unconsolidated.

6. Intersections with other roads and trails:

Road segment 1 intersects with the following forest roads.

- UCC076/Unauthorized Route
- 32N52/ML2

Road segment 2 intersects with the following forest roads.

- 33N13YA/ML2
- 33N32

The maintenance level 2 roads have historically provided forest management access, fire suppression access, commodity haul, forest grazing access, and hunting and firewood gathering access. The proposed MMU intersections of 36N18/ML4 may result in higher traffic merging speeds.

7. Other roadway factors:

- Roadway alignment was adequate for the assigned maintenance level. Alignment provides for vehicle closing speeds of approximately 80-100 mph.
- The road was maintained with a traveled way width of 16'-20".
- Raised roadbed creates soft unconsolidated shoulders. Emergency vehicle run-out among numerous lava rocks, Juniper trees, Pine trees, and brush may lead to loss of control for vehicle operators and/or collisions with immobile objects.
- The road provides administrative access for meadows/grazing, fire prevention patrol access, fire suppression access, wildlife management, 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 high elevation, 5,000 ft., open Pine forest, open Juniper, brush, native grass and lava rock forest land.
- Cross slope is 0-5%.
- Grade is 0-3%.
- Pine and Juniper trees are ≤18" and numerous lava ejecta rocks.
- 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.).
- 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 segments 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:

Tim Dedrick July 17, 2009

Prepared by
Tim Dedrick Civil Engineer

Date

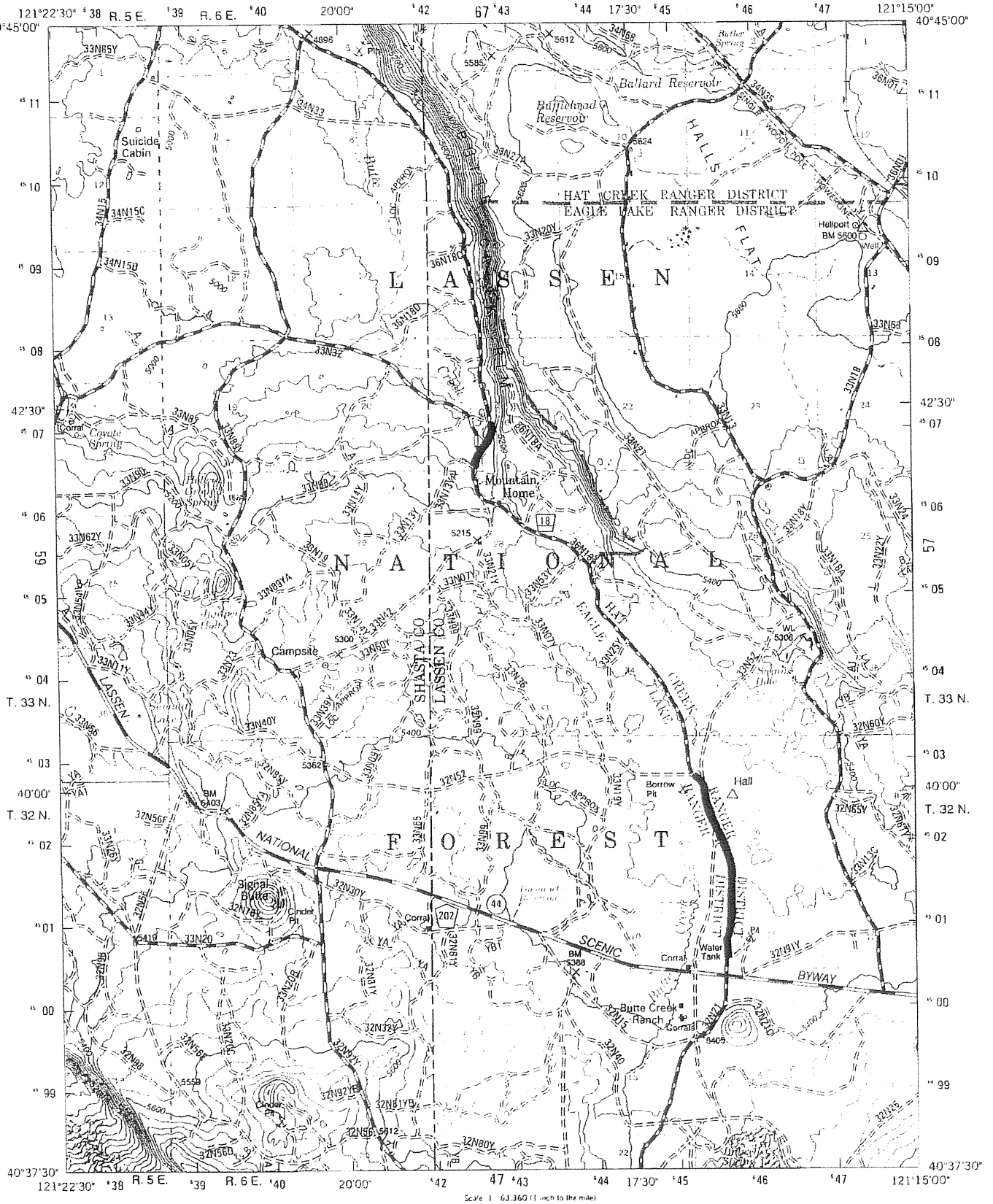
George Kulick
Region 5 Qualified Engineer

Date

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

UNITED STATES
DEPARTMENT OF AGRICULTURE
FOREST SERVICE

SWAINS HOLE , CALIFORNIA
33 40121-F3 1999



Produced by the U.S. Geological Survey
Revised by the U.S. Forest Service
Areas outside the National Forest System lands may not have been revised
Control by USGS and NOS/NOAA
Compiled from aerial photographs taken 1980. Revised from aerial photographs taken 1991 and 1993. Partial field check by U.S. Forest Service 1995
North American Datum of 1927 (NAD 27) Projection: California coordinate system, zone 1 (Lambert Conformal Conic)
National Forest System lands, Revised 1997

This map is not a legal land line or ownership document. Public lands are subject to change and leasing, and may have access restrictions; check with local offices. Obtain permission before entering private lands

Exhibit 3

County Resolutions for Motorized Mixed Use And Statements from County Public Works Directors

RESOLUTION NO. 09- 043

LASSEN COUNTY BOARD OF SUPERVISORS
RESOLUTION DESIGNATING CERTAIN COUNTY ROADS FOR COMBINED USE OF REGULAR VEHICULAR TRAFFIC AND OFF-HIGHWAY MOTOR VEHICLES

WHEREAS, the Board of Supervisors of the County of Lassen, in cooperation with the United States Forest Service and off-highway vehicle (OHV) enthusiasts, seeks to accommodate the use of off-highway motor vehicles (OHV's) on certain un-paved County Maintained Roads; and

WHEREAS, Vehicle Code Section 38026 authorizes the Board of Supervisors to designate highways under its jurisdiction for combined use of regular vehicle traffic and OHV's under certain circumstances; and

WHEREAS, the Board of Supervisors of the County of Lassen finds that the following roads, or portions of roads, will provide a link in the off-highway motor vehicle trail system by providing a connection between off-highway motor vehicle trail segments:

Road District 1 (Westwood):

CR 101 Mc Coy Road: (entire 9.44 miles, Mooney Road (A-21) to SH 44)
CR 104 Norvel Road: (entire 9.57 miles, McCoy Road (CR101) to Mooney Road (A-21))
CR 105 Champs Flat Road: (16.05 mile portion, FS Road 21 to FS Road 22)
CR 110 Silver Lake Road: (entire 5.18 miles, Mooney Road (A-21) to Road 8224)
CR 111 Pittville Road: (25.6 mile portion, SH 44 to Cinder Cone Road)
CR 112 Bridge Creek Spring Road: (entire 12.15 miles, SH44 to Champs Flat Rd.(CR 105))
CR 113 Indian Ole Road: (entire 1.55 miles, Mooney Road (A-21) to end)

7 Roads – 79.54 miles

Road District 2 (Susanville):

CR 204 Gold Run Road: (4.70 mile portion, end of pavement to Plumas County Line)
CR 216 Karlo Road: (entire 6.30 miles, SH395 to Rd. 8293)
CR 249 Signal Butte Road: (entire 0.21 miles, Eagle Lake Road (A-1) to end)

3 Roads – 11.21 miles

Road District 3 (Standish):

CR 327 Fort Sage Road: (entire 10.5 miles, Hackstaff Road (CR 322) to Nevada State Line)
CR 338 Smoke Creek Ranch Road: (entire 19.02 miles, SH 395 to Nevada State Line)
CR 341 Stoney Creek Road: (entire 1.78 miles, SH 395 to end)
CR 344 Summers Road: (entire 3.80 miles, Hackstaff Road (CR 322) to end)

4 Roads – 35.10 miles

Road District 4 (Bieber):

CR 417 Punkin Center Road: (3.70 mile portion, end of pavement to Rd 8016)

1 Road – 3.70 miles

Road District 5 (Ravendale):

CR 503 Horn Road: (entire 9.90 miles, Mail Route Road (CR 502) to end)
CR 506 Tuledad Road: (entire 24.06 miles, Mail Route Rd. (CR 502) to Nevada State Line)
CR 509 Blue Lake Road: (entire 10.20 mile, Clarks Valley Rd. (CR 510) to end)

RESOLUTION 09-043

CR 510 **Clarks Valley Road:** (entire 23.35 miles, SH 395 to Tuledad Rd. (CR 506))
CR 515 **Cold Spring Road:** (entire 6.00 miles, Mail Route Rd. (CR 502) to end)
CR 519 **Dow Butte Road:** (entire 6.59 miles, Champs Flat Rd. (CR 105) to Cleghorn Rd. (CR 521))
CR 521 **Cleghorn Road:** (entire 9.00 miles, SH 139 to Road 8090)
CR 524 **Spooner Road:** (entire 6.76 miles, Ash Valley Road (CR527) to end)
CR 527 **Ash Valley Road:** (entire 28.10 miles, SH395 to Modoc County Line)

9 Roads – 123.96 miles

WHEREAS, the Board of Supervisors of the County of Lassen further finds that the above aforementioned roads, or portion of roads, equaling a total of 253.51 miles are designed and constructed so as to safely permit the use of regular vehicular traffic and also the driving of off-highway motor vehicles, and

WHEREAS, there is community and Lassen National Forest staff support for the year-round use of the OHV's identified in Vehicle Code section 30812, subdivisions (a)(1) Motorcycles, (a)(2) snowmobiles, and (a)(3) all-terrain vehicles, as appropriate for the conditions, on the aforementioned roads or portions of roads.

NOW, THEREFORE, BE IT RESOLVED, that the Lassen County Board of Supervisors designate the aforementioned un-paved County Maintained roads, or portions of roads, as routes for combined use of regular vehicular traffic and off-highway motor vehicles.

The foregoing resolution was adopted at a regular meeting of the Board of Supervisors of the County of Lassen, State of California, held on the 18th day of August, 2009 by the following vote:

AYES: Supervisors Keefer, Pyle, Chapman, Dahle and Hanson

NOES: None

ABSENT: None

Chairman of the Board of Supervisors
County of Lassen, State of California

ATTEST

Julie Bustamante
Clerk of the Board

BY: Susan Osgood
Susan Osgood, Deputy Clerk of the Board

I, SUSAN OSGOOD, Deputy Clerk of the Board of Supervisors, County of Lassen, do hereby certify that the foregoing resolution was adopted by said Board of Supervisors at a regular meeting thereof held on the 18th day of August, 2009.

Susan Osgood
Deputy Clerk of the County of Lassen
Board of Supervisors

S:\PWK\Roads\2009 ROADS\B-1 Board Letters\Designation of Unpaved County Roads for Mixed or Shared Use-resolution approving.doc

This instrument is a correct copy of the original on file in this office.
ATTEST:
COLLEEN SETZER
County Clerk
of the State of California
In and for the County of Siskiyou.
By Wendy Deniz
Deputy

RESOLUTION OF THE SISKIYOU COUNTY BOARD OF SUPERVISORS REGARDING MOTORIZED ACCESS AND/OR TRAVEL ON FEDERAL LANDS IN SISKIYOU COUNTY

WHEREAS nearly two-thirds of Siskiyou County is federal land; and

WHEREAS the ability to use and recreate on the federal lands in Siskiyou County is enjoyed by all citizens of the United States as well as the citizens of Siskiyou County; and

WHEREAS when the land in Siskiyou County was reserved by the federal government and became part of the National Forest system it was done with the understanding that the land would be open for the access, use and enjoyment of all citizens; and

WHEREAS, similar understanding exists relative to federal lands managed by the Bureau of Land Management; and

WHEREAS it is through access, use and enjoyment that people are able to develop the appreciation for the value of federal lands that leads to the popular public support necessary to fund and manage the federal lands; and

WHEREAS the ease, simplicity and economy of motorized transportation make the federal lands accessible, useable and enjoyable to people who might not otherwise have the time, physical ability or finances to enjoy the benefits of the National Forests; and

WHEREAS virtually all uses of and access to the National Forests rely to some degree on motorized transportation; and

WHEREAS fishing, hunting, camping, nature-viewing, mining, wood-cutting, cattle-management and recreational Off Highway Vehicle (OHV) riding are among the uses that depend on motorized access; and

WHEREAS Reserve Statute 2477 has established certain rights of way on federal lands; and

WHEREAS all of these uses are important components of the custom, culture and economy of Siskiyou County; and

WHEREAS it is imperative to the continued enjoyment of federal lands by all user-groups that considerate, tolerant, environmentally reasonable management be applied to motorized access; and

WHEREAS, Siskiyou County can play a major role in helping shape a sound, workable approach to motorized access to federal lands within its boundaries,

NOW, THEREFORE, BE IT RESOLVED that the Siskiyou County Board of Supervisors declares it to be the policy of Siskiyou County that all roads, trails and areas on federal land that were available to motorized access and/or travel as of the date of adoption of this Resolution should remain open to all forms of motorized travel, including snowmobiles and OHVs, unless sufficient environmental or other scientific justification exists for the closure of the road, trail or area; and

SISKIYOU COUNTY
RESOLUTION
No. 08-186

BE IT FURTHER RESOLVED that Siskiyou County recognizes compatibility issues between motorized access and/or travel and other uses of the federal lands and understands and supports reasonable, prudent efforts by federal agencies and the public to find workable compromises satisfactory to all user groups; and

BE IT FURTHER RESOLVED that before any road, trail or area on federal land is closed to motorized access and/or travel, all reasonable mitigations and alternatives should be explored in order to prevent closure; and

BE IT FURTHER RESOLVED that all federal agencies are required to coordinate with Siskiyou County at the earliest stage and throughout the development of any road, trail or area closure proposal.

Passed and adopted this November 18, 2008, by the following vote:

AYES: Supervisors Overman, Armstrong, Kobseff and Cook
NOES: NONE
ABSENT: Supervisor Erickson
ABSTAIN: NONE

W.R. Overman, Chair
Siskiyou County Board of Supervisors

ATTEST:
Colleen Setzer, County Clerk

Deputy

m: Sylvia Milligan [smilligan4732@sbcglobal.net]
Sent: Sunday, October 19, 2008 10:49 PM
To: Liz Norton; Bobs
Subject: Fw: county roads
FYI on Shasta County Roads.

----- Original Message -----
From: Pat Minturn
To: smilligan4732@sbcglobal.net
Sent: Sunday, October 19, 2008 10:21 PM
Subject: Re: county roads

Sylvia,
No resolution is necessary. CHP has said OHV's are legal on dirt roads. Period. That's what we will rely on. We don't have a resolution for bicycles, or pedestrians, or motorcycles. No need for one for OHV's.

Thanks, Pat

-----Original Message-----
From: Sylvia Milligan <smilligan4732@sbcglobal.net>
To: Pat Minturn
Sent: Sun Oct 19 21:52:58 2008
Subject: county roads

Pat,
How is Shasta County going to handle their unpaved roads? Will the county make up an ordinance? Resolution? How will you let the public and FS know of your decision of roads being OPEN?

attaching a draft that Ric Costales is working on and ROC's sugggested changes.

We suggested they add:
3rd WHEREAS: On the end of the second line after 'that the land would be ..... (add) managed for multiple use and would be..... open for"

Then add another WHEREAS after the 10th one that states:

WHEREAS, all unpaved roads on National Forest system lands, regardless of maintenance level, are exempt from the definition of a "highway" under Section 38001 of the California Vehicle Code per letter from the California Highway Patrol, dated December 19, 2007.

I meet with Tehama Co. Mon am.

Thank you.

Sylvia

BOARD OF SUPERVISORS

ADMINISTRATION CENTER
25 COUNTY CENTER DRIVE - OROVILLE, CALIFORNIA 95965
TELEPHONE: (530) 538-7224

BILL CONNELLY
First District

JANE DOLAN
Second District

MAUREEN KIRK
Third District

CURT JOSIASSEN, Chair
Fourth District

KIM K. YAMAGUCHI
Fifth District

November 18, 2008

Randy Moore
Regional Forester, Pacific Southwest Region
USDA Forest Service
1323 Club Drive
Vallejo, California 94592

Dear Regional Forester Moore,

We are writing on behalf of Recreation Outdoor Coalition (ROC), Paradise Ridge Riders, Par-O-Dice 4x4 and other individual OHV enthusiasts who utilize county maintained non-paved roads to access the National Forest System roads within Butte County. The public has safely used non-paved county roads for decades to access NFS roads with off-highway vehicles. Maintaining a consistent policy direction as to what types of vehicles may utilize these roads is in the best interest of both agencies.

As you know, Northern California is an area with large portions of public lands devoted to recreation and tourism. Access to these lands for hunting, fishing, camping, and OHV use is vital to the local economy. Therefore, we would like the USFS to maintain and provide public access to non-paved Forest Service Level 3 and 4 roads within the Lassen and Plumas National Forests. OHV riders have safely used these roads for years, and the potential loss of the vast majority of these roads has understandably alarmed the outdoor recreation community. We understand there may be a few spurs and environmentally sensitive sites that need to be protected and preserved off these roads. That said, we want to make sure any road closures are based on rational, sound scientific procedures

We join with Congressman Herger, the counties of Lassen, Plumas, and Shasta in support of mixed use on county maintained non-paved roads leading and connecting to the National Forest System (NFS) roads. We also support OHV access to NFS level 3 and 4 designated roads within the Lassen and Plumas National Forests.

Sincerely,

Curt Josiassen, Chairman
Butte County Board of Supervisors

USDA United States Department of Agriculture | Forest Service | Washington Office | 1400 Independence Avenue, SW Washington, DC 20250

File Code: 6270-1
Case Number: 10-4507-R

Date: May 19, 2010

Mr. Stephen C. Ball
Ball & Roberts
300 North Lake Avenue
Suite 1000
Pasadena, California 91101

Dear Mr. Ball:

This letter is in reference to your Freedom of Information Act (FOIA) request dated May 6, 2010, that was received in the Washington Office (WO) FOIA Service Center on May 14, 2010. You are requesting records pertaining to the Station Fire.

We have determined that the records responsive to your request are maintained by the Pacific Southwest Region (R-5). Therefore, we are routing your request to them for a response directly to you.

If you have any questions concerning the status of your request, you may contact the R-5 FOIA Service Center at 707-562-8768.

Sincerely,

for SHERRY L. TURNER
Acting Freedom of Information Act/Privacy Act Officer

Exhibit 4

2005 Engineering Report for

Motorized Mixed Use on the

Proposed Share the Dream Trail

Lassen National Forest

February 3, 2005

Elizabeth Norton
Lassen National Forest

OHV use on NF system roads

I fully understand the liability and concerns to allowing non-street legal vehicles on level 3-5 roads! Please consider this proposal to minimize the risk.

I have in hand R-6 Supplement 7709.59-92-1 effective May 6, 1992, R-6 Supplement 7730-2003.1 effective April 10, 2003, an eastern forest's ATV Evaluation for FR 2231 documentation, the San Dimas Pre-project proposal for a July 2006 publication, my May 2004 Issue paper, and my 2004 Backcountry Discovery Trail Signing protocol.

Enclosed is a proposed methodology to evaluate and document the risk of allowing non-street legal vehicles to share use with street-legal vehicles on individual FS System roads.

Further, I propose that the Lassen NF evaluate the appropriateness of this methodology by applying it to BCDT 3B (Share-the-Dream) route around Lassen Volcanic National Park as a test effort during the 2005 field season. This will allow time for further feedback to San Dimas in their efforts to document a National process, due in July 2006.

And, finally, if this proposal is acceptable to the Lassen and Region, I will work with the Backcountry 4X4s Club in 2005 to perform the field data gathering to formally document an evaluation for use on BCDT 3B. The snow is already melting!

"Shared" terminology is already used on signs shown in the current MUTCD manual. When shared use is approved then the "shared use" signing protocol will need to be developed and could be made a part of the BCDT Signing Protocol for trial testing.

Dick Tatman
530-253-3054

Enclosure

cc: Laurie Tippen
Jack Walton
Rich Farrington
Bob Sutton
Ed Gililland, San Dimas
Sylvia Milligan

Laurie A
Tippin/R5/USDAFS
03/16/2005 11:37 AM

To: Jack Walton/R5/USDAFS@FSNOTES, Elizabeth Norton/R5/USDAFS@FSNOTES
cc:
bcc:
Subject: Share the Dream Loop/Mixed Use traffic study

It's in our best interest to have volunteers from ROC assist us in a traffic study this field season to determine whether mixed use is appropriate on some or all of the Share the Dream Loop. Dick Tatman has submitted to us a methodology used elsewhere in the agency to figure out traffic use on our road system. Having this type of info will be useful in making a mixed use determination.

Prior to initiating any volunteer agreement w/ ROC, I want the two of you to jointly discuss, determine, & agree upon:

- the info we want ROC to collect for us using the methodology submitted by Dick
- the specific roads we want the info collected, create a priority list of roads
- what equipment or supplies we'll provide
- who the Forest Service contact will be and the critical check points where ROC needs to provide us updates
- the time frame in which we want the data collected
- the format that needs to use ROC to submit the summary data
- any other pertinent info you deem appropriate

I don't want to walk away from ROC's offer to assist us in gathering data this field season, which means your collaboration on this is extremely important. Thanks for your attention to this.

Laurie Tippin
Forest Supervisor
Lassen NF

(530) 252-6600 office
(530) 252-6463 fax
ltippin@fs.fed.us

April 19, 2005

Forest Supervisor
Lassen National Forest
2550 Riverside Drive
Susanville, CA 96130

Ref: Share-the-Dream Loop Traffic Study

Dear Ms Tippen,

Enclosed for your consideration is a proposed Traffic Study to assist in deciding if non-street legal OHVs could relatively safely share use with street legal vehicles on the maintenance level 3 and 4 roads needed for the Share-the-Dream Loop (BCDT 3B). The study to be done by the Regional Office will not adequately cover this Loop.

The Back Country 4X4s Club (affiliated with ROC) agreed to take on the task of doing the surveillance work in June, July and August, 2005. We need to tie down dates to put a work party together. I will serve as Team Leader for this study.

We would appreciate your earliest decision so that logistics can be developed to have a work party training session on June 4, 2005 and start surveillance on June 5, 2005.

Sincerely,

Dick T.

H. R. (Dick) Tatman, Jr.
President, Back Country 4X4s
and California Licensed Traffic Engineer, TR1013, 12/31/06
707-620 Wingfield Rd.
Janesville, CA 96114
530-253-3054 dick@team-tnt.com

Enclosure

cc: Elizabeth Norton
Sylvia Milligan, Chairperson, ROC

Traffic Study

BCDT–3B Share-the-Dream Loop

Summer 2005

Problem: (Question) Which unpaved road segments of the proposed BCDT-3B Share-the-Dream Loop may have shared (mixed or combined) use between street legal vehicles and non-street legal OHVs?

Given: The unpaved road segments to be evaluated in this study are identified as coded A and 1(a) on pages 17 and 18 of the March 5, 2004 "Proposal for Alternate 3B through the Lassen National Forest".

There are 12 separate unpaved segments for 3B, two of which are County roads. In addition, there are 2 segments of BCDT 3 to complete the loop around Lassen Volcanic National Park. And this involves (or portions of) 17 classified forest development roads (FDRs).

Transportation inventory records need to be researched to obtain management and historical information to include on the Traffic Study Results form for each segment.

Data Collection:

Roadway Characteristics – data needs to be collected along each road segment to complete the Road's Characteristics form. This task will involve at least two vehicles driving together along each segment to gather the required data.

Traffic Flow – data needs to be collected at each of twelve (12) specified counter stations. One or two people must occupy each station from 7:00 AM until 7:00 PM on count days. Teams can work in 4 or 6 hour shifts, also, as long as continuous coverage is provided for the 12 hour count day. The resulting sample count will represent about 80 percent of the ADT for that day. The recording will determine the total number of vehicles, by class, that passes the station in either direction. Data is to be recorded on the Traffic Flow Data form.

Count days will be on the first Sunday and third Wednesday of June, July and August and first Sunday of September.

Data Analysis:

After the data is collected, the annual (seasonal) average daily traffic is calculated per FHWA definition and is recorded on the Traffic Study

Results form. The percent by class is calculated and added to the Results form. Average speed in miles per hour (MPH) is transferred to the Results form from the Roadway Characteristics form.

Finally, judgement comes into evaluating the information collected and assigning an accident probability and consequences.

If the decision is made to allow street legal–non-street legal shared use, then a closer look at roadway characteristics is needed to determine what, if any, spot work is needed to further reduce accident potential. Share use signing is required.

Enclosures

- Traffic Flow Data form with detailed instructions
- Roadway Characteristics form with detailed instructions
- Traffic Study Results form with detailed instructions
- Traffic Study Methodology Documentation.

Copies of selected cited references available by request.

Coding Instructions

Traffic Study Forms

Traffic Flow Data

The study team leader will complete the location information on the form prior to field work. The recorder is to note who he/she is, the date of the count and the weather conditions.

Weather can be clear, partly cloudy, cloudy, rain and temperature cool, warm, hot.

Depending upon the amount of traffic in a four hour period, there are a couple of ways to record when a vehicle passes the station in either direction. Use ~~THL~~ or ⁙ or the numeral for the time period. Use the same format for the entire counting period.

Vehicles are classified as follows:

Vehicle Class	Characteristics	Record
1	Street Legal** 2WD or 4WD** Motorcycles**	Passenger Car SUV Pickup Motorcycle
2 OHV	Non-street Legal <50" wide 2 wheels/tires 3 or more wheels/tires 2WD or 4WD (Dirt bikes, quads or ATVs)	 Dirt Bike Quad
3 OHV	Non-street Legal >50" wide 4 or more wheels/tires 2WD or 4WD ("Jeeps" or dune buggies)	
4 OHV	Non-street Legal Snowmobile	

** State licensed with metal plates for use on "highways".

For example, a state licensed highway motorcycle is to be coded in the Class 1 block.

Record vehicle Class 1 traffic as either passenger car, sport utility vehicle, pickup or motorcycle. See Traffic Flow Data Form.

Record any unusual things you happen to see about traffic and traffic flow.

Totals may be done by the recorder or team leader.

Roadway Characteristics

The study team leader will work with the recorder(s) to ensure consistency in the collection of data.

Mileposts will be by vehicle odometer and logged to the nearest tenth of a mile (528 feet). If a specific point, such as a hazard, needs a closer measurement estimate, 264 feet or one hundredth of a mile, i.e., 3.25.

- Start the mile post log at the beginning of the segment and record it as MP 0.0. Use your trip odometer if you have one, set to 0.0.

Coding

- Surface type
  - Native material — N
  - Processed aggregate — A

- Travel-way width
  - Average usable width — Feet
  - Minimum width — Feet
  - Driveable shoulder width, clear space — Feet

- Adjacent hillside slope–downhill
  - Using clinometer or abney determine average slope for sections — <40% or >40%

- Average Travel Speed
  - While driving the road to gather roadway characteristics, record your average travel speed for the section. — MPH

- Sight Distance* (measure ~~5~~ 4½ feet above roadway)
  - Horizontal Curve — Feet by Milepost
  - Vertical Curve — Feet by Milepost

*Measured and recorded if less than the following stopping sight distances:

MPH	USFS Sign Placement Guide, pg. 32 (feet)	USFS Sign Placement Guide, pg 44 (feet)	Calif. DMV	FSH 7709.56 -4.25 SL (feet)		MEAN (feet)
20	90	–	150	210	Trucks	150
30	130	193	215	360		225
40	180	309	290	540		330
50	220	444	360	–		341

The feet listed as the mean or average of the various sighted sources will be used.

A procedure needs to be developed.

- Specific Hazards

  As you travel the road note the milepost and type of unusual hazard along the travel way, i.e., rock outcrop, short culvert, tight/narrow turn, tree or stump, that encroaches on the travel way.

  Milepost and hazard identity

- Signing

  Again, as you travel the road, note the milepost and type of warning sign (MUTCD) that you believe is really needed.

  Milepost and MUTCD sign number

Traffic Study Results

The study team leader will compile the date to complete this form.

- Functional Classification
  - Arterial A
  - *Collector* C
  - Local L

- Traffic Service Level
  - Free flowing, mixed traffic A
  - Congested during heavy traffic B
  - *Interrupted traffic flow* C
  - Traffic flow is slow D

- Objective and Existing Maintenance Level
  - Closed more than 1 year 1
  - High-clearance vehicles 2
  - *Passenger vehicles, surface not smooth* 3

- Passenger vehicles, surface smooth 4
- Passenger vehicle–dust free, possibly paved 5

- Accident History last 5 years Year by Milepost
  Review accident report and list mileposts

- Based upon local knowledge, record the probable inclusive months that use will occur.

- Calculate the annual or seasonal ADT using the FHWA definition.

- If the calculated ADT exceeds the following, then install mechanical traffic counters to record traffic flow over a minimum of two weeks at a time, twice per season.

Maintenance Level 3	30 ADT
Maintenance Level 4	90 ADT
Maintenance Level 5	120 ADT

- Estimated Accident Ratings, Potential and Severity

Reference: *FSH 7709.59, Chap. 50, Section 52.2"*

It needs to be said that accidents–even single vehicle ones–happen! Risk can not be totally eliminated!

The following are proposed to help evaluate the potential and severity of an accident.

Additional Guidance to Consider from May 2004 Issue Paper

Maintenance Level	Ave Basic* Speed (MPH)	Average Daily ** Traffic (ADT)	Surface Type
3	30	15	Native/Agg
4	40	45	Aggregate
5	50	60	Paved

*Estimated basic speed as defined VC 38305.
**Estimated average annual daily traffic.

Probability of Accidents

	High	Medium	Low
Mix Vehicle Classes 50% Class 1 and 50% Class 2			
Speed exceeds basic by:	150%	75%	50%
ADT exceeds daily by:	300%	200%	100%

Consequences of Accidents

High – Results in potentially disabling injury or death (FSH 7709.59-51.3
Medium – Property damage exceeding $4000 or bodily injury requiring professional medical assistance.
Low – An accident that is not a Reportable OHV Accident (VC 16000.1)

OR from R6 Supplement 7709.59-92-1 (5/6/92)

Low Probability exists where there is a combination of factors such as:

- no known accidents
- lower ADT (30 or less)
- users are well acquainted with the situation
- lower speeds of ~~1~~2 5 mph or less generally associated with maintenance level 2 roads
- abrupt changes in roadway cross section are not present
- little or no impairment of visibility
- changes in roadway curvature are smooth and do not require rapid deceleration

High Probability exists where there is a combination of factors such as:

- history of several accidents
- ADT in excess of 150
- users are present who may not be familiar with this type of road or driving
- speeds in excess of 40 mph generally found on maintenance level 4 and 5 roads

- changes in road width, shoulder or surface type occur
- some abruptness of either vertical or horizontal curvature are present and changes in speed and maneuvering are required

Low Severity – A combination of factors such as:

- slower speeds (~~15~~ 2 mph or less)
- adequate clearance from hazards, limited obstacles, and shallow streams or other bodies of water.
- lesser slope steepness
- fair alignment and visibility
- single or family passenger vehicles
- travelway is relatively clear of fog, snow, or ice

High Severity – A combination of factors such as:

- higher speeds (40 mph or more)
- little clearance for roadside hazards, intrusions in roadway, deep, or fast water
- steep grades (over 12%)
- steep side slopes or drop-offs
- radical change in user speed or alignment
- buses or other similar multiple passenger vehicle
- fog, snow, or ice are common during use

Estimate the probability and severity ranking for the road and show the coding on the Traffic Study form.

Probability H, M, or L
Severity H, M, or L

After completion of the ranking for probability and severity, determine the most cost-effective method of managing the accident risk. Reduction of

risk needs to be balanced against the investment required to reduce the risk. At some locations the cost to eliminate most or all accidents may not be cost effective. A less costly treatment which allows a medium accident frequency may be the most cost-effective solution if the accident severity can be reduced to a lower accident risk for the average driver.

This is the part of the study that must rely on common sense and sound judgement.

Allow OHV shared use when both ratings are medium or low or combination of medium and low. Evaluate economically feasible mitigation measures to reduce one high rating to medium or low. If both ratings are high and mitigation not feasible, then do not allow shared use, thus, code the Traffic Study form. Y or N

If feasible mitigation measures can be accomplished, then list what and where and include on Traffic Study form.

Traffic Flow Data

Count Station #_____

_____Traffic Study

Study Segment #_____ GPS Coord.: Lat_____ Lon_____Field Data Collected by_____

Location Narrative_____ Date and Weather_____

Forest_____ Road No_____Normal Season Use Period_____to_____

Milepost	Vehicle Classification							Total Traffic Numeric
	1 Street-legal				2 OHV		3 OHV	
	Std Passenger Car	SUV	Pickup	Motorcycle	Dirt Bike	Quad		
7AM – 11 AM								
11 AM – 3 PM								
3 PM – 7 PM								
Total Count for Day								
% Traffic by Class								

People per Vehicle (any class)					
1	2	3	4	5	6 or more

Site Photo

Roadway Characteristics _____ Traffic Study Page_____ of _____

Road No_____ Field Data Collected by_____

Study Segment No_____ Date_____

Milepost	Surface	Travel-way		Shoulder/Clear		Downhill Slope %	Average Speed	Sight Distance		Hazard	Sign Needs
		Average	Minimum	Left	Right			Horiz.	Vertical		

Traffic Study Methodology

Given: Traffic as used in this study is any motorized vehicle used for the purpose of travel. Traffic, or vehicle classification, are defined variously by Executive Order 116-44, 36CFRS, FSM and FSH. There is no clear, simple definition that would be easily understood by the public at large.

FSM and FSH do not specify any specific average daily traffic (ADT) linked to road standards or maintenance levels. FSH 7709.56 - 4.2 does discuss vehicles per hour (VPH) and mixed use to relate traffic service levels, turnout spacing and operational constraints, and states:

"Traffic Service level

A	Mixed use up to 25 VPH	≃ 600 ADT
B	Mixed use up to 25 VPH	
C	Some Mixed use up to 20 VPH	≃ 480 ADT
D	Not intended for mixed use 0-10 VPH."	≃ 240 ADT

According to the Roads Analysis, Report FS-643, 1999:

Road Classifications in Current Use

Functional Class	Traffic Service Level	Maintenance Level
Arterial: Provides service to large land areas. Connects with other arterials or public highways. **Collector**: Serves smaller land areas than arterials. Connects arterials to local roads or terminal facilities. **Local**: Single purpose road. Connects *terminal facilities with* collectors or arterials.	**A**: Free flowing, mixed traffic; stable, smooth surface; provides safe service to all traffic. **B**: Congested during heavy traffic, slower speeds and periodic dust; accommodates any legal-size load or vehicle. **C**: Interrupted traffic flow, limited passing facilities, may not accommodate some vehicles. Low design speeds. Unstable surface under certain traffic or weather. **D**: Traffic flow is slow and may be blocked by management activities. Two-way *traffic is difficult, backing may be required.* Rough and irregular surface. Accommodates high clearance vehicles. Single purpose facility.	**Level 1** Closed more than 1 year. **Level 2** High-clearance vehicles. **Level 3** Passenger vehicles–surface not smooth. **Level 4** Passenger vehicles–smooth surface **Level 5** Passenger vehicles–dust free; possibly paved.

FSM and FSH are not consistent or clear as to which class of vehicle may use which road. The common understanding is "OHV" can use maintenance Level 2 roads unrestricted and can not use paved roads (normally maintenance Level 5). Use of Maintenance Level 3 and 4 roads by OHV is not absolutely clear. FSH 7709.59-52.2 limits use but also considers the probabilities and consequences of accidents associated with shared (mixed/combined) use. A traffic study is called for but there is no guidance for such a study.

FSH 7709.55 - 31 Area Transportation Analysis, states several things that are pertinent to this study:

31.22 Collect Data

1. Identify Only the Data Needed for the Study.
2. Use Existing Data to the Fullest Extent Possible.

31.23 Interpret Data

2.b,(2)(b). A loop road can be designated for OHV and ATV traffic between periods of commercial use.

OHV/ROADS ISSUE

On April 7, 2004, the Motorized Recreation Program Leader for R5 (Pacific Southwest Region of USFS) asked for help to research the issue. A 68 page issue paper was published in May 2004 and shared with the Region and edited portions sent to Washington in response to Federal Register call for response to first draft policy on OHV use on forests. This research involved detailed study of the California Vehicle Code, Executive Orders, Code of Federal Regulations and the Forest Service Manual and Handbooks, as available on the internet.

Based upon the recommendations made during the preparation of the 5/04 Issue Paper, the following vehicle classes and daily traffic numbers were developed and will be used in this study:

47. For the purposes of Traffic Management (36CFR 212.5 and FSM

7700) the following vehicle classes are recommended for adoption and use:

Vehicle Class	Characteristics
1	Street Legal 2WD or 4WD
2 OHV	Non-street Legal <50" wide 2 wheels/tires 3 or more wheels/tires 2WD or 4WD
3 OHV	Non-street Legal >50" wide 4 or more wheels/tires 2WD or 4WD
4 OHV	Non-street Legal Snowmobile

48. The following estimates are offered and linked to the Maintenance Level System:

Maint.Level	Speed Range (MPH)	Use Speed (MPH)	Daily Traffic Range	Use ADT	Surface Type
2	2-38	20	0-10	5	Native
3	15-45	30	10-30	~~15~~ 25	Native/Agg
4	25-55	40	30-60	45	Aggregate
5	45+	50	60+	60	Paved

Traffic Engineering:

Four documents have been reviewed and applicable statements extracted here for clarification, leading to the study plan. Copies of sections from these documents can be made available.

1. **Fundamentals of Traffic Engineering**, Institute of Transportation and Traffic Engineering, University of California, Berkeley, CA, 1966

a) ADT in vehicles per day used to measure present traffic flow and demand for service.

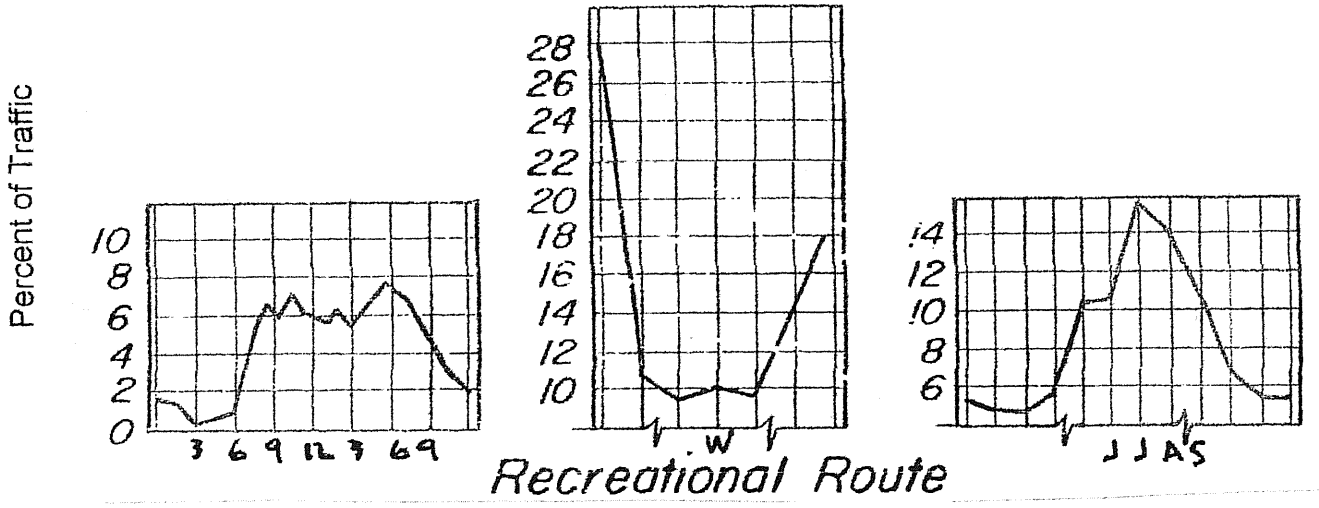
b) Classification counts used in establishing structural and geometric design criteria.

c) Manual counts for light volumes.

d) Counting Periods commonly used–12 hours–7AM to 7PM.

e) Rural Counting Programs vary considerably depending upon type and size of area. Coverage Stations are counted for a 24 or 48 hour weekday period annually or biennially.

f) Rural Characteristics are shown for California roads:



Hours of Day Days of Week Months of Year

2. **Guide for Traffic Volume Counting Manual**, Bureau of Public Roads (**Now Federal Highway Administration FHWA**), 1965 Guidance for State DOTs.

a) Defines annual average daily traffic (ADT)

ADT - (Annual average daily traffic) Annual average number of vehicles during 24 consecutive hours that pass a particular point on the road over the period of 365 days.

Annual average daily traffic is calculated by averaging the average daily traffic for each of the 12 months. The average daily traffic for the month is calculated using the equation:

$$\text{Average day of month} = \frac{5\ \text{Av. Weekday} + \text{Av. Saturday} + \text{Av. Sunday}}{}$$

Where Av. weekday = average daily volume for all weekdays of month
Av. Saturday = average daily volume for all Saturdays of month
Av. Sunday = average daily volume for all Sundays of month

This procedure is considered the simplest feasible method for providing comparable values when counts for certain days are unusable.

b) Defines coverage count stations.

c) Defines statistical analysis and experience in application of statistically controlled procedures in 30 states.

d) Defines that any count of less than one-year duration must be regarded as a sample.

e) Observations indicate that there are substantial differences in the urban and rural variations of traffic volumes, in terms of time periods.

f) Procedures for highways with ADT volumes between 25 and 500. Percent of ADT error when counting on state wide programs greatly increases under an ADT of 250.

Coverage count stations procedures also apply to low volume (25-500) roads. An exception to this policy is that coverage count stations are not usually located on roads carrying an ADT of 25 or less. Locate coverage count stations at alternate intersections. However, it may not be necessary to locate a

coverage count station at alternate intersections providing the traffic volumes do not vary by more than 25 percent between road sections under consideration.

g) Roads with ADT volumes less than 25. Other sources of information should be used for the estimation of traffic volumes on the extremely low-volume roads.

h) The greater the familiarity with local conditions the better judgement can be exercised in the final decision in estimating traffic volumes.

3. **Traffic Surveillance, FSH 7709.41, PSW (R5), 1969**

a) Each Forest can identify roads or road segments for which information on the traffic is needed now. Therefore, we begin by selecting sites on the basis of urgency for information about a road segment.

b) The reading schedule or observation period will depend only on the accuracy required.

c) Select road segments about which information is necessary now.

d) Keep orderly and systematic records of all data gathered for now and the future.

e) Whatever sample size or reading schedule is chose, it must be periodic, e.g., with respect to the hour of the day, day of the week, and the of the same duration.

f) Manual counts will be done, therefore machine counter malfunctions or errors do not need to be considered.

4. **1988 Traffic Volumes on the California State Highway System**, State of California Division of Traffic Engineering in cooperation with the Federal Highway Administration.

a) Traffic trends are defined. 1988 numbers will be displayed at appropriate places for this study. This document indicates a 5.8% statewide annual average rate increase between 1983 and 1988.

b) Annual ADT, Peak Month ADT and Peak Hour are defined.

Study Methodology:

The problem or question is, what is the level of shared use between street legal vs non-street legal OHV at which the perceived risk of an accident is too great to allow the sharing?

The term shared is used in lieu of mixed or combined primarily because the Manual of Uniform Traffic Control Devices (MUTCD) already has a typical sign that says "Share the Road", #W16-1.

Factors that have a bearing on this question are:

1. How much traffic is moving, ADT
2. What type of traffic is moving, classification
3. Basic speed of traffic, MPH
4. Stopping sight distance
5. Specific roadside hazards

Items 1, 2 and 3, however, are variable and at the whim of the driver. Some risk of an accident is to be expected.

Items 4 and 5 above can be physically mitigated to an acceptable level if they are judged to be a problem. Site specific reconstruction and/or additions of warning signs can be done.

FSH 7709.59 - 52.2 contains some guidance for estimating the potential and severity of an accident. USFS Region 6 also has an R6 Supplement that provides some more insight in how to make a

decision. Further, the May 2004 Issue Paper includes yet another set of criteria.

TATMAN

SYLLABUS

Fundamentals of Traffic Engineering - 6th Edition

Norman Kennedy, James H. Kell, Wolfgang S. Homburger

THE INSTITUTE OF TRANSPORTATION
AND TRAFFIC ENGINEERING
UNIVERSITY OF CALIFORNIA

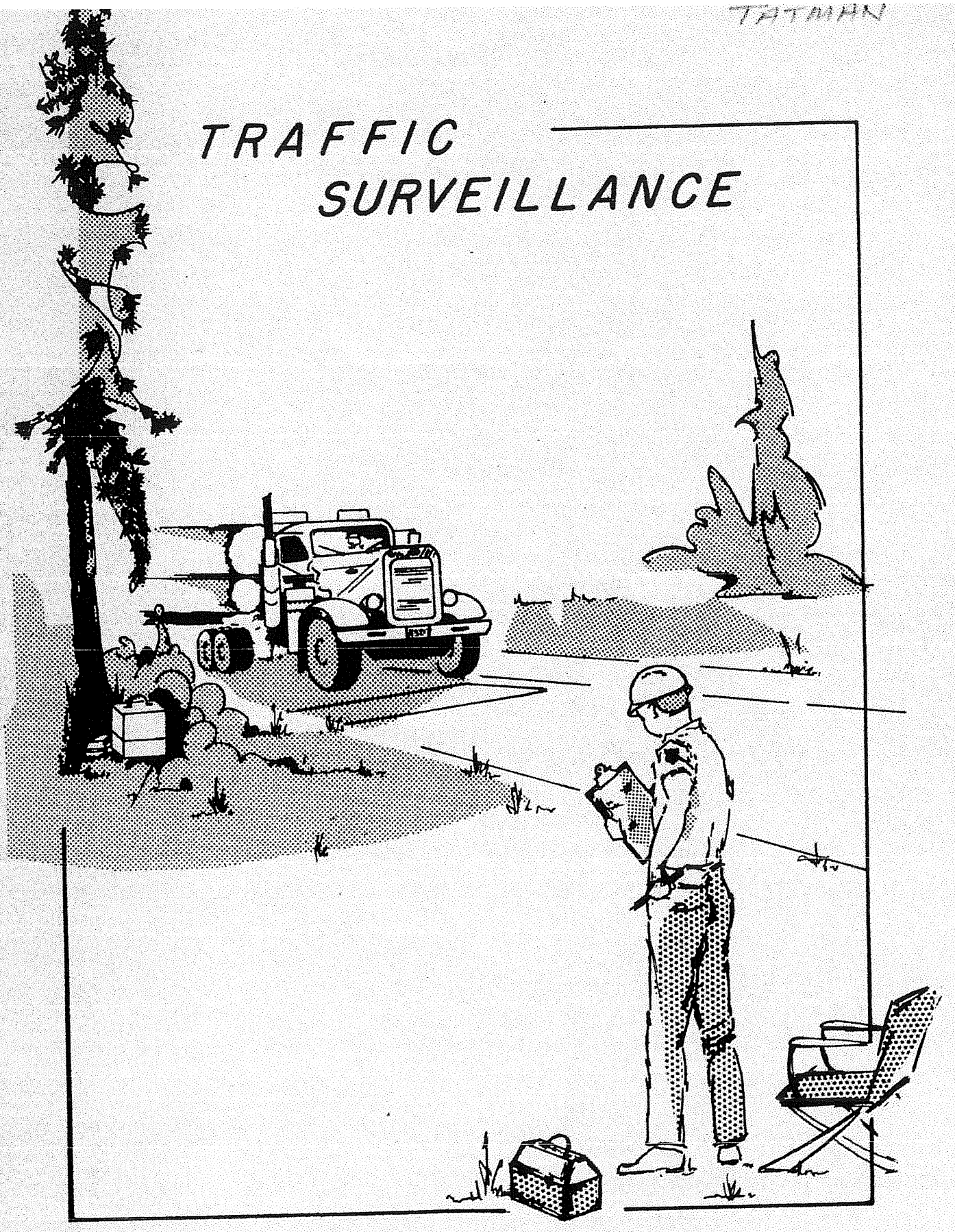
H. R. TATMAN, JR.

TRAFFIC VOLUME COUNTING MANUAL

U.S. DEPARTMENT OF COMMERCE • Bureau of Public Roads

TATMAN

TRAFFIC SURVEILLANCE



CALIFORNIA REGION
DIVISION OF ENGINEERING

7709.41

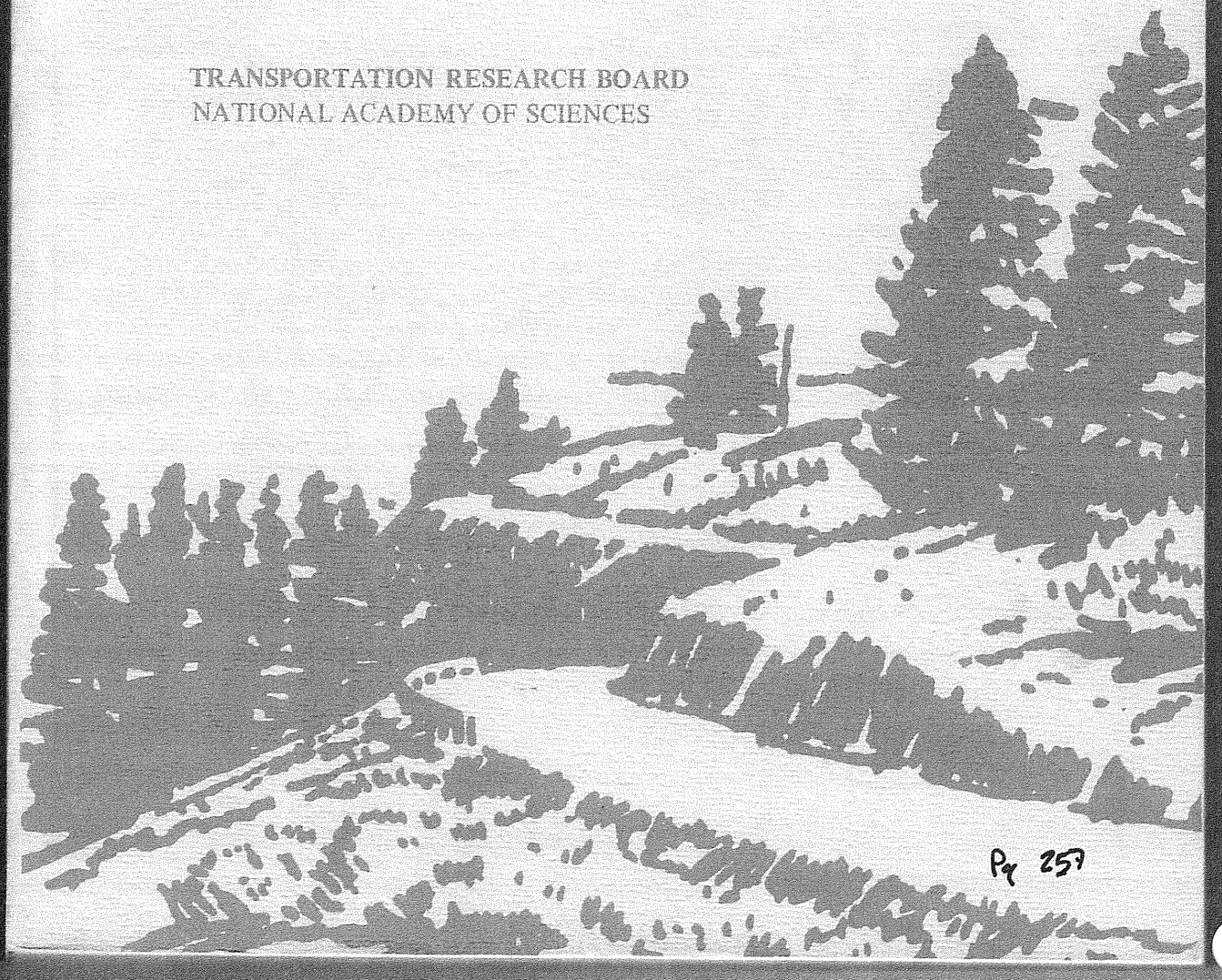
Tatman

H. R. TATMAN, JR.

LOW-VOLUME ROADS

SPECIAL REPORT 160

TRANSPORTATION RESEARCH BOARD
NATIONAL ACADEMY OF SCIENCES



Pg 257

Barbara Tatman

From: Elizabeth Norton [enorton@fs.fed.us]
Sent: Wednesday, May 11, 2005 4:11 PM
To: Barbara Tatman
Subject: Fw: Traffic Study Paper

Traffic Study 4-20-05.doc (295...

Hi Dick and Bobby - here is Sue's response below. I also like the idea of recording people per vehicle if we can add that to the form. Hopefully, no one is driving that fast so we can get a head count. What do you think of that?

I've also asked Terrie Veliotes for all Caltrans traffic counts in our LNF area since 1988, so I hope to have that soon.

I recommend we reduce the # of sites and focus on just: 1) areas with known Greensticker use along the Share the Dream route (I'll send you a map). We might want to move #8 down to Potato Buttes area; and 2) priority stations that are along ML 3 roads where we're trying to decide if we can safely have combined use.

I'll print another map for you that shows the route by ML level, count stations, and OHV use areas.

Sue's also right that we'll need a JHA. Hopefully the count station we decide on all have a safe pull off area nearby to park and to set up chairs. Also shade!!!

izabeth Norton
ssen National Forest
550 Riverside Drive
Susanville, CA 96130
Phone: 530-252-6645
FAX: 530-252-6428
e-mail: enorton@fs.fed.us

----- Forwarded by Elizabeth Norton/R5/USDAFS on 05/11/2005 04:55 PM -----

Susan M Kocis/WO/USDAFS
05/10/2005 01:27 PM

To: Elizabeth Norton/R5/USDAFS@FSNOTES
cc:
Subject: Re: Fw: Traffic Study Paper (Document link: Elizabeth Norton)

Hi Elizabeth,
finally reviewed the traffic study you sent me several weeks ago. erall it looks fine to me. The purpose and methods are clear. I have only a few mments- 1. Make sure safety of observers is addressed in a JHA 2. Might be useful to collect in/out rate as well as ADT. In NVUM we have based all our traffic counts on EXITING ratio so we know we are counting that visitor only once. Many road systems have

Ref #2 – we are only interested in the flow of what kinds of vehicles – we do not care about O&D or number of trips.

particular patterns where traffic flows through or comes from another area so same person going in doesn't come out same way later. Also patterns of in/out change throughout the day. At some point the forest might find this useful (collision potential etc).
3. Observer might want to record people per vehicle (PPV) to link to recreation use information and or compare to NVUM data collected on the forest.

Good luck, and please send me a copy of the report when its completed. Thanks.

Sue Kocis
USDA Forest Service - Visitor Use Monitoring
1407 S. Harrison Road Suite 220
East Lansing, MI 48823
517. 355-7740 xt. 119
fax: 355-5121

Elizabeth Norton/R5/USDAFS
04/21/2005 12:30 PM

To: Susan M Kocis/WO/USDAFS@FSNOTES
cc:
Subject: Fw: Traffic Study Paper

Hi Sue - here the traffic study protocol we'd like to conduct June-August 2005. Purpose is to determine traffice type and volume on our ML 3 and 4 roads to determine if we can safety allow combined use by ATVs and street licensed vehicles. It will be conducted by volunteers. If you have time to review, we'd appreciate your comments on the methodology, which is based on the 4 documents referenced in this protocol. We are also installing 12 traffic counters on other locations on ML 3 and 4 roads.
Thank you.

Elizabeth Norton
Lassen National Forest
2550 Riverside Drive
Susanville, CA 96130
Phone: 530-252-6645
FAX: 530-252-6428
e-mail: enorton@fs.fed.us
----- Forwarded by Elizabeth Norton/R5/USDAFS on 04/21/2005 09:20 AM -----

"Barbara Tatman" <barbara@team-tnt.com>
04/20/2005 07:46 AM

To: <enorton@fs.fed.us>
cc:
Subject: Traffic Study Paper

Share-the-Dream Trail
Traffic Flow Data
Team Instructions
6/4/05

Why

The Share-the-Dream Trail is being dedicated in September of 2005 for use by street legal vehicles. The Recreation Outdoor Coalition (ROC) wants the trail to also be available to non-street legal vehicles.

The US Forest Service has criteria that must be followed in making a decision to allow sharing the road or mixing street legal with non-street legal vehicles. The Lassen National Forest has indicated that if a formal engineering study indicates acceptable risks of mixing the use on certain roads, then they may allow that use, following adequate signing.

ROC has embarked on performing the study for the Lassen.

Engineering Study

The study process being utilized involves four major steps"

1. Traffic Flow Data
2. Roadway Characteristics
3. Data evaluation and summarization
4. Accident Risk Analysis and Recommendations

The study assumes that all vehicles and operators are legally licensed and equipped to safely operate.

Step 1 involves observing all traffic passing a given point during a specific time frame to provide a statistical sample of what traffic is using the system.

Step 2 involves recording the surface type, travel way width, shoulder or clear area width for accident avoidance maneuvers, the average travel speed (basic speed) stopping sight distance at curves, roadside hazards and adjacent down hill slopes to assess physical conditions.

Step 3 involves calculating the average daily traffic, the percentage of traffic by vehicle class, the number of people per vehicle and a cataloging of physical conditions that fall below and acceptable minimum.

And step 4 takes the data obtained and using sound judgement, assigning a risk or potential for an accident and assessment of the severity of an accident, and recommendations.

Your Role–Step 1

As a team member, you will sit beside the road at an assigned location and time period to observe the traffic as it passes you.

Your responsibility is to determine the class or type of vehicle, the number of individual persons per vehicle, and the time period of the passing and record the data on the Traffic Flow Data form. Coding instructions follow.

If people stop to ask you what you are doing and why, you're free to share that you are a volunteer from ROC assisting the Lassen National Forest in gathering traffic flow data for the purpose of travel management for the Share-the-Dream Loop. You also may show them the recording form to clarify that no individual specific information is being gathered or recorded if that is a concern.

At the end of each count day send the data form to the team leader in the furnished envelopes.

Job Hazard Analysis (JHA)

The Forest Service has asked that a JHA be prepared for this activity. Their concern is for your personal safety while you perform a service for them. Therefore, consider the following:

1. While traveling from your home to the assigned count location and return in your personal vehicle–don't have an accident!
2. The count location is along an existing road that may have traffic traveling at various speeds.
3. The count location was selected with the following in mind:
    a.. A place to safely park your personal vehicle off the travel way (out of harms way).
    b. A safe place to sit, in the shave, to be available to record all traffic that passes. (Or in the sun if you desire.)
4. You have been notified to bring sweaters, coats, hats, sunscreen, water, lunch, and lawn chairs and to carry a first aid kit, shovel and toilet paper in your vehicle.
5. Two people are to be available at each location for the following reasons:
    a. Company to pass the time.
    b. At least one person awake.
    c. Afford time for one person to attend to the "call of nature".
    d. Personal safety in numbers.
6. If you have children or pets along, be extra alert to where they are when you hear traffic coming. None of us want to have a child or pet hurt while playing.

Timekeeping

The Forest maintains and reports on the number of volunteer hours contributed during the year. After your last day on this project, please provide, in writing, your hours and personal vehicle mileage for each of the days you helped, along with the final form. If you are a couple and cover a station from 7AM to 7PM, then show 24 hours.

8/29/05

Jack W. ___

Liz N. ___

Traffic Study
Liz returned comments 9/1/05
incorporated 9/2

Here is the current draft of the report.

I still have to add 9/4 data to the record – BUT – the analysis is based only on June, July & August observations. And I will be adding some photographs to the final printing.

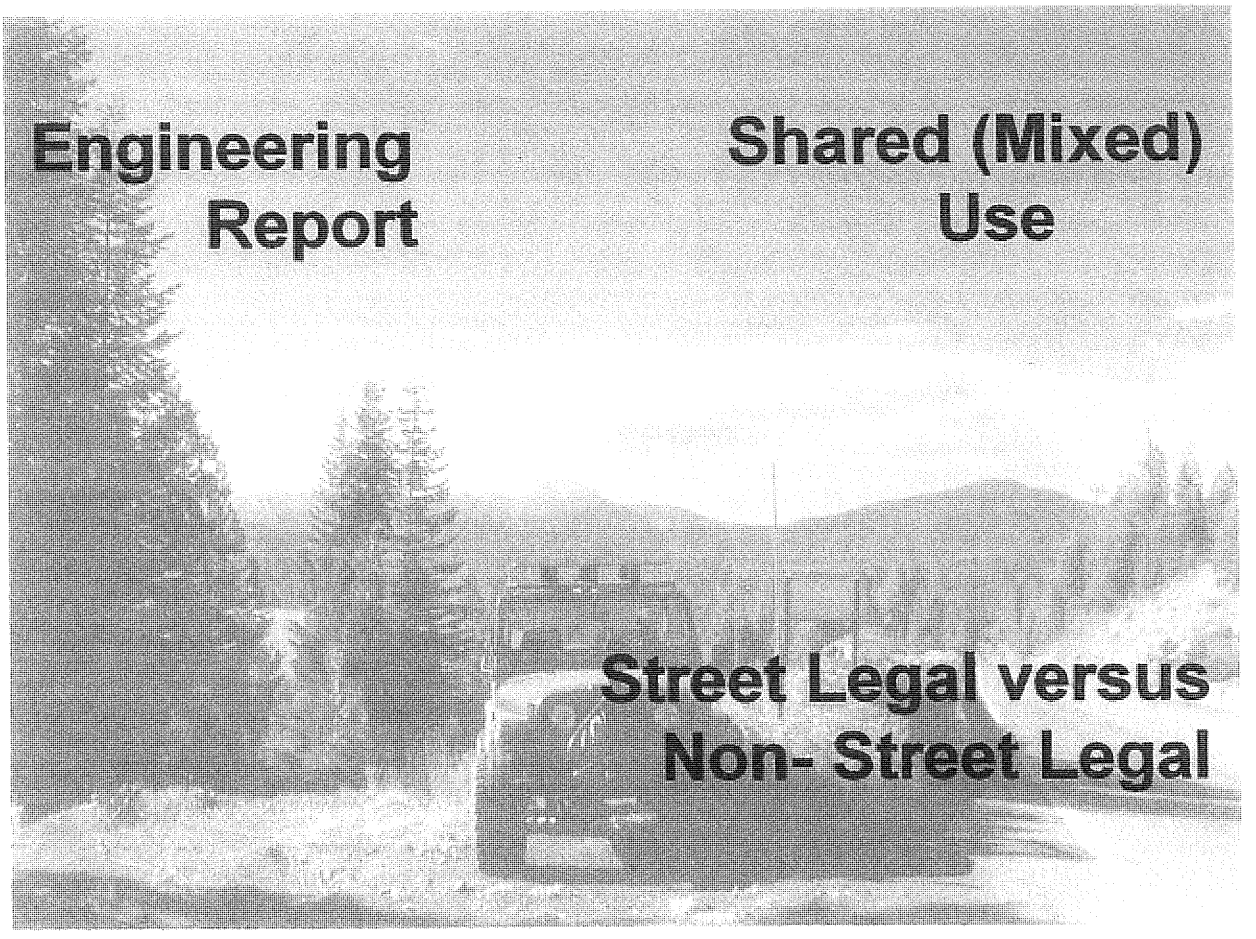
Please review and provide any changes you feel are needed for my consideration by 9/9. My goal is to distribute the final +/- 9/14.

Write your comments in the report if you wish & return to me. Give me a call @ 253-3054 & I will be happy to come pick them up – Save snail mail time.

Thanks

Dick

P.S. Detailed notes, assessment & mitigation included for only 32 NOG. Some of the other maps not ready.



Lassen Backcountry Discovery Trails

Alternate 3B
Share-the-Dream Loop

Recreation Outdoors Coalition

U.S. Department of Agriculture
Forest Service

Backcountry 4X4s

Forest Supervisor
Lassen National Forest
2550 Riverside Drive
Susanville CA 96130

September 14, 2005

Dear Ms Tippin,

Enclosed is the 2005, Back Country Discovery Trail Alternate Route 3B, Share-the-Dream Loop Motorized Shared (mixed) Use engineering analysis for your consideration.

The analysis was performed essentially as presented to you on April 26, 2005. As data gathering began, some recording procedures were modified to best reflect conditions. Contacts were maintained with the development of the national "Guidelines for Analysis of Mixed Use on NFS Roads". This analysis adheres very closely to the WO's August 23, 2005 draft.

To date, no accidents have been reported on the roads evaluated in the study.

Based upon the analysis and my professional judgement, I believe the risk for accidents will be low if you allow continued use of non-street legal vehicles on these unpaved roads of the Share-the-Dream Loop.

For the 72 miles, the average daily traffic for all count stations was 12 vehicles, with a high of 27 and a low of 5. Of the 895 vehicles counted, 83% were street legal and 17% were non-street legal. And they carried, on average, 1.6 people per vehicle. Of the 83% that were street legal, only 10% were passenger cars, suggesting that maintenance levels could be lowered. Also, there were 26% SUVs, 47% pickups, 3% dirt bikes and 14% quads.

Finally–this project involved 60 members representing nine OHV Clubs and the Recreation Outdoor Coalition from Northern California. These people contributed 2,140 hours of labor and provided 16,714 miles of personal vehicle use. We all sincerely hope this analysis gives you the information you need for making the decision to continue "shared use" on these roads.

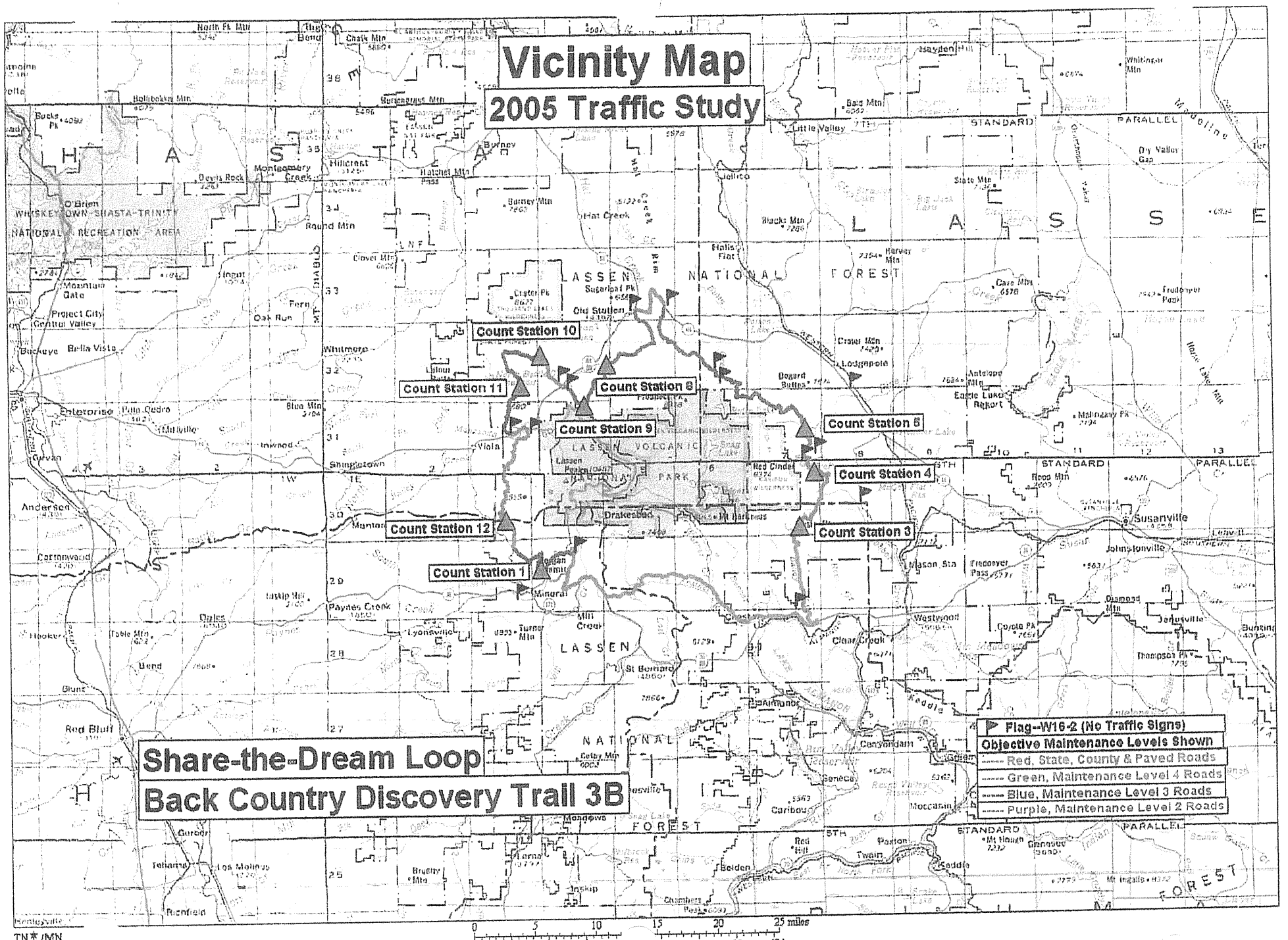
We look forward to your decision.

Sincerely,

H. R. Tatman, Jr., PE, Team Leader
707-620 Wingfield Rd
Janesville CA 96114
530-253-3054

cc: Sylvia Milligan, Chairperson ROC
E. Vaughn Stokes, Director of Engineering, WO

Vicinity Map
2005 Traffic Study



CONTENTS

Engineering Report
Lassen National Forest
Back Country Discovery Trail–Alternate 3B
Analysis of Share-the-Dream Loop (BCDT–3B)
for Motorized Mixed Use Designations

Summer 2005

Introduction

Some people own and enjoy riding their OHVs, primarily dirt bikes and quads in the summer. Some operators go to developed OHV parks, use private lands and/or use public lands.

The expanding availability of OHVs and the growing population has dramatically increased the demand for riding opportunities and unfortunately increased the conflicts.

The Forest Service is in the process of adopting procedures to restrict OHV travel to designated roads, trails and a few small open areas. Some staff in the Pacific Southwest Region oppose OHV use on ML 3, 4, or 5 NFS roads.

Forest Service directives and handbooks, prepared before the large increase in demand for OHV riding, has resulted in varying agency interpretations of what roads can be used by non-street legal OHVs. Maintenance Level (ML) 2 roads are generally considered open, ML3, 4 and 5 are open sometimes. ML2 roads typically are short dead end roads.

This analysis addresses the risks for accidents if street-legal and non-street legal vehicles share the existing 72 miles of ML3 and 4 roads on the Share-the-Dream Loop, BCDT-3B.

Issue Statement

Which unpaved road segments, under US Forest Service jurisdiction, of the Share-the-Dream Loop (BCDT-3B) may relatively safely have shared (mixed or combined) use between street legal and non-street legal vehicles?

Constraints

All vehicles and operators using the roads now and in the future are assumed to be licensed and outfitted (personal protection gear) to fully meet State of California, Department of Motor Vehicle Code (CVC) requirements, current editions. See Glossary for CVC codes.

Roadway Characteristics: The following information was obtained in June 2005, on about 72 miles of ML 3 and 4 NFS roads by the engineer:

- Surface Type
- Average Travel Speed
- Cross Section Changes
- Surface Type Changes
- Curvature Irregularities
- Road Widths
- Clearance from Roadside Hazards
- Alignment and Stopping Sight Distance
- Radical Speed Change
- Typical Season of Use

Traffic Flow Data: The following information was observed periodically during the summer and recorded by a team of technicians:

Number and type of vehicle and people per vehicle.

Traffic observation sites and counting days and hours for recreation were selected by the engineer following guidance from "Fundamentals of Traffic Engineering", Institute of Transportation and Traffic Engineering, University of California, Berkeley, 6th edition and other literature.

Following a training session, observations were made by the technicians from 7:00 AM until 7:00 PM on the first Sunday and third Wednesday of June, July and August, 2005. Observations were also made, by Forest request, on September 4 but those results are not included in the analysis. Two people occupied each count site for each 12 hour count period.

Observations classified the vehicles as to type of vehicle and the number of occupants per vehicle.

Vehicles were not stopped and drivers not interviewed to assess the User Knowledge or if they were operating legally. By observation, the drivers appeared to know where they were going, appeared to be legal, and were driving reasonably.

Average daily traffic (ADT) was calculated by the engineer using the formula from the Bureau of Public Roads (now Federal Highway Administration) "Guide for Traffic Volume Counting Manual", 2nd edition.

Summary of Findings and Recommendations

Road # *	Length Miles	Summer 2005 OBSERVATIONS						Accident Assessment Rating		Recommend-ation Shared Use Yes/No
		Count Sta. # **	ADT	Ave. Speed MPH ***	% Street Legal	% Non-Street Legal	People per Vehicle	Probability of Accident	Severity of Accident	
30N16	6.56	1	5	15	42	58	1.6	Low	Low	Yes
29N22*	2.96	1	5	15	42	58	1.6	Low	Low	Yes
32N1010	14.30	3,4,5 *****	16	20	88	12	1.7	Low	Low	Yes
32N09	7.73	5	11	20	87	13	1.5	Low	Low	Yes
32N21	0.36	Est.****	±30	20	±95	±5	±2.0	Low	Low	Yes
32N12	0.24	8,9	16	10	83	17	1.5	Low	Low	Yes
32N13*	7.49	8,9	16	20	83	17	1.5	Low	Low	Yes
32N16	3.40	10	14	24	76	24	1.5	Low	Low	Yes
32N24	7.90	11	14	18	77	23	1.5	Low	Low	Yes
32N13	0.30	11	14	25	77	23	1.5	Low	Low	Yes
32N17	5.21	11	14	20	77	23	1.5	Low	Low	Yes
31N17	15.30	12	8	27	85	15	1.6	Low	Low	Yes

* 29N22 and 32N13 are signed on the ground as ML 2

**ADT for road is average of indicated count stations

***Based on speed by prudent driver

****Butte Lake Road access to LVNP is estimated only, not counted. A Public Lands Highway Project is proposed with adjacent OHV trail.

Maintenance and/or Mitigation Needs and Photographs

General—This study had it's on the ground beginning in May 2005. There was still a lot of snow on the roads, so numerous trips were made to find out if we could get to the nine count sites in time to start the count on the first Sunday in June. In other words, team members were some of the first to travel the roads. We did a lot of tree and rock removal as we went. As of the end of the counting on the first Sunday in September, no USFS road maintenance of any kind appeared to have been done. These are all ML 3 or 4 roads.

At a recent public meeting, the Forest announced that in 2004 16% of LNF roads were maintained and only 13% met road management objectives. It may be even worse in the next few years.

Consideration needs to be given to reducing operational ML of these ML 3 and 4 roads to ML 2 and concentrate your dollars on drainage. Observed conditions, summer 2005, are best described as meeting Level 2 (ML2) as shown in Exhibit 01, Section 12.6 FSH 7709.58 effective 9/4/92. It will cost a lot more to bring these roads back if they wash out.

Grading—It appears from the debris in the ditches, ruts, pot holes and washouts, that the drainage has not been touched for a number of years. Traffic has created numerous large washboards that can cause any vehicle to loose control.

The ditches need to be cleaned to keep run-off in the ditch. When pulling the ditches with a grader, keep the break point between the road surface and ditch slope flat enough to safely allow a vehicle to drive into the ditch to avoid an accident.

And remove the berms that have accumulated since 1991. This will enhance the dispersal of water and can provide from one to six feet of additional accident avoidance space.

The drainage work is needed to protect the road investment as well as the adjacent resources.

Vegetation Removal—Given the amount of vegetation growth that has encroached on the travel way, it's been at least 5 years since any major vegetation removal effort was made.

Minimum removal work has been listed on a map for each road in Appendix F. It is also listed by milepost and GPS coordinates under notes for each road in Appendix E. A Garmin GPS76CS with a 15 meter accuracy was used. Coding use is as follows:

Consider Alternative A; Page 5C-6 of MUTCD states:

> *"Section 5C.12 NO TRAFFIC SIGNS Sign (W16-2)*
>
> *Option:*
>
> *A warning sign (W16-2) with the legend NO TRAFFIC SIGNS may be used only on unpaved, low volume roads to advise users that no signs are installed along the distance of the road. If used, the sign may be installed at the point where road users would enter the low-volume road or where, based on engineering judgment, the road use may need this information.*
>
> *A supplemental plaque (W7-3a) with the legend AHEAD, XX METERS (XX FEET) or NEXT XX KM (NEXT XX MILES) may be installed below the W16-2 sign when appropriate."*

Install one of the W16-2 signs at each State or County road intersection. By doing this the agency is advising the traveling public that no further warning signs are posted along the road. This should, in my opinion, protect the agency in the event of a tort claim resulting from an accident where the claimant says they were not warned about a curve, for example.

Or, consider Alternative B;

After traveling along these roads several times, a few specific signs to warn drivers about uncommon conditions along the way may be in order to help reduce the risk of an accident. The recommended MUTCD signs are listed in Appendix E and F by mile post, GPS coordinates and catalog number and on maps. The MUTCD provides location criteria for different travel speeds.

Recommendation—After much thought about the A and B Alternatives, I have concluded the best approach, given today's conditions, is Alternative A–No Traffic Signs. This will be the least costly way, the easiest to monitor for longevity of sign life and should minimize tort claims. Needed W16-2 signs are shown on the vicinity map at the beginning.

The Forest and Region, as a whole, may wish to adopt this system for all NFS roads where they intersect with State and County Roads. OGC could be consulted.

Share The Road—If the decision is made to allow non-street legal OHV on the ML 3 and 4 roads, then Share The Road (W16-1) signs need to be installed. See Chapter 3A, EM-7100-15 Signs and Poster Guidelines OHV Chapter and/or use MUTCD W16-1 signs with the appropriate white on brown vehicle symbols.

September 26, 2005

Below is the log of the photographs in the 2005 Traffic Study on the Share-the-Dream Loop, LNF BCDT 3B.

All photographs were taken by H. R. Tatman, Jr.

Some of the photographs were edited to lighten the shadows. Where these are used, both versions of the photographs are included on the CD.

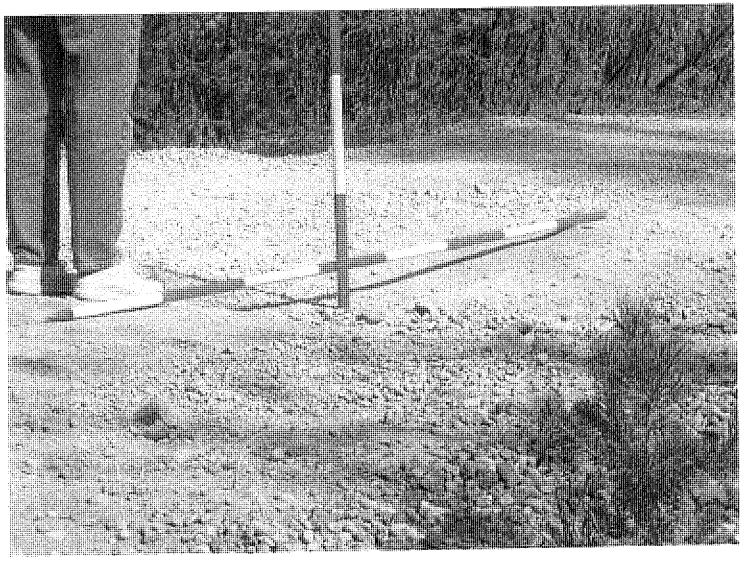
Photograph Log, 9/6/2005 Continued

Road Number	WP	MP	Lat/Lon	Comments, Hazard, Mitigation, Etc.
32N61	24	2.13	N40°36.013, W121°17.759	Photo 05-0704
32N17	26	0.32	N40°35.163, W121°36.457	Photo 05-0706
32N17	27	1.01	N40°34.736, W121°36.969	Photo 05-0707
32N17	28	3.96	N40°32.683, W121°38.027	Photos 05-0708, 05-0709
32N17	29	4.96	N40°32.092, W121°37.478	Photos 05-0710, 05-0711
32N17	30	5.15	N40°30.015, W121°37.268	Photos 05-0712

05-0672 Plugged culvert

05-0673 Shoulder washed 1.5 Feet

culvert

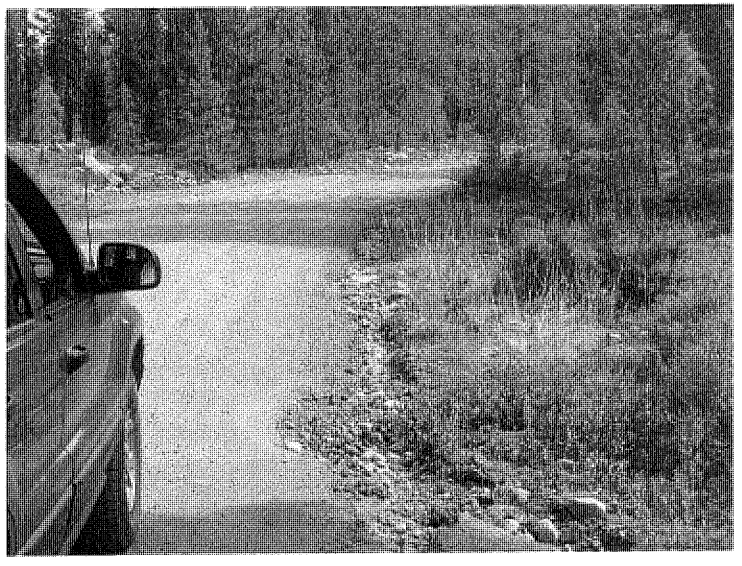


05-0674 Culprit

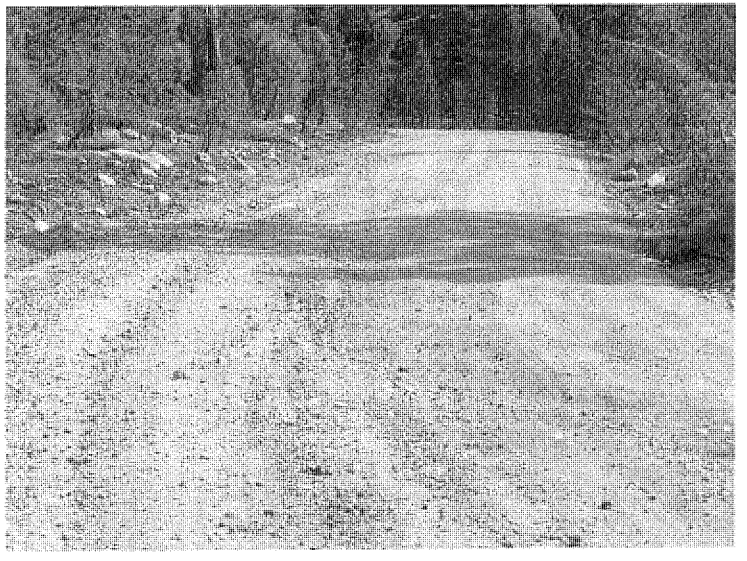
05-0676 Each color is 12" long on range pole

Photos by H.R. Tatman Jr.

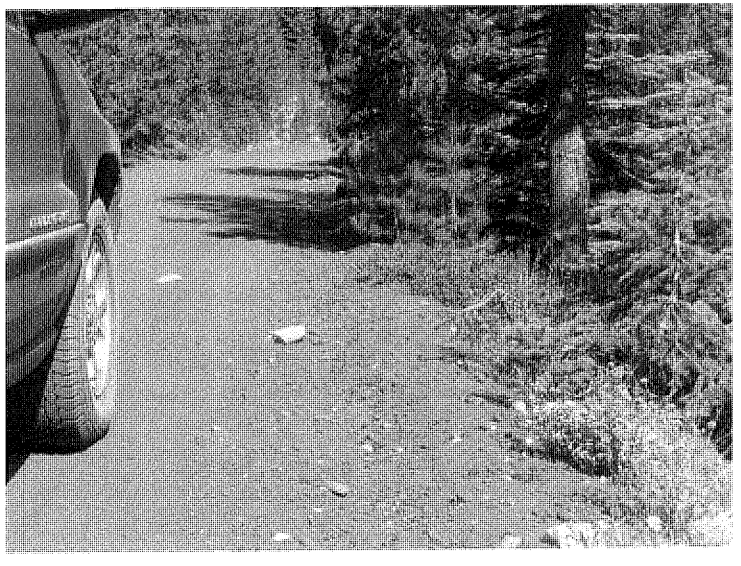
September 6, 2005



05-0677 Results of plugged ditch

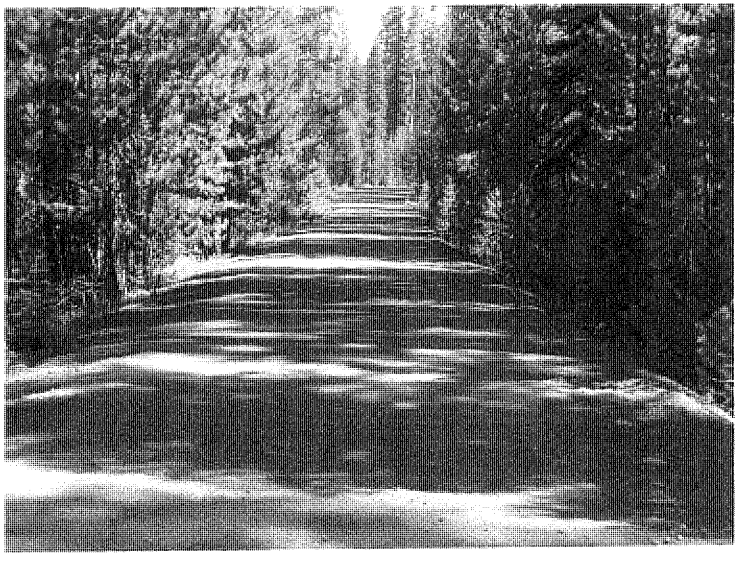


05-0678 Plugged ditch



05-0679

Accumulated berm and vegetation



05-0682 OK Obj. ML4 road-except for berm in fill area

05-0680 Short CMP (SCMP)

05-0681 Hole to fall into

between 8/17/05 and 9/4/05

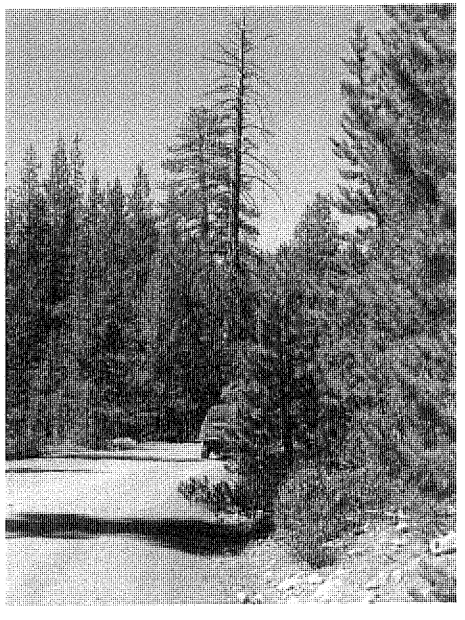
05-0683 Fell
05-0684 Same tree

Photos by H.R. Tatman Jr

September 6, 2005

05-0686 Widow maker and veg. encroachment

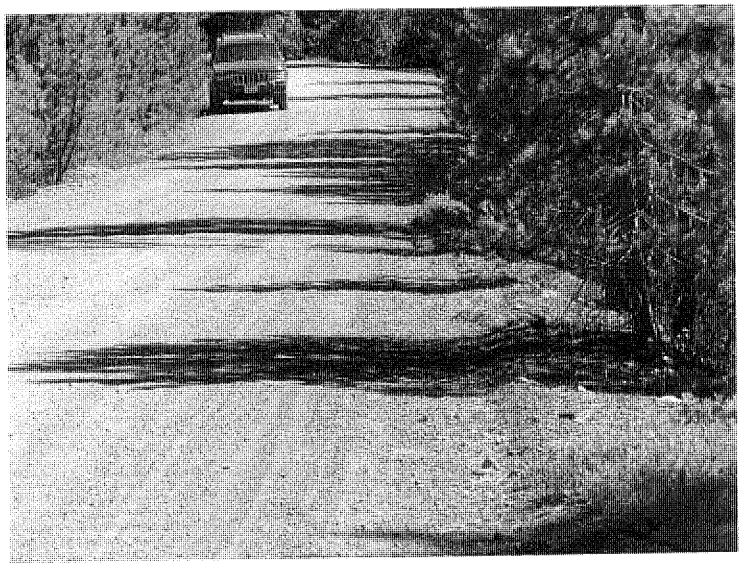
05-0687 Widow maker and berm on fill



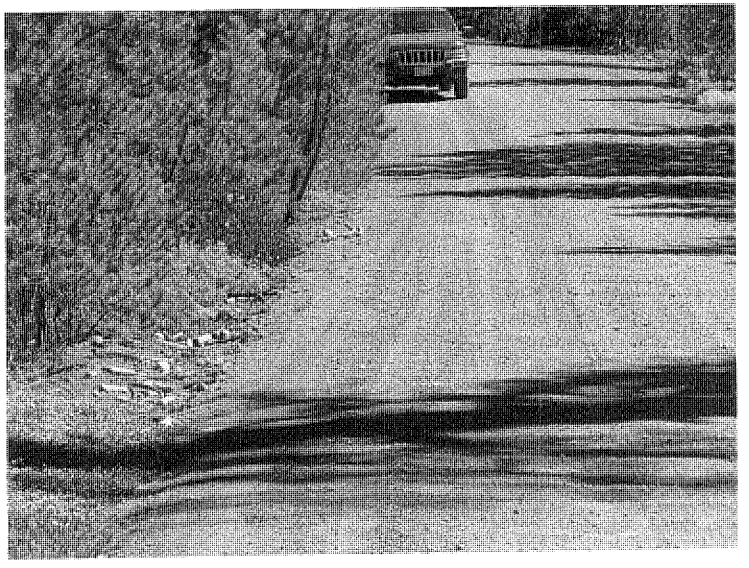
05-0685 Widow maker

Photos by H.R. Tatman Jr

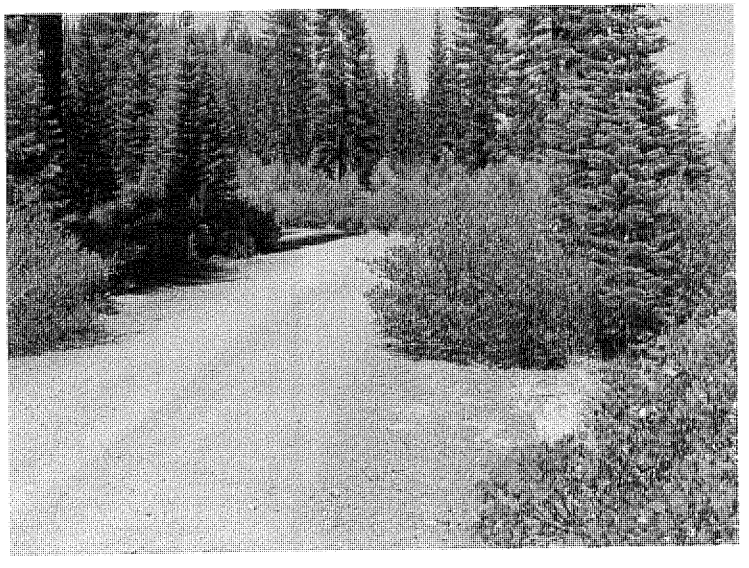
September 6, 2005



05-0688 Imported surface material left in berm
Rock beginning to show in surface



05-0689 Pieces of dead limbs from widow maker on roadside.

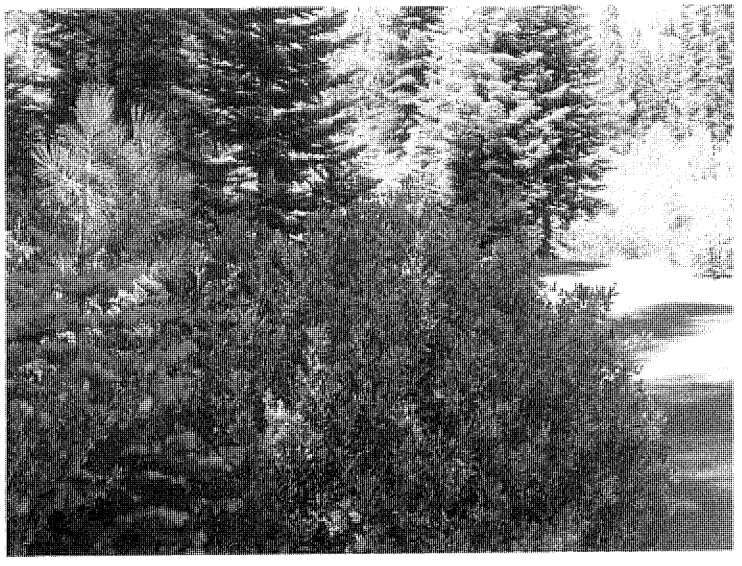


05-0690 Fallen
05-0691 Vegetation encroachment

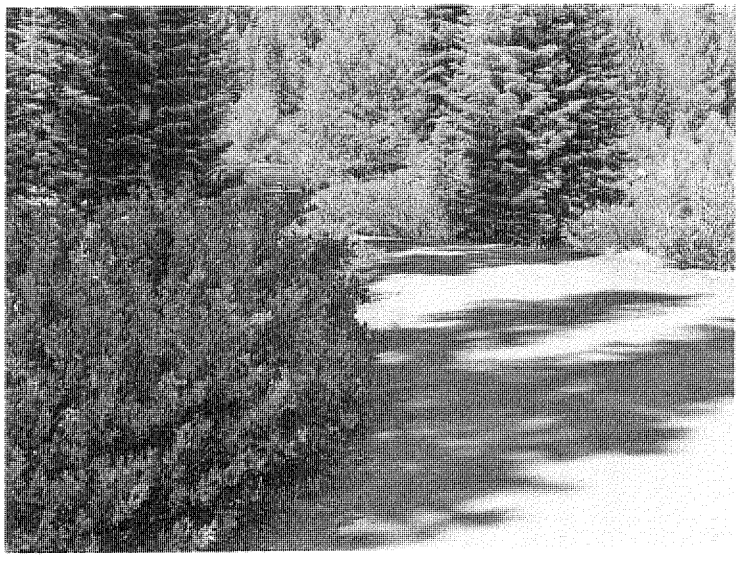
tree

Photos by H.R. Tatman Jr

September 6, 2005



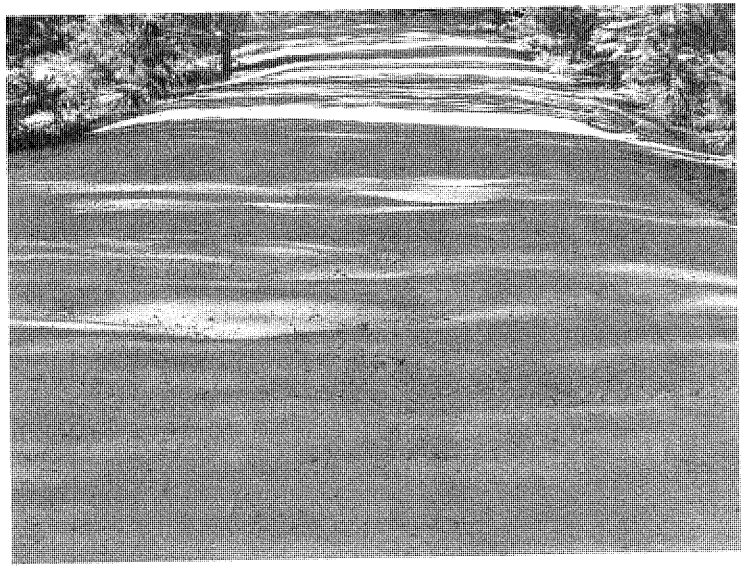
05-0692 SDC



05-0693 SDC

05-0694 SDC

05-0695 SDC



05-0712 Pot holes

Estimated
Maintenance–Signage Needs & Costs

Road #	Maintenance		Regulatory Signs	Warning Signs		Object Markers
	SDC	RBE		Alt. A	Alt. B	
30N16	12	1			6	2
29N22	2					
10(32N10)	3	1	2		12	8
23N09	4	7			16	
32N21						
32N12	1				2	
32N13	6	3				4
16(32N16)	1					
32N24	5				4	6
32N13						
32N17	3				8	2
17(31N17)	20	1	2		30	2
Totals	57	13	4	15 or	78	24
Cost	$18,500	$7,700	$1,000	$3,750 or	$19,500	$3,000

$30,200 + $3750 or + $19,500 = $33,950 or $49,700

SDC & RBE 4 person crew @ $45.00/Hour + 150 mi/day @ $0.405 = $1500/day
Power pole saw @ $350.00 & chain saw @ $300.00 = $650
SDC 5 curves/day = 12 days = $18,000 + 12/17ths ($650) = $18,500
RBE 3 sites/day = 5 days = $7500 + 5/17 ($650) = $7,700

Regulatory & Warning Signs @ $250 each

Object Markers @ $125 each

Appendix

A - Glossary

B - Forestwide 2005 Accident History

C - State Laws Preempted

D - Traffic Flow Data by Count Site

E - Roadway Characteristic Notes and Slope Maps by road

F - Shared Use Assessment, Maps and Maintenance and/or Mitigation Tasks by road

G - Recommended MUTCD Signing

H - Study Volunteers

Appendix A – Glossary

Accident History – The Forest has no records of any accidents on the roads in the study. See Appendix B for Forestwide 2005 accident history.

Alignment and Stopping Sight Distance – Two vehicles traveled all of the roads together to determine the distance that one vehicle could see the other on sharper curves. A minimum distance for a given speed was used per FS Handbook. Each tight curve was checked by actual measurement. Most curves had full or nearly full turnout widths constructed in the travel way.

Average Daily Traffic (ADT) – Fundamentals of Traffic Engineering, 6th Edition, University of California and Traffic Surveillance, USFS R5, FSH 7709.41, Aug. 1969 were used to establish the best time to observe and record recreation vehicles. The ADT calculations utilized the process presented in "Guide for Traffic Volume Counting Manual", 2nd edition Feb. 1965 US Dept. of Commerce (old Bureau of Public Roads–now Federal Highways.)

Average Travel Speed – This was arrived at by prudent drivers using two methods. During the first and second trips along the roads, travel speeds were recorded between stops. On the final pass, to check data at a couple of spots, a GPS, with external antenna, was used to accumulate the average speed along each road. Existing roadway conditions, in summer, 2005, controlled the speed traveled.

California Vehicle Code (CVC)—Following are brief excerpts from the August 2005 on-line code:

<u>Operator License</u>

CVC 12500. (a) A person may not drive a motor vehicle upon a highway, unless the person then holds a valid driver's license under this code.

CVC 12501. The following persons <u>are not</u> required to obtain a driver's license: (c) Any person driving or operating an off-highway motor vehicle subject to identification, as defined in Section 38012, while driving or operating such motor vehicle as provided in Section 38025.

38012 – Motorcycle or motor driven cycle, snowmobile, sand buggy, dune buggy, all-terrain vehicle or Jeep. (green or red sticker)

38025 – to cross a two-lane highway.

(b) The person is under the direct supervision of an adult who has in their possession an appropriate safety certificate issued by this state, or issued under the authority of another state.

(c) The person has in possession an appropriate safety certificate issued by this state or issued under the authority of another state.

CVC *38504. No person under 14 years of age, on and after January 1, 1990, shall operate an all-terrain vehicle on public lands of this state unless the person satisfies one of the conditions set forth in Section 38503 and, in addition, is accompanied by and under the direct supervision of a parent or guardian or is accompanied by and under the direct supervision of an adult who is authorized by the parent or guardian.*

CVC 38505. No person, on and after January 1, 1989, shall operate, ride, or be otherwise propelled on an all-terrain vehicle on public lands unless the person wears a safety helmet meeting requirements established for motorcycles and motorized bicycles, pursuant to Section 27802.

CVC 38506. No operator of an all-terrain vehicle may carry a passenger when operating on public lands.

However, the operator of an all-terrain vehicle, that is designed for operation off of the highway by an operator with no more than one passenger, may carry a passenger when operating on public lands.

Vehicle License

CVC 38012. (a) As used in this division, "off-highway motor vehicle subject to identification" means a motor vehicle subject to the provisions of subdivision (a) of Section 38010.*

(b) As used in this division, "off-highway motor vehcile" includes but is not limited to, the following:

(1) Any motorcycle or motor-driven cycle, except for any motorcycle which is eligible for a special transportation identification device issued pursuant to Section 38088. (Motorcycle used in racing events)

(2) Any snowmobile or other vehicle designed to travel over snow or ice, as defined in Section 557.

(3) Any motor vehicle commonly referred to as a sand buggy, dune buggy, or all-terrain vehicle.

Responsibility of the Forest Supervisor:

1. *Maintain an inventory of road signs and traffic markings.*
2. *Institute procedures to gain compliance with safety standards (sec 41)*

41–Safety Standards–that pertain to NFS roads:

41.1- Standard 9–Identification and Surveillance of Accident Locations.

41.2- Standard 12–Highway Design, Construction and Maintenance.
Applicable sections are:
Section A–Design Standards
Section F–Traffic Regulation and Warning at Construction and Maintenance Sites.
Section G–Railroad Crossings
Section H–Roadway Maintenance, i.e., Maintain commensurate with annual operational maintenance level assigned to the roads.
Section I–Hazard Identification and Correction.
Section J–Highway Features for Accident Prevention and Survivability.
Section K–Post-Crash Program.
41.3- Standard 13–Traffic Engineering Services
41.4- Standard 14–Pedestrian Safety

Probability Factors* – Probability deals with forecasting the effect of factors present in any situation and the likelihood of a crash resulting from exposure to those factors. Factors that may effect the probability of crashes include:

Operator Considerations
- State Licensing
- Age
- Training
- Time of Day
- Season of Use

Crash History
Traffic Volume and Type
Speed
Surface Type
Intersections
Other Roadway Factors

Severity Factors* – Severity relates to the probable result of a crash and can range from minor property damage to critical injury or fatality. Factors that may affect the severity of crashes include:

Appendix B

Forest wide 2005 Accident (Crash) History

Note–none of these reported accidents on the Lassen NF contained in the Province Safety Officer's file, involve roads studied in this report. However, they are presented here to understand the type of accident that occurs:

Date	Vehicle	Driver Age	Location	Accident	Cause
4/19/05	Sedan	26	18Rd HCRD	Ran off road	Unknown
5/26/05	ATV (Quad)	88	29N46 ALRD	Ran off road	Unknown
5/29/05	ATV (Quad)	17	27N46 ALRD	Hit parked quad	Unsafe Speed
7/3/05	ATV (Quad)	14	Borrow Pit HCRD	Jumping bank	Unsafe Speed
7/13/05	Pickup	24	27N65 ALRD	Ran off road	Unsafe Turn
7/18/05	Motorcycle	44	28N06 ALRD	Ran up bank	Unsafe Turn
7/24/05	ATV (Quad)	40	Non-System Trail ELRD	Hit rock	Unsafe Speed

Only one of these accidents (5/29/05) involved another vehicle, which was part of the operator's group. And none of the accident reports noted problems with the roadway characteristics.

Appendix C

State Laws Preempted

On August 30, 2005, OGC attorney Ellen Hornstein, wrote in part *"The issue is whether the Forest Service has the authority to preempt state traffic laws in designating National Forest System roads for motor vehicle use. The answer is yes"*. Later she adds "Thus, under the new rule, state traffic laws that conflict with designations of NFS roads for motor vehicle use will not apply to those roads". And, finally, she states *"Motorized mixed use may be legal or illegal under state law. Even if motorized mixed use is legal under state law and preemption of state law is not necessary to allow the use, the FS needs to assess whether the use is appropriate from an engineering and safety standpoint before designating an NFS road for that use."*

The above statements confirm what the CHP's Acting Deputy Commissioner's April 7, 2005, meant with the statement: *"In response, if these roads are open to passenger vehicle use <u>and not specifically posted authorizing OHV use</u>, they would not be legal roadways for OHVs."* However, per OGC, *"If motorized mixed use is allowed on an NFS road, state and local law enforcement officers will not be able to cite those using motor vehicles on that road in violation of state law because state law will not apply."*

Appendix D

Traffic Flow Data by Count Site with Maps and Photos

Following are the coding instructions, form and the results of the daily observations at each of the count sites. Included are location maps and site photos used to orient the observers and to record sites for future use.

Share-the-Dream Trail
Traffic Flow Data
Team Instructions
6/4/05

Why

The Share-the-Dream Trail is being dedicated in September of 2005 for use by street legal vehicles. The Recreation Outdoor Coalition (ROC) wants the trail to also be available to non-street legal vehicles.

The US Forest Service has criteria that must be followed in making a decision to allow sharing the road or mixing street legal with non-street legal vehicles. The Lassen National Forest has indicated that if a formal engineering study indicates acceptable risks of mixing the use on certain roads, then the Forest will allow that use.

ROC has embarked on performing the study for the Lassen.

Engineering Study

The study process being utilized involves four major steps"

1. Traffic Flow Data
2. Roadway Characteristics
3. Data evaluation and summarization
4. Accident Risk Analysis and Recommendations

The study assumes that all vehicles and operators are legally licensed and equipped to safely operate.

Step 1 involves observing all traffic passing a given point during a specific time frame to provide a statistical sample of what traffic is using the system.

Step 2 involves recording the surface type, travel way width, shoulder or clear area width for accident avoidance maneuvers, the average travel speed (basic speed), stopping sight distance at curves, roadside hazards and adjacent down hill slopes to assess physical conditions.

Step 3 involves calculating the average daily traffic, the percentage of traffic by vehicle class, the number of people per vehicle and a cataloging of physical conditions that fall below an acceptable minimum.

And step 4 takes the data obtained and using sound judgement, assigning a risk or potential for an accident and assessment of the severity of an accident, and recommendations.

Coding Instructions

Traffic Flow Data Form

The study team member or recorder is to note who he/she is in the "collected by" space, the date of the count and the weather conditions in the provided space.

Record weather as clear, partly cloudy, cloudy, rain and temperature as cool, warm, hot.

Vehicles are classified as follows:

Vehicle Class	Characteristics	Record
1	Street Legal** 2WD or 4WD** Motorcycles**	Passenger Car SUV, including Jeeps Pickup Motorcycle
2 OHV	Non-street Legal <50" wide 2 wheels/tires 3 or more wheels/tires 2WD or 4WD (Dirt bikes, quads or ATVs)	Dirt Bike Quad
3 OHV	Non-street Legal >50" wide 4 or more wheels/tires 2WD or 4WD ("Jeeps" or dune buggies)	

For example, a state licensed highway motorcycle with a white metal plate on the rear fender is to be coded in the Class 1 block.

Record vehicle Class 1 traffic as either passenger car, sport utility vehicle, pickup or motorcycle. See Traffic Flow Data Form.

** State licensed with metal plates for use on "highways".

Traffic Flow Data

Count Station #_____

BCDT-3B Traffic Study

Study Segment #_____ GPS Coord.: Lat_____ Lon_____ Field Data Collected by_____

Location Narrative_____ Date and Weather_____

Forest LASSEN Road No_____ Normal Season Use Period_____ to_____

Milepost	Vehicle Classification							Total Traffic Numeric
	1 Street-legal				2 OHV		3 OHV	
	Passenger Car	SUV	Pickup	Motorcycle	Dirt Bike	Quad		
7AM – 11 AM								
11 AM – 3 PM								
3 PM – 7 PM								
Total Count for Day								
% Traffic by Class								

People per Vehicle (any class)					
1	2	3	4	5	6 or more

Site Photo

Summary—Traffic Observations
June–August 2005 Station Summaries

Street Legal					Non-Street Legal		Total
Sta	Car	SUV	PU	Motorcycle	Dirt Bike	Quad	
1	6	6	10		3	28	53
3	11	35	75	2		6	129
4	11	36	63		8	15	133
5	9	27	34		2	8	80
*8	14	67	92		16	20	209
9	4	17	14			7	42
10	8	16	39	2		21	86
11	21	18	67			6	112
12	2	13	31			8	54
Totals	86	235	425	4	29	119	898
%	10%	26%	47%	0%	3%	14%	100%
%	83%				17%		100%

Station	June, July, August ADT	Average Per Road	People per Vehicle
1	5.48		1.62
3	18.00	10 (32N10) 16.14	1.85
4	19.24		1.79
5	11.19		1.54
*8	26.76	32N12 32N13 16.17	1.60
9	5.57		1.44
10	13.90		1.49
11	13.95		1.85
12	7.86		1.57
Total	110.87		14.71
Average	12.32		1.63

* See note on Station 8 ADT-2005 Form

Summary—Time of Day
Number of Vehicles

Time	Passenger Car	SUV	Pickup	Motor-cycle	Dirt Bike	Quad	Total
7AM-11AM	12	54	107	0	8	35	216
11AM-3PM	42	114	206	4	12	52	430
3PM-7PM	32	67	112	0	9	32	252
Total	86	235	425	4	29	119	898

% of Total

7AM-11AM	1%	6%	12%	0%	1%	4%	24%
11AM-3PM	5%	13%	23%	0%	1%	6%	48%
3PM-7PM	4%	7%	12%	0%	1%	4%	28%
Total	10%	26%	47%	0%	3%	14%	100%

Station Labor Day Weekend (9/4/2005)

1	1	1	5			22	29
3	3	16	27	1		12	59
4	1	12	11	1	2	16	43
5	3	4	9		4	14	34
8	4	5	21		11	10	51
9	1	4	5		12	34	56
10	1	2	8				11
11	9	11	20			3	43
12			13	1		2	16
Total	23	55	119	3	29	113	342
%	7%	16%	35%	1%	8%	33%	100%

Other Travelers Recorded–Summer 2005

Count Station	FS Vehicle	Park Service	Horseback Riders	Hikers	Class C Motorhomes	Bicycle	Mule Drawn Wagons
1	2	1				1	
3	8				1		
4	24			8	1	2	
5	4					2	
8			4		4		
9	6		7				2
10	3						
11	2						
12	2	1					
Totals	51	2	11	8	6	5	2

ADT — 2005

Road Number 29N22 30N16
Count Station 1

Observed Vehicles

Date/Day	Class 1 (street legal)				Class 2 (OHV)		Class 3 OHV Other	Total
	Passenger Car	SUV	PU	Motor-cycle	Dirt Bike	Quad		
6/5 Sun						1		1
6/15 Wed			1					1
7/3 Sun	6	5	7		3	24		45
7/20 Wed		1						1
8/7 Sun			2			2		4
8/17 Wed						1		1
Total	6	6	10		3	28		53
% by class	42%				58%			100%

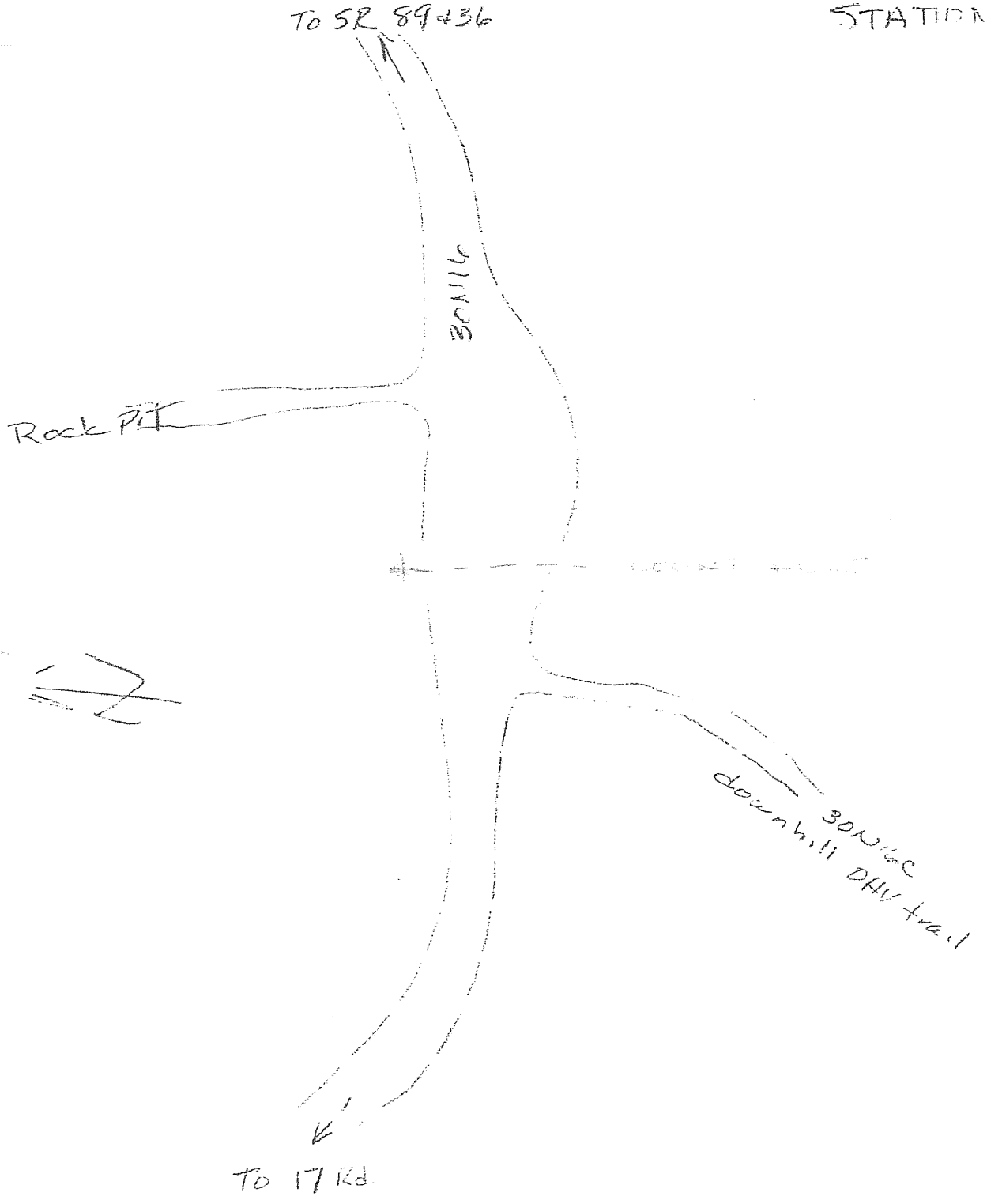
9/4 Sun	1	1	5			22		29
% by class	24%				76%			100%

Observed Vehicles	Weekday (Wed)	Weekend (Sun)	People/Vehicle
June	1	1	1.50
July	1	45 (7/3)	2.10
August	1	4	1.25
Total	3	50	4.85
Average	÷3= 1.00	÷3= 16.67	÷3= 1.62

$$ADT = \frac{5 \text{ Ave Weekdays} + 2 \text{ Ave Weekend}}{7}$$

$$ADT = \frac{5(\ 1.00\ ) + 2(\ 16.67\ )}{7} = \underline{\underline{5.48}}$$

STATION 1



STATION # 1

ADT — 2005

Road Number 10(32N10)
Count Station 3

Observed Vehicles

Date/Day	Class 1 (street legal)				Class 2 (OHV)		Class 3 OHV Other	Total
	Passenger Car	SUV	PU	Motor-cycle	Dirt Bike	Quad		
6/5 Sun		8	4					12
6/15 Wed		1	5					6
7/3 Sun	5	8	38	2		2		55
7/20 Wed	5	3	9			2		19
8/7 Sun		10	10			2		22
8/17 Wed	1	5	9					15
Total	11	35	75	2		6		129
% by class	95%				5%			100%

9/4 Sun	3	16	27	1		12		59
% by class	80%				20%			100%

Observed Vehicles	Weekday (Wed)	Weekend (Sun)	People/Vehicle
June	6	12	1.59
July	19	55 (7/3)	1.87
August	15	22	2.08
Total	40	89	5.54
Average	÷3= 13.33	÷3= 29.67	÷3= 1.85

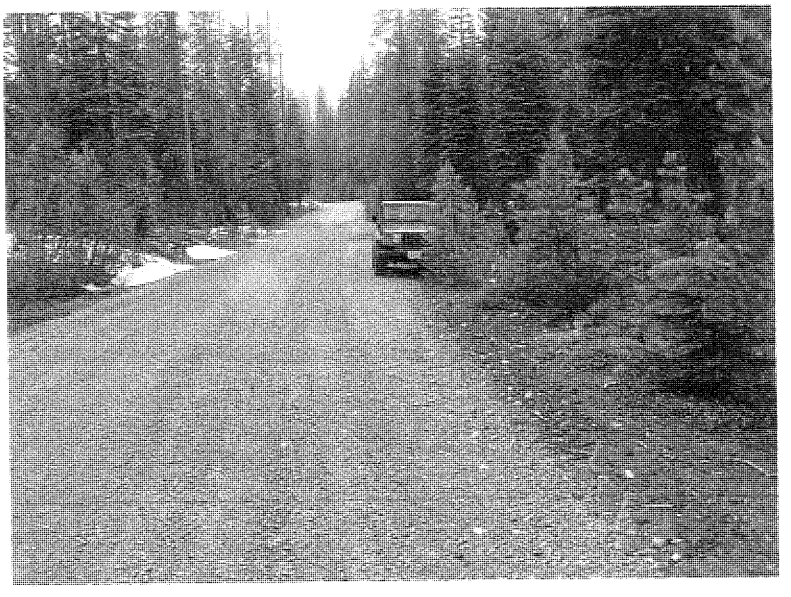
$$ADT = \frac{5 \text{ Ave Weekdays} + 2 \text{ Ave Weekend}}{7}$$

$$ADT = \frac{5(13.33) + 2(29.67)}{7} = \underline{\underline{18.00}}$$

STATION 3


N
WILLEEMS
SONES
COUNT HEIGHT
Paved Rd ends @ intersection
CHESTER
10 Rd

STATION # 3



ADT — 2005

Road Number 10 (32 N 1^1)
Count Station 4

Observed Vehicles

Date/Day	Class 1 (street legal)				Class 2 (OHV)		Class 3 OHV Other	Total
	Passenger Car	SUV	PU	Motor-cycle	Dirt Bike	Quad		
6/5 Sun		1	2					3
6/15 Wed		2	3					5
7/3 Sun	5	10	26		4	4		49
7/20 Wed	2	7	20			2		31
8/7 Sun	3	12	7		4	9		35
8/17 Wed	1	4	5					10
Total	11	36	63		8	15		133
% by class	83%				17%			100%

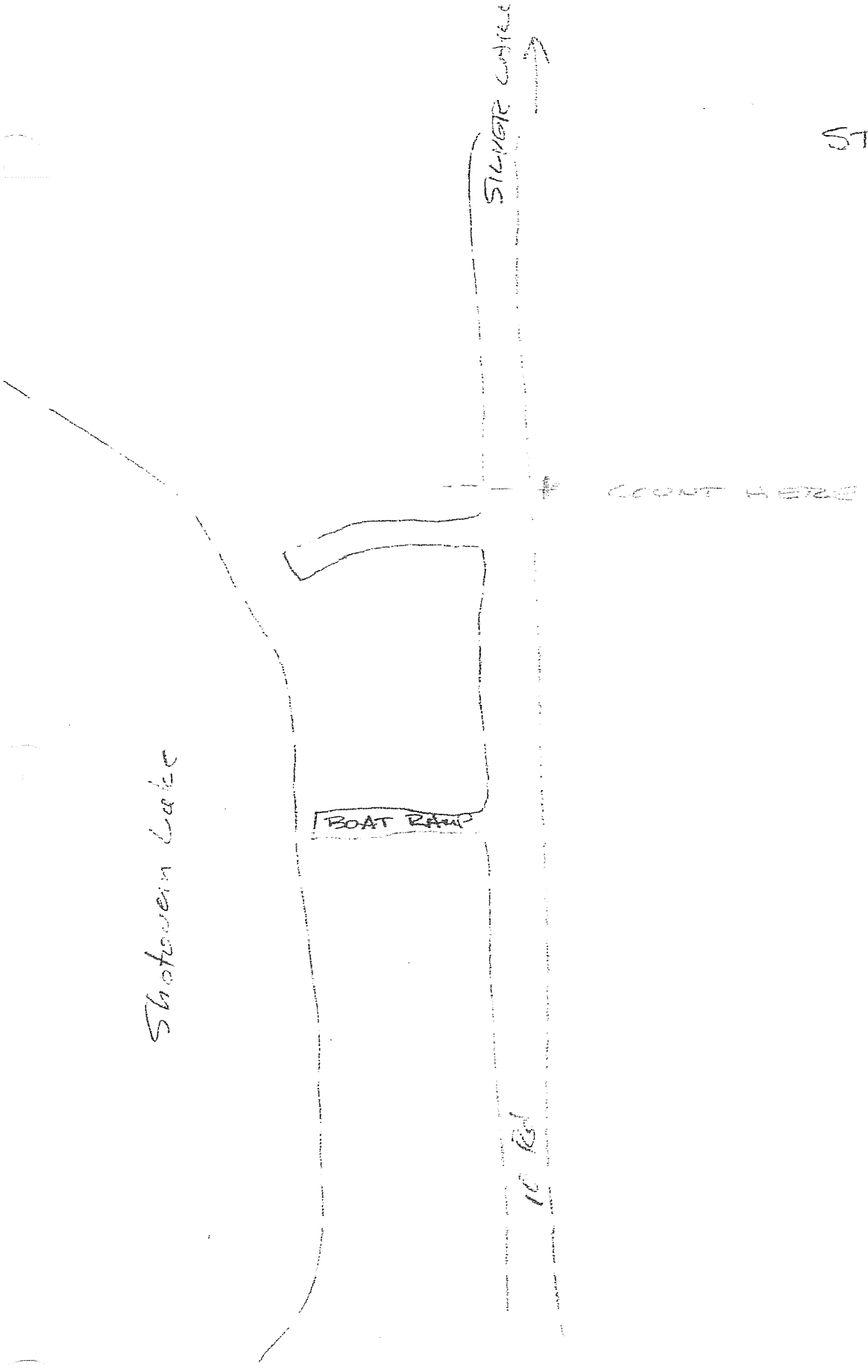
9/4 Sun	1	12	11	1	2	16		43
% by class	58%				42%			100%

Observed Vehicles	Weekday (Wed)	Weekend (Sun)	People/Vehicle
June	5	3	1.90
July	31	49 (7/3)	1.80
August	10	35	1.68
Total	46	87	5.38
Average	÷3= 15.33	÷3= 29.00	÷3= 1.79

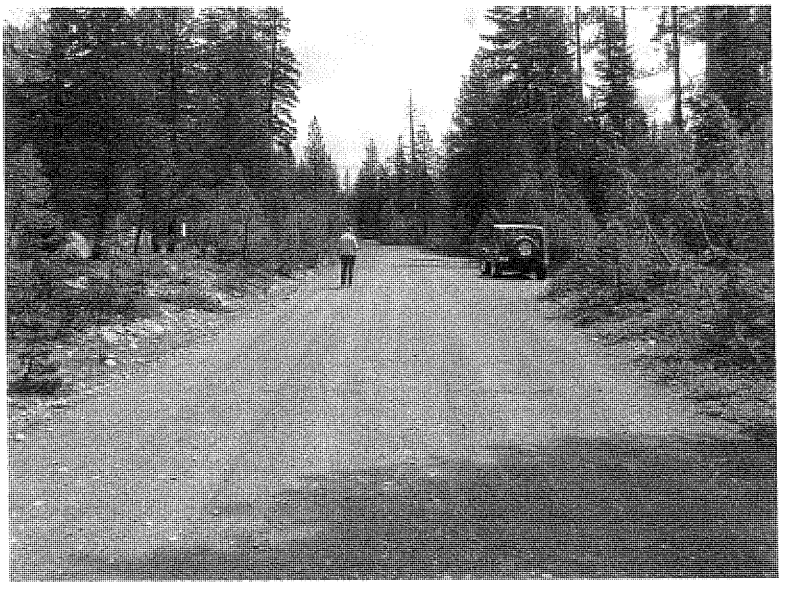
$$ADT = \frac{5 \text{ Ave Weekdays} + 2 \text{ Ave Weekend}}{7}$$

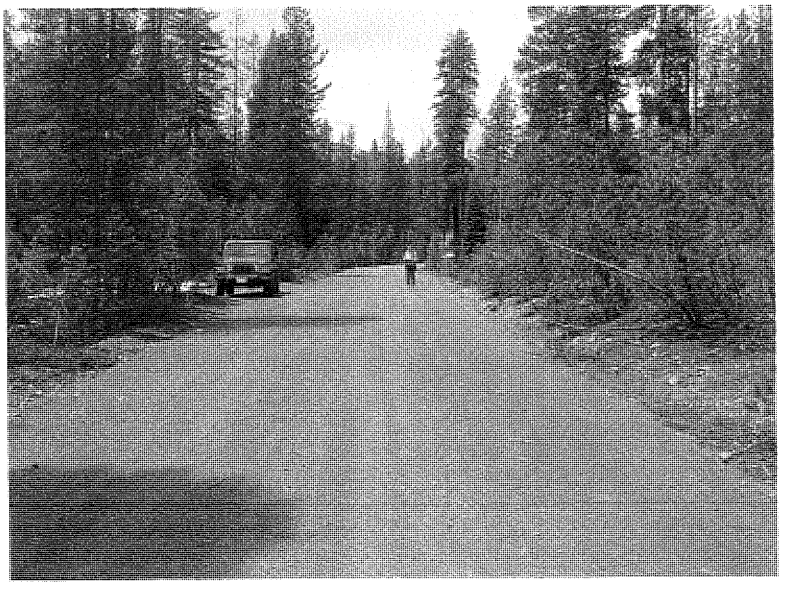
$$ADT = \frac{5(15.33) + 2(29.00)}{7} = \underline{\underline{19.24}}$$

STATION 4



STATION # 4





STATION # 4

ADT — 2005

Road Number 10 (32 N 10)
Count Station 5

Observed Vehicles

Date/Day	Class 1 (street legal)				Class 2 (OHV)		Class 3 OHV Other	Total
	Passenger Car	SUV	PU	Motor-cycle	Dirt Bike	Quad		
6/5 Sun		5	8					13
6/15 Wed	1	4	3					8
7/3 Sun	3	8	12		2	4		29
7/20 Wed		4	3			4		11
8/7 Sun	5	4	4					13
8/17 Wed		2	4					6
Total	9	27	34		2	8		80
% by class	87%				13%			100%

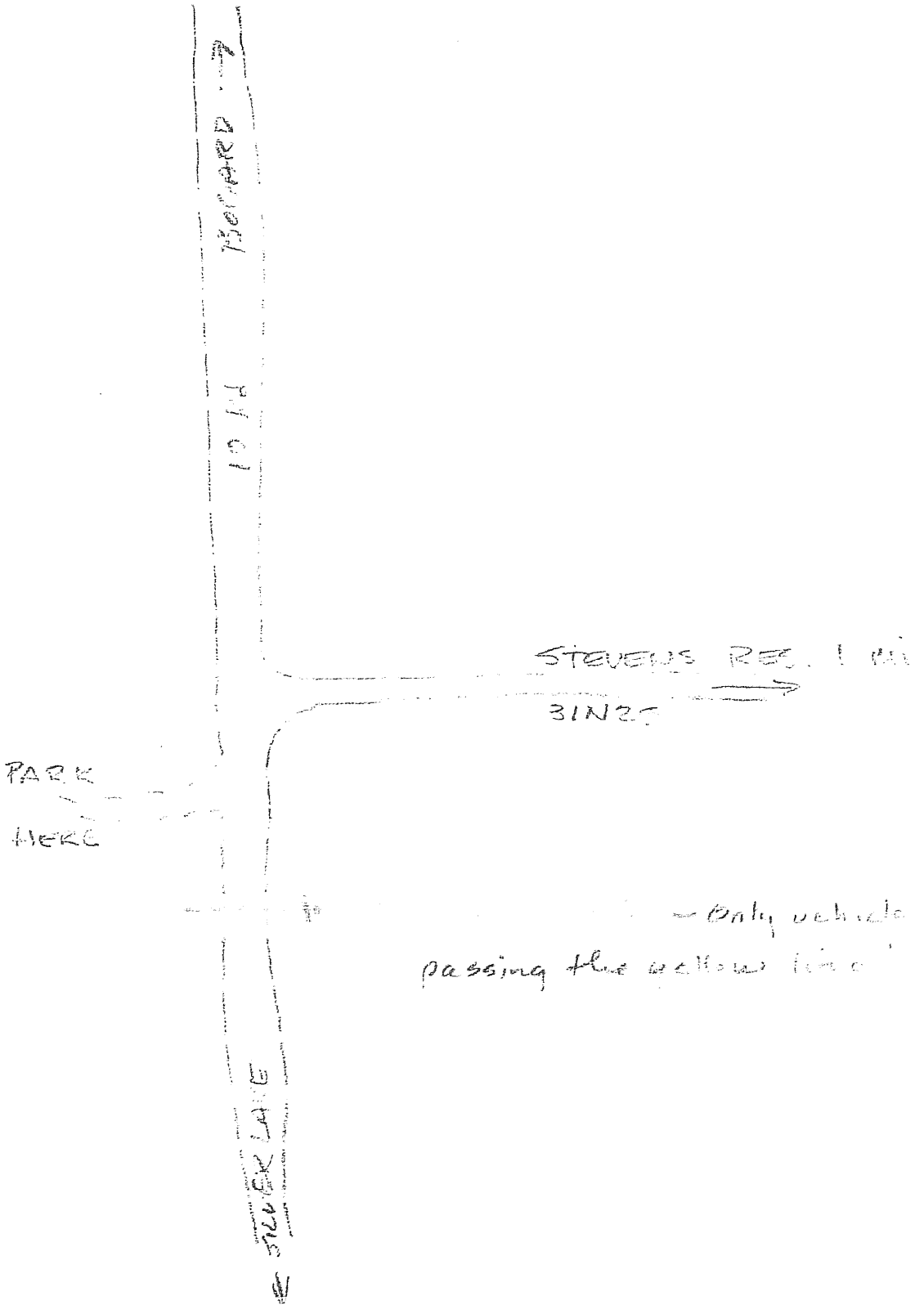
9/4 Sun	3	4	9		4	14		34
% by class	47%				53%			100%

Observed Vehicles	Weekday (Wed)	Weekend (Sun)	People/Vehicle
June	8	13	1.20
July	11	29 (7/3)	1.21
August	6	13	2.21
Total	25	55	4.62
Average	÷3= 8.33	÷3= 18.33	÷3= 1.54

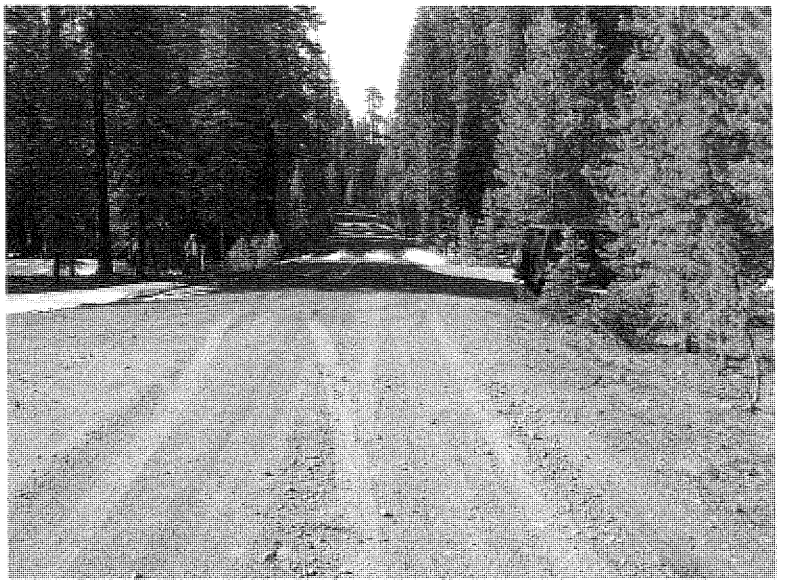
$$ADT = \frac{5 \text{ Ave Weekdays} + 2 \text{ Ave Weekend}}{7}$$

$$ADT = \frac{5(8.33) + 2(18.33)}{7} = \underline{\underline{11.19}}$$

STATION III


BERNARD
STEVENS RES. 1 mi
BINGO
PARK
HERE
Only vehicle
passing the yellow line

STATION # 5



ADT — 2005

Road Number 32N13
Count Station 8
*

Observed Vehicles

Date/Day	Class 1 (street legal)				Class 2 (OHV)		Class 3 OHV Other	Total
	Passenger Car	SUV	PU	Motor-cycle	Dirt Bike	Quad		
6/5 Sun	2	18	11 (3) **					34
6/15 Wed		7	9			3		19
7/3 Sun	10	25	23		15	15		88
7/20 Wed	1	5	8		1			15
8/7 Sun	1	7	28 (1) **			2		39
8/17 Wed		5	9					14
Total	14	67	92		16	20		209
% by class	83%				17%			100%
9/4 Sun	4	5	21		11	10		51
% by class	59%				41%			100%

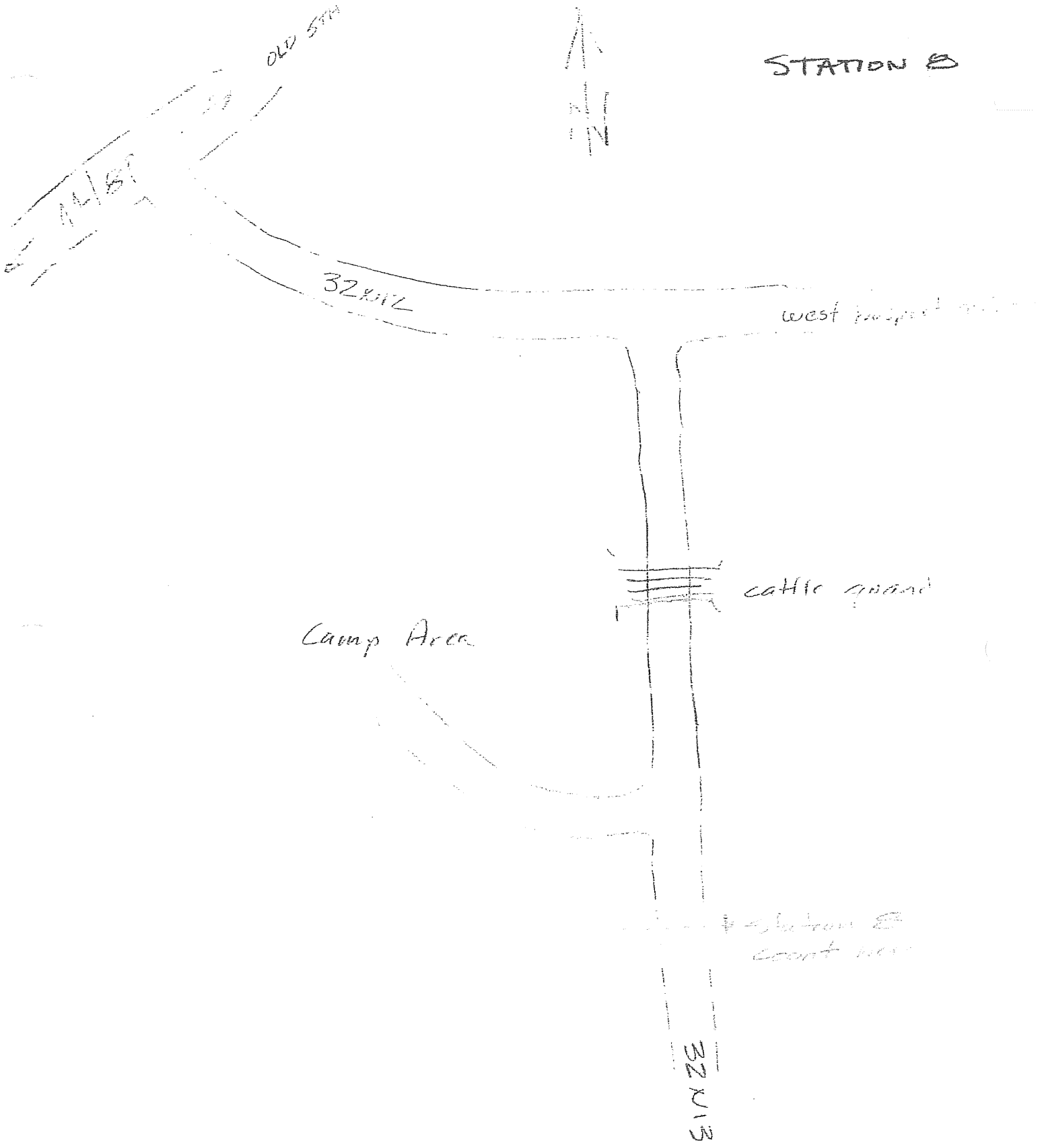
Observed Vehicles	Weekday (Wed)	Weekend (Sun)	People/Vehicle
June	19	34	1.58
July	15	88 (7/3)	1.69
August	14	39	1.54
Total	48.00	161.00	4.81
Average	÷3= 16.00	÷3= 53.67	÷3= 1.60

** Class C Motorhome

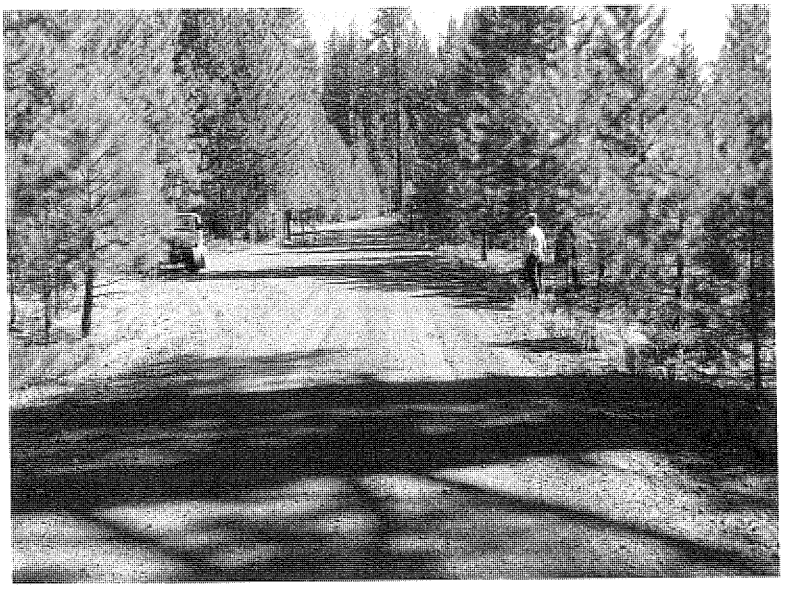
$$ADT = \frac{5 \text{ Ave Weekdays} + 2 \text{ Ave Weekend}}{7}$$

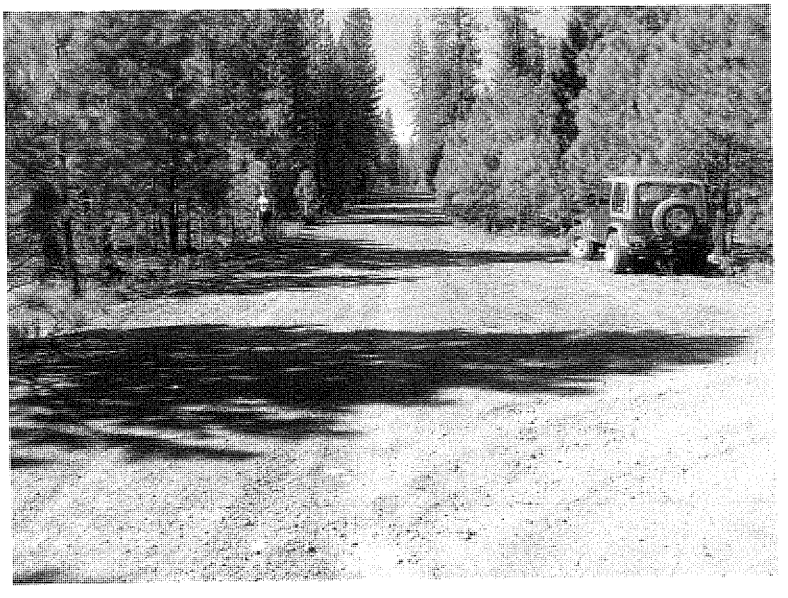
$$ADT = \frac{5(16.00) + 2(53.67)}{7} = \underline{\underline{26.76}}$$

* Poor choice of site! Dispersed camping area access on each side of site. Private land camping area 1/2 mile south. Road is signed w/ Vehicle MLZ route marker!


STATION B
N
32 KMZ
cattle guard
Camp Area
32 KMZ

STATION # 8





ADT — 2005

Road Number 32N13
Count Station 9

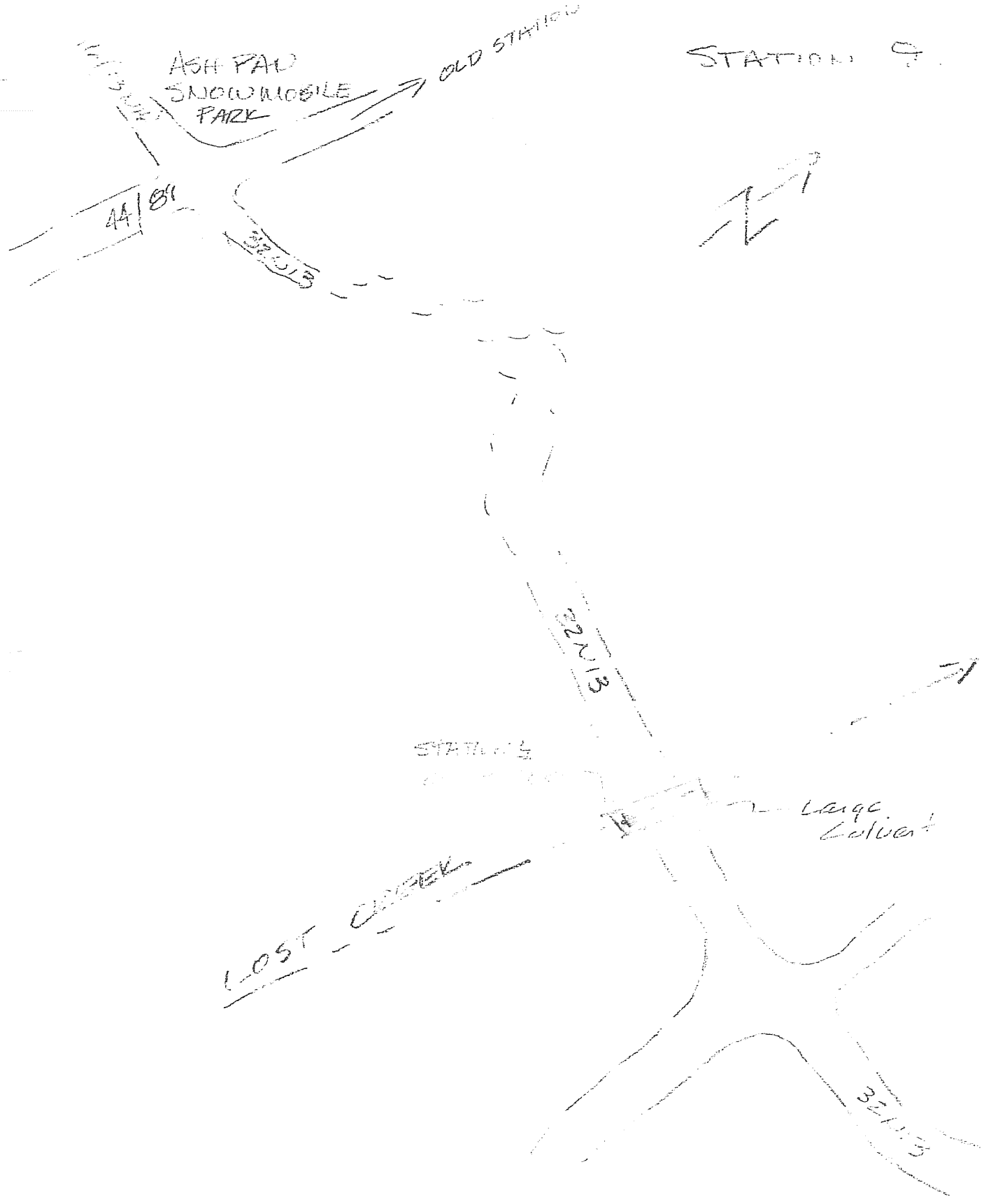
Observed Vehicles

Date/Day	Class 1 (street legal)				Class 2 (OHV)		Class 3 OHV Other	Total
	Passenger Car	SUV	PU	Motor-cycle	Dirt Bike	Quad		
6/5 Sun		4	3					7
6/15 Wed	2	2	3					7
7/3 Sun	1	6	6			7		20
7/20 Wed								-0-
8/7 Sun		2	2					4
8/17 Wed	1	3						4
Total	4	17	14			7		42
% by class	83 %				17 %			100%
9/4 Sun	1	4	5		12	34		56
% by class	18%				82%			100%

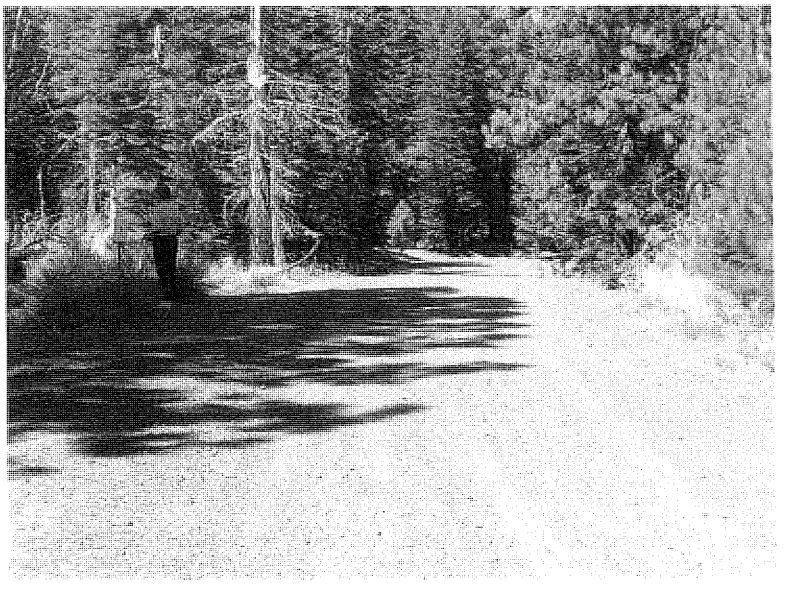
Observed Vehicles	Weekday (Wed)	Weekend (Sun)	People/Vehicle
June	7	7	2.36
July	-0-	20 (7/3)	0.83
August	4	4	1.13
Total	11	31	4.32
Average	÷3= 3.67	÷3= 10.33	÷3= 1.44

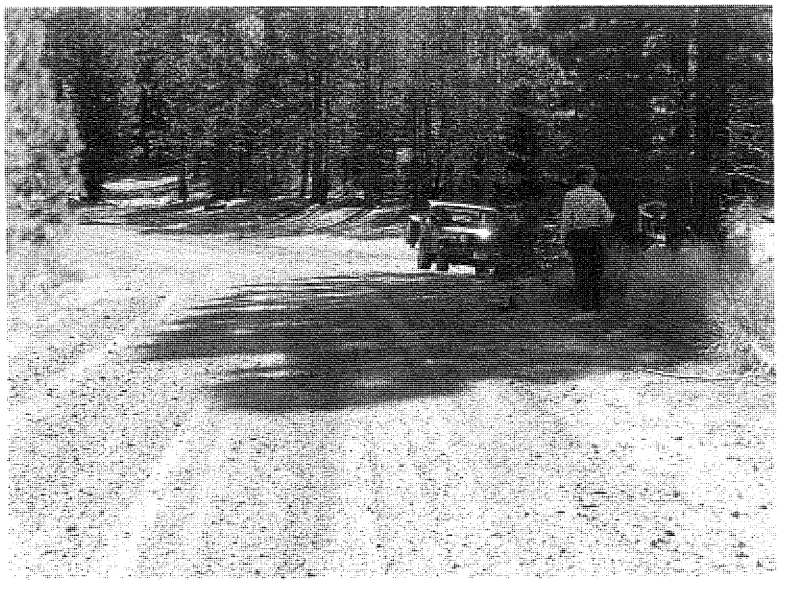
$$ADT = \frac{5 \text{ Ave Weekdays} + 2 \text{ Ave Weekend}}{7}$$

$$ADT = \frac{5(3.67) + 2(10.33)}{7} = \underline{\underline{5.57}}$$


ASH PAD
SNOWMOBILE
PARK
OLD STATION
STATION 9
44
84
Large
Culvert
LOST CREEK

STATION # 9





ADT — 2005

Road Number 33N16(16)
Count Station 10

Observed Vehicles

Date/Day	Class 1 (street legal)				Class 2 (OHV)		Class 3 OHV Other	Total
	Passenger Car	SUV	PU	Motor-cycle	Dirt Bike	Quad		
6/5 Sun	3	2	6			4		15
6/15 Wed	1	5	5			6		17
7/3 Sun	3	7	6	2		7		25
7/20 Wed			15					15
8/7 Sun	1	2	3					6
8/17 Wed			4			4		8
Total	8	16	39	2		21		86
% by class	76%				24%			100%

9/4 Sun	1	2	8					11
% by class	100%				0%			100%

Observed Vehicles	Weekday (Wed)	Weekend (Sun)	People/Vehicle
June	17	15	1.40
July	15	25 (7/3)	1.72
August	8	6	1.36
Total	40	46	4.48
Average	÷3= 13.33	÷3= 15.33	÷3= 1.49

$$ADT = \frac{5 \text{ Ave Weekdays} + 2 \text{ Ave Weekend}}{7}$$

$$ADT = \frac{5(13.33) + 2(15.33)}{7} = \underline{\underline{13.90}}$$

STATION ID

OLD STATION
44/89
ASH TRAY
PAGE
STATION ID
ABOUT 4 MILES
SOUTH
STATION ID
BIG LAKE
32024

STATION # 10

ADT — 2005

Road Number 32N17
Count Station 11

Observed Vehicles

Date/Day	Class 1 (street legal)				Class 2 (OHV)		Class 3 OHV Other	Total
	Passenger Car	SUV	PU	Motor-cycle	Dirt Bike	Quad		
6/5 Sun	2		4					6
6/15 Wed			5			1		6
7/3 Sun	15	5	32			5		57
7/20 Wed		4	1					5
8/7 Sun	4	4	18					26
8/17 Wed		5	7					12
Total	21	18	67			6		112
% by class	95%				5%			100%

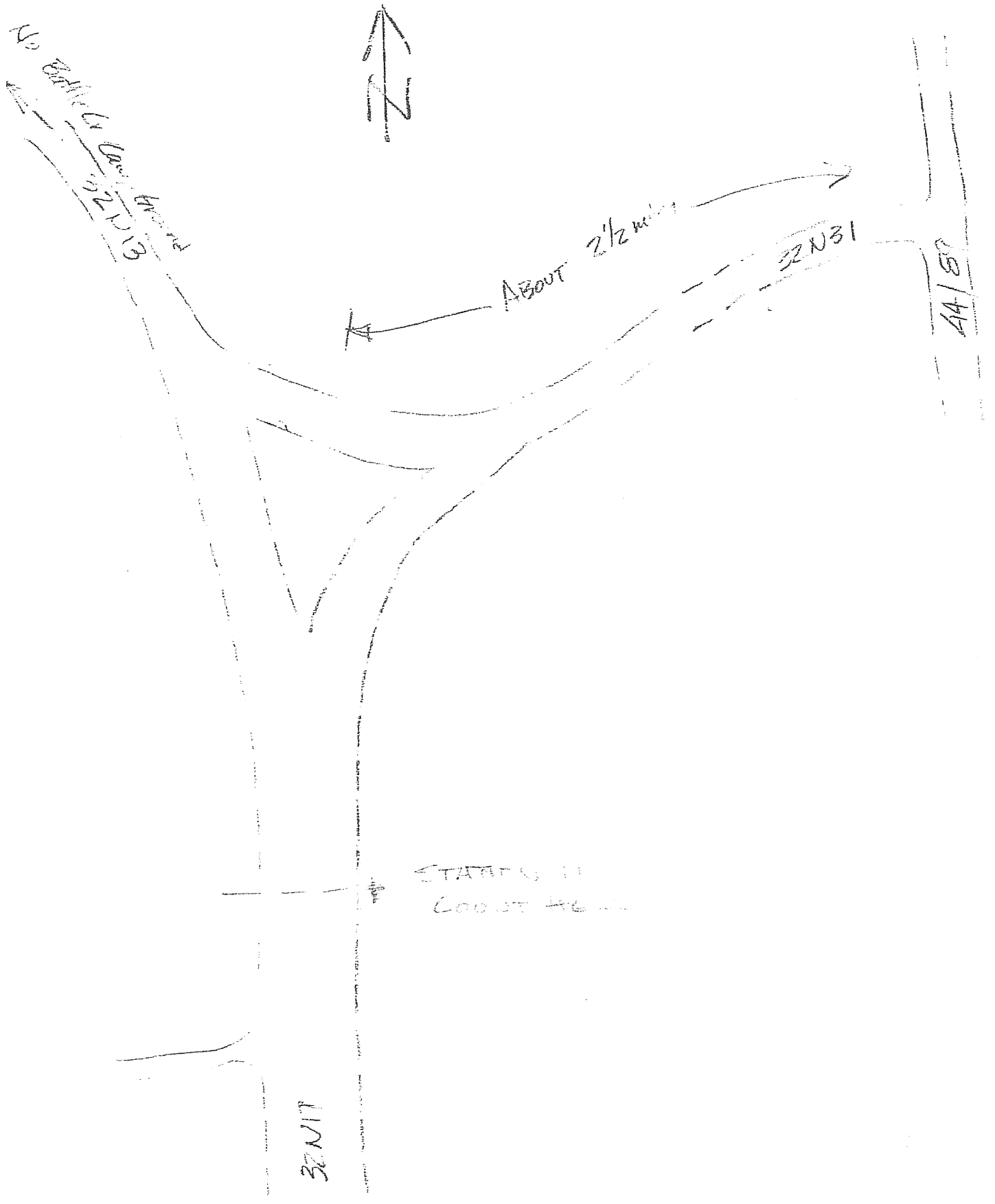
9/4 Sun	9	11	20			3		43
% by class	93%				7%			100%

Observed Vehicles	Weekday (Wed)	Weekend (Sun)	People/Vehicle
June	6	6	1.67
July	5	57 (7/3)	1.73
August	12	26	2.16
Total	23	89	5.56
Average	÷3= 7.67	÷3= 29.67	÷3= 1.85

$$ADT = \frac{5 \text{ Ave Weekdays} + 2 \text{ Ave Weekend}}{7}$$

$$ADT = \frac{5(7.67) + 2(29.67)}{7} = \underline{\underline{13.95}}$$

STATION 11


To Bedford County
32N13
ABOUT 2 1/2 mi
32N31
44 SE
STATION 11
COURT HOUSE
32N17

STATION # 11

ADT — 2005

Road Number 17 (31N17)
Count Station 12

Observed Vehicles

Date/Day	Class 1 (street legal)				Class 2 (OHV)		Class 3 OHV Other	Total
	Passenger Car	SUV	PU	Motor-cycle	Dirt Bike	Quad		
6/5 Sun	1	3	3					7
6/15 Wed			4					4
7/3 Sun	1	3	10					14
7/20 Wed		5	2					7
8/7 Sun		2	6			6		14
8/17 Wed			6			2		8
Total	2	13	31			8		54
% by class	85%				15%			100%

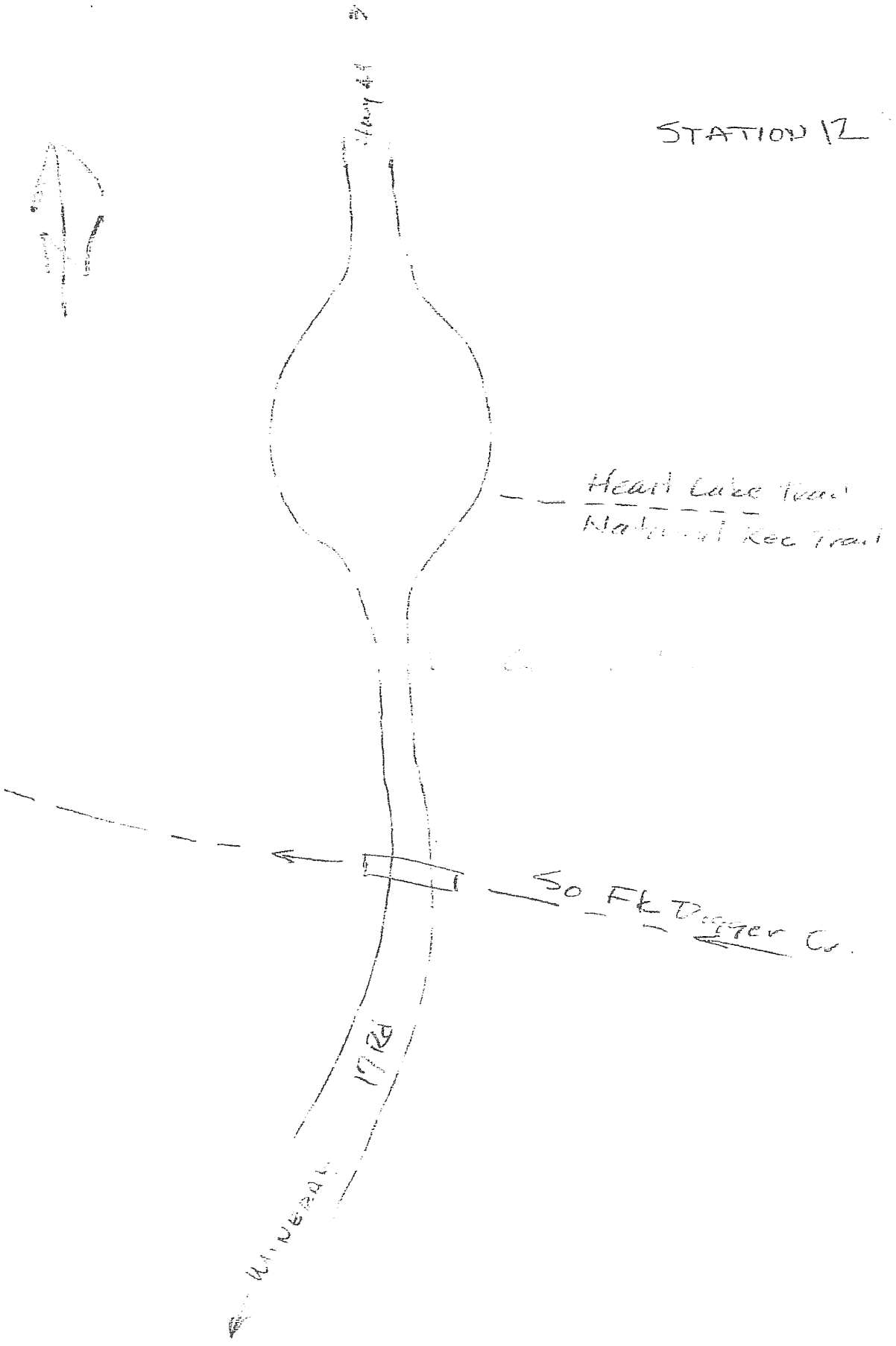
9/4 Sun			13	1		2		16
% by class	87%				13%			100%

Observed Vehicles	Weekday (Wed)	Weekend (Sun)	People/Vehicle
June	4	7	1.18
July	7	14 (7/3)	2.07
August	8	14	1.45
Total	19	35	4.70
Average	÷3= 6.33	÷3= 11.67	÷3= 1.57

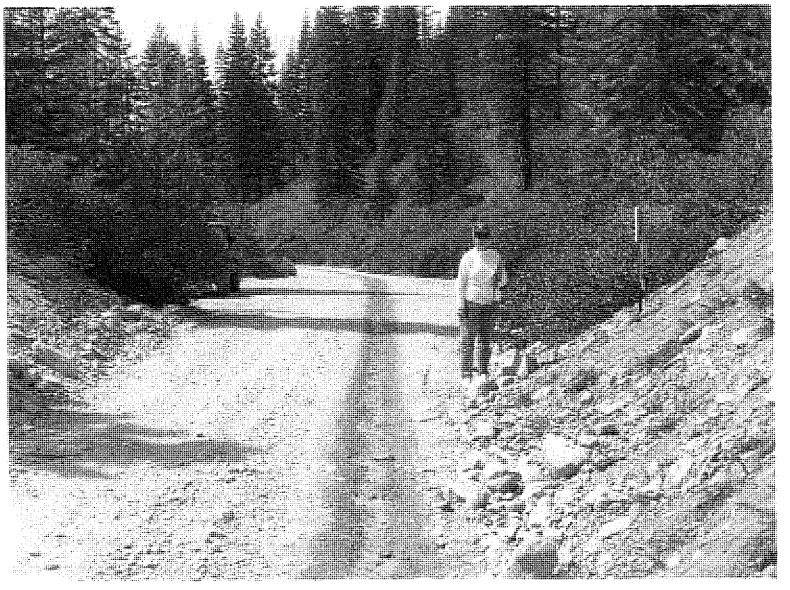
$$ADT = \frac{5 \text{ Ave Weekdays} + 2 \text{ Ave Weekend}}{7}$$

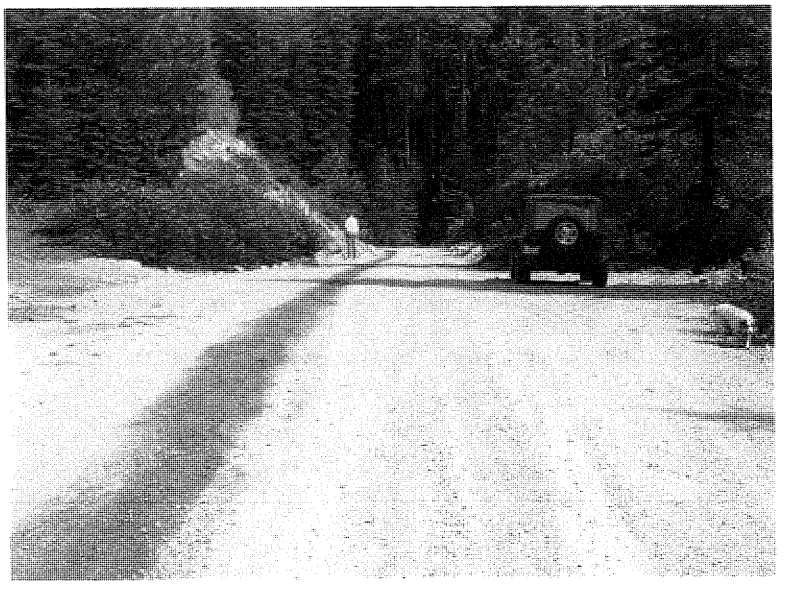
$$ADT = \frac{5(6.33) + 2(11.67)}{7} = \underline{\underline{7.86}}$$

STATION 12


Hwy 4
Heart Lake Trail
National Rec Trail
50 Ft Dagger Co.
1 Rd
MINERAL

STATION # 12





Traffic Survey
USFS 17 Road
Between SR 36 and SR 44
West side of Lassen Volcanic National Park (Between Mineral and Viola or Manzanita Lake)

Background

Two separate traffic surveys were conducted during the summer of 2005. There are some differences between the survey results that we are trying to understand.

Information Request

Do you or any of your employees commute on the 17 Road? Yes No

If yes—how many days per week? _____

If yes---what time(s) of the day?_____

If yes---Is this all season?_____

Signed_____ Individual or Agency Representative

Agency_____

Date_____

Thank you

Recreation Outdoor Coalition (ROC)

Barbara Tatman

From: smilligan4732 [smilligan4732@sbcglobal.net]
Sent: Thursday, February 23, 2006 9:00 AM
To: Dick Tatman
Subject: commuter traffic

Dick,
Do you ned the forms physically filled out?

When Nancy took the forms around and talked to the people they all said they did not have ANYONE who commutted on the 17-Road. I can take them back by this week-end and have them fill them out if you feel a filled out form would be better.

She said she hit the Mineral Gas Mart (MGM), the Post Office, and the park. Did not go to the Lassen Mineral Lodge but I KNOW they have no one who commutes.

What do you think?

Thanks.

Syl

I think we need something from the Park in writing. They are the USAS that I believe we keep hearing about.

Appendix E

Roadway Characteristic Notes and Slope Maps by Road

Following are the coding instructions and resulting notes for each road concerning the conditions found in June 2005. Also, slope maps using LNF's digital terrain data showing a 200 foot wide corridor along each road.

Coding Instructions, Roadway Characteristics Revised 6/29/05

The study team leader will work with the recorder(s) to ensure consistency in the collection of data.

Mileposts will be by vehicle odometer and GPS Waypoints and logged to the nearest tenth of a mile (528 feet). If a specific point, such as a hazard, needs a closer measurement estimate, 264 feet or one hundredth of a mile, i.e., 3.25.

- Start the mile post log at the beginning of each individual road segment and record it as MP 0.0 and waypoint 1. Use your trip odometer if you have one, set to 0.0.

Coding

- Surface type
  - Native material — N
  - Processed aggregate — A
  - Cinders — C

- Travel-way width
  - Average usable width — Feet
  - Minimum width — Feet
  - Driveable escape shoulder width, or clear space — Feet

- Adjacent hillside slope–downhill
  - Using clinometer or abney determine average slope for sections — <40% or >60%

- Average Travel Speed
  - While driving the road to gather roadway characteristics, record your average travel speed for the section. — MPH

- Stopping Sight Distance* (measure 4 ½ feet above roadway)
  - Curve — Feet by Milepost

*Measured and recorded if less than the following stopping sight distances:

6/20/05 Notes for 30N16 (McGowan Lake)

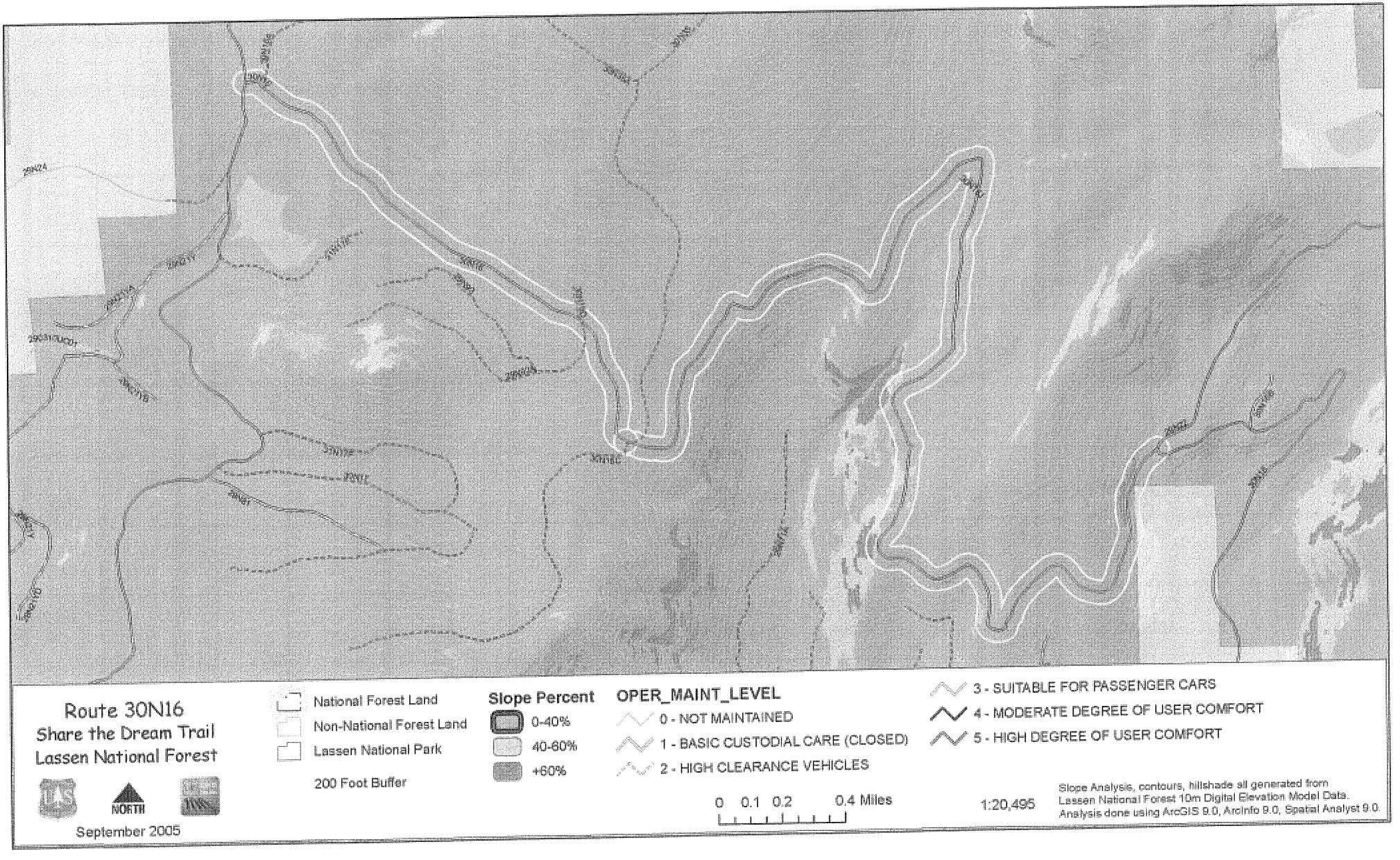
MP	WP	Surface	Average Width	Downhill* Slope %	Average Speed	Sight Distance	Lat/Lon	Comments, Hazard, Mitigation, Etc.
0.0	01	N	15	0 to10	15		N40°23.856, W121°37.211	Begin 30N16 at 17 Rd. Shoulders 2' each side,
0.59	02	N	15	0 to 10	15	100'	N40°23.517, W121°36.750	SDC
1.33	03	N	15	15	15		N40°23.154, W121°36.051	Panel each side tree OM1-IV (2), SDC
2.02	04	N	15	45	15		N40°22.829, W121°35.687	Slope
2.49	05	N	15	23	15		N40°23.175, W121°35.471	SDC
2.53	07	N	15		15		N40°23.156, W121°35.423	SDC
2.83	08	N	15		15		N40°23.265, W121°35.127	SDC
2.97	09	N	15		15	90'	N40°23.196, W121°34.998	SDC, W1-1 (R,L) W13-1 (10 MPH) (2)
3.56	10	N	15		15		N40°23.553, W121°34.589	SDC
3.72	11	N	15		15		N40°23.427, W121°34.595	RBE
4.18	12	N	15		15		N40°23.024, W121°34.686	SDC

6/20/05 notes for 30N16 continued

MP	WP	Surface	Average Width	Downhill Slope %	Average Speed	Sight Distance	Lat/Lon	Comments, Hazard, Mitigation, Etc.
4.61	13	N	15	46	15		N40°22.761, W121°34.859	SDC, Heart Lake Trailhead
4.98	14	N	15		15		N40°22.472, W121°34.978	SDC, W1-5 (east bound)
5.06	14	N	15		15		N40°22.460 W121°33.889	SDC
5.17	15	N	15		15	129	N40°22.391, W121°34.797	SC, No mitigation needed
5.42	16	N	15		15		N40°22.345, W121°34.587	SDC
5.52	17	N	15		15	100'	N40°22.264, W121°34.593	SDC
5.57	18	N	15		15		N40°22.242, W121°34.558	Count Station #1, W1-5 (west bound)
6.56	19	N	15	20 to 50	15		N40°22.727, W121°33.974	End 30N16, Start 29N22
		Overall	15	40%	15			

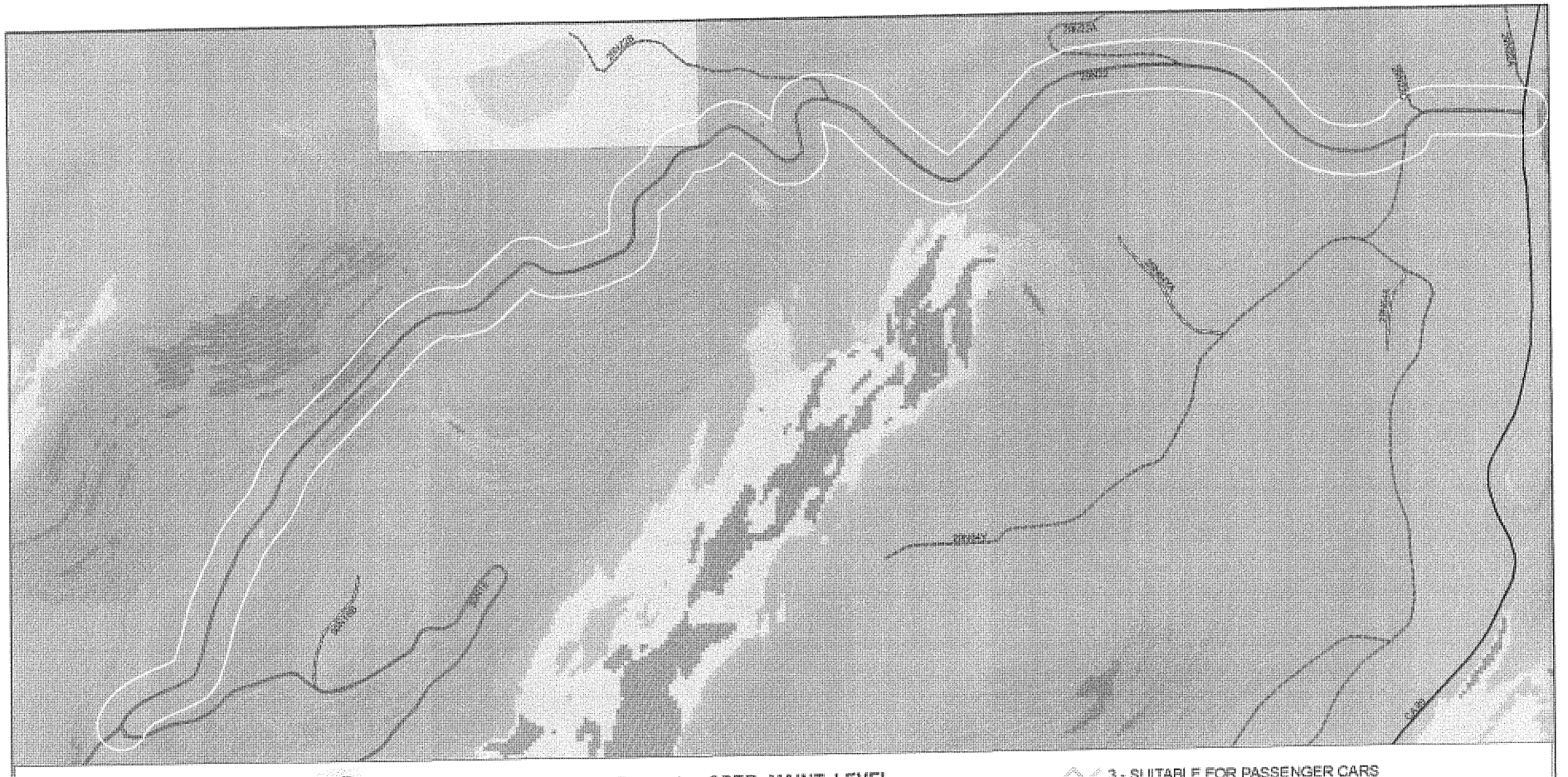
Widening exists on outside of nearly every curve.

*Downhill Slope % shown on Notes obtained with an Abney. The following slope percent map generated from LNF Data. This process used on all roads studies.


Route 30N16
Share the Dream Trail
Lassen National Forest
NORTH
September 2005
National Forest Land
Non-National Forest Land
Lassen National Park
200 Foot Buffer
Slope Percent
0-40%
40-60%
+60%
OPER_MAINT_LEVEL
0 - NOT MAINTAINED
1 - BASIC CUSTODIAL CARE (CLOSED)
2 - HIGH CLEARANCE VEHICLES
3 - SUITABLE FOR PASSENGER CARS
4 - MODERATE DEGREE OF USER COMFORT
5 - HIGH DEGREE OF USER COMFORT
0 0.1 0.2 0.4 Miles
1:20,495
Slope Analysis, contours, hillshade all generated from
Lassen National Forest 10m Digital Elevation Model Data.
Analysis done using ArcGIS 9.0, ArcInfo 9.0, Spatial Analyst 9.0.

7/10/05 Notes, Road 29N22

MP	WP	Surface	Average Width	Downhill Slope %	Average Speed	Sight Distance	Lat/Lon	Comments, Hazard, Mitigation, Etc.
0.0	01	N	15	20 to 40	15		N40°22.726, W121°33.972	Begin 29N22, Has vertical maintenance level 2 route marker.
1.24	02	N	15	20 to 40	15		N40°23.404 W121°33.047	SDC over creek
2.46	03	N	15	20 to 40	15		N40°23.554 W121°31.981	SDC
2.76	04	N	15	0 to 10	15		N40°23.473 W121°31.697	Intersection 29N64
2.96	05	N	15	0 to 10	15		N40°23.498 W121°31.498	End 29N22 at SR 89. Stop sign exists.
		Overall	15	<40%	15			
		Widening exists on outside on nearly every curve						



Route 29N22
Share the Dream Trail
Lassen National Forest

NORTH

September 2005

National Forest Land
Non-National Forest Land
Lassen National Park

200 Foot Buffer

Slope Percent
0-40%
40-60%
+60%

OPER_MAINT_LEVEL
0 - NOT MAINTAINED
1 - BASIC CUSTODIAL CARE (CLOSED)
2 - HIGH CLEARANCE VEHICLES
3 - SUITABLE FOR PASSENGER CARS
4 - MODERATE DEGREE OF USER COMFORT
5 - HIGH DEGREE OF USER COMFORT

0 0.05 0.1 0.2 Miles

1:11,155

Slope Analysis, contours, hillshade all generated from Lassen National Forest 10m Digital Elevation Model Data. Analysis done using ArcGIS 9.0, ArcInfo 9.0, Spatial Analyst 9.0.

7/10/05 Notes for 32N10 (10 Road)

MP	WP	Surface	Average Width	Downhill Slope %	Average Speed	Sight Distance	Lat/Lon	Comments, Hazard, Mitigation, Etc.
0.0	01	C	16'		20		N40°25.061 W121°10.191	Begin 32N10 (10 Road) at South end Count Station #3
0.98	02	C	16'		10		N40°25.795 W121°09.846	SC, W1-1 (L&R), W13-1 (10 MPH) (2)
1.46	03	C	16'	10 to 20	15	125	N40°25.589 W121°09.378	SC
1.79	04	C	14'		20		N40°25.775 W121°09.149	Road narrows, OM 2-IV (2)
2.69	05	C	16'	50	20		N40°26.271 W121°08.690	SDC
3.24	06	C	16'		20		N40°26.650 W121°08.601	Intersection 30N07
3.87	07	C	15'		20		N40°27.064 W121°08.397	Intersection 30N81
4.46	08	C	16'	30	20		N40°27.496 W121°08.184	SCMP, OM 2-IV (2)
4.56	09	C	16'	30	20		N40°27.494 W121°08.186	SCMP, OM 2-IV (2
6.38	10	C	16'		20		N40°28.829 W121°07.399	Intersection 32N21

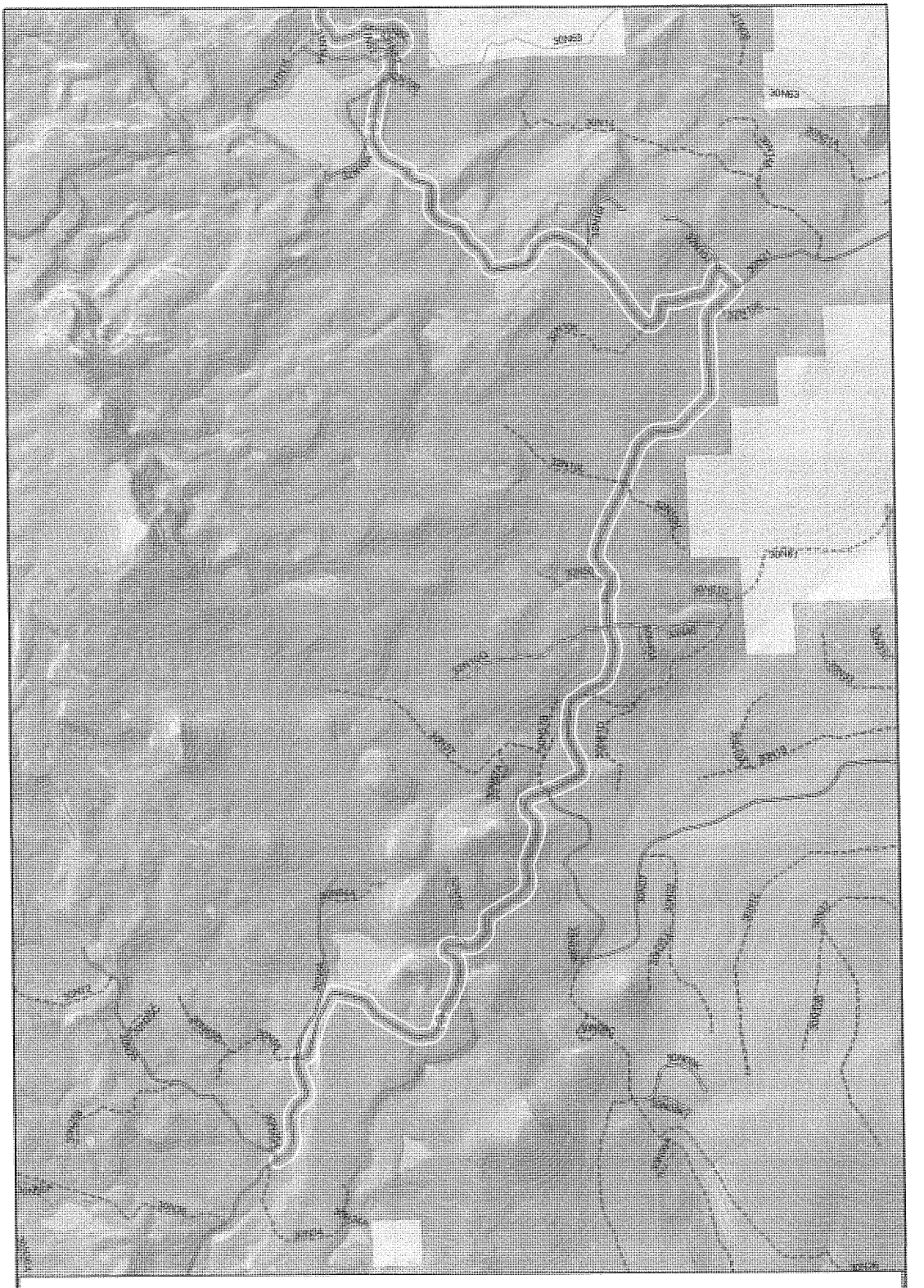
7/10/05 Notes for 32N10 (10 Road), continued

MP	WP	Surface	Average Width	Downhill Slope %	Average Speed	Sight Distance	Lat/Lon	Comments, Hazard, Mitigation, Etc.
7.96	11	C	16'		20		N40°28.974 W121°08.595	Snag, Drop! Pieces falling on road.
8.05	12	C	16'		20		N40°28.960 W121°08.663	Count Station #4
8.54	13	C	16'		20		N40°29.225 W121°09.131	SCMP OM2-IV (2)
8.66	14	C	16'		20		N40°29.326 W121°09.130	SDC
8.97	15	C	16'		20		N40°29.473 W121°09.412	SCMP, OM 2-IV (2)
9.34	16	C	16'		20		N40°29.788 W121°09.387	SC, Intersection East Shore Rd W1-1 (L&R), W13-1 (15 MPH) (2)
9.50	17	C	16'	0 to 10	15	100	N40°29.897 W121°09.333	Turn onto County Road, R1-1 Needed
9.60	18	C	16'	0 to 10	15		N40°29.942 W121°09.246	Turn onto FS Road 10, R1-1 Needed
10.0	19	C	16'		20		N40°29.982 W121°09.603	Intersection North Shore Rd W1-1 (L&R), W13-1 (15MPH)(2)
10.5	20	C	16'		20	100	N40°30.357 W121°09.733	RBE

7/17/05 Notes for 32N10 (10 Road), continued

MP	WP	Surface	Average Width	Downhill Slope %	Average Speed	Sight Distance	Lat/Lon	Comments, Hazard, Mitigation, Etc.
12.8	21	C	16'		20		N40°31.980 W121°09.571	SDC
13.0	22	C	16'		20		N40°32.102 W121°09.598	Count Station #5 Intersection 31N25
14.0	23	C	16'		20		N40°32.881 W121°09.925	Intersection 31N36
14.3	24	C	16		20		N40°33.073 W121°10.050	End of 32N10
		Overall	16'	<40%	20*			
		Widening exists on outside of nearly every curve						

*Measured at 17.5 MPH with GPS



Route 32N10
Share the Dream Trail
Lassen National Forest

NORTH

September 2005

0 0.25 0.5 Miles

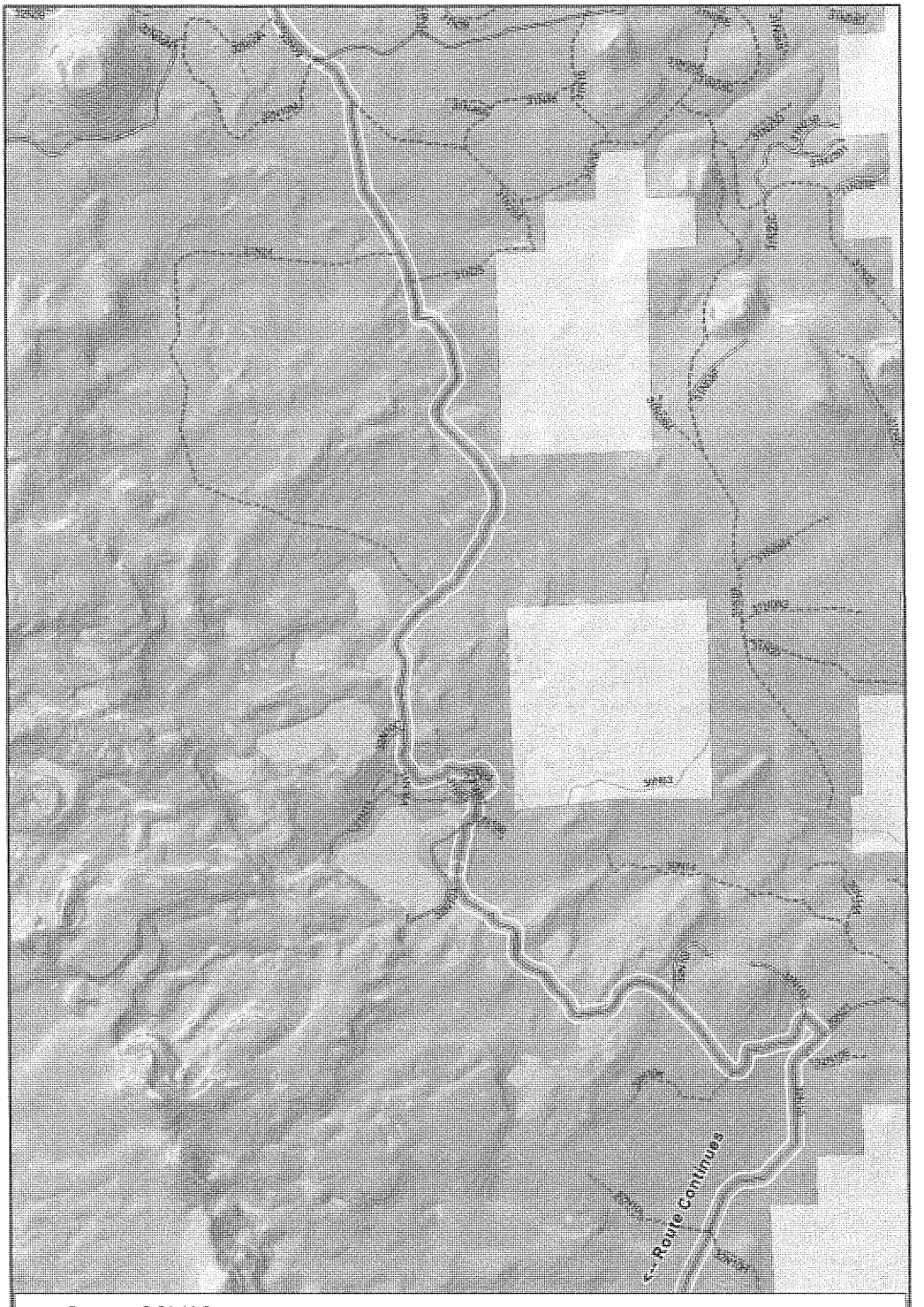
1:38,542

National Forest Land
Non-National Forest Land
Lassen National Park
200 Foot Buffer

Slope Percent
0-40%
40-60%
+60%

OPER_MAINT_LEVEL
0 - NOT MAINTAINED
1 - BASIC CUSTODIAL CARE (CLOSED)
2 - HIGH CLEARANCE VEHICLES
3 - SUITABLE FOR PASSENGER CARS
4 - MODERATE DEGREE OF USER COMFORT
5 - HIGH DEGREE OF USER COMFORT

Slope Analysis, contours, hillshade all generated from Lassen National Forest 10m Digital Elevation Model Data. Analysis done using ArcGIS 9.0, ArcInfo 9.0, Spatial Analyst 9.0.



Route 32N10
Share the Dream Trail
Lassen National Forest

NORTH

September 2005

0 0.25 0.5 Miles

1:38,542

National Forest Land
Non-National Forest Land
Lassen National Park
200 Foot Buffer

Slope Percent
0-40%
40-60%
+60%

OPER_MAINT_LEVEL
0 - NOT MAINTAINED
1 - BASIC CUSTODIAL CARE (CLOSED)
2 - HIGH CLEARANCE VEHICLES
3 - SUITABLE FOR PASSENGER CARS
4 - MODERATE DEGREE OF USER COMFORT
5 - HIGH DEGREE OF USER COMFORT

Slope Analysis, contours, hillshade all generated from Lassen National Forest 10m Digital Elevation Model Data.
Analysis done using ArcGIS 9.0, ArcInfo 9.0, Spatial Analyst 9.0.

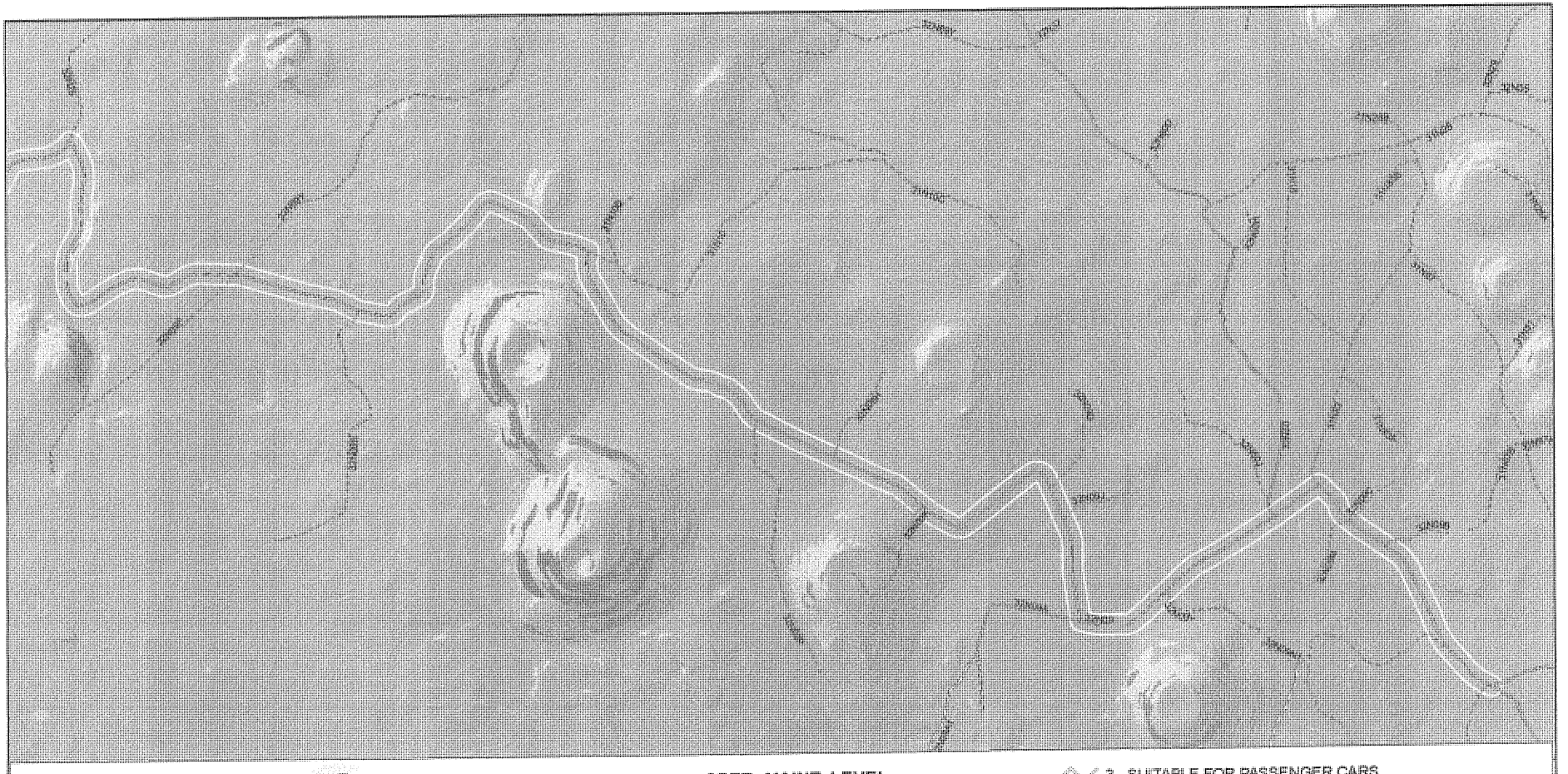
7/10/05 Notes for Road 32N09

MP	WP	Surface	Average Width	Downhill Slope %	Average Speed	Sight Distance	Lat/Lon	Comments, Hazard, Mitigation, Etc.
0.0	00	C	18		25		N40°33.085 W121°10.080	Begin 32N09
1.02	01	C	18		15		N40°33.764, W121°10.800	31N83 W1-1 (L&R), W13-1 (10 MPH) (2)
2.07	02	C	18		10		N40°33.349, W121°11.796	Intersection 32N09A W1-1 (L&R), W13-1 (10 MPH) (2)
2.57	03	C	15		15		N40°33.766 W121°11.912	Intersection 32N09D
2.64	04	C	14		15		N40°33.840 W121°11.962	SDC & start RBE
2.90	05	C	15		15		N40°33.728 W121°12.211	End RBE
3.01	06	C	15		15		N40°33.670 W121°12.314	SDC, RBE would be helpful
4.81	07	C	15		15		N40°34.582 W121°13.854	Intersection 31N10, RBE would be helpful
5.09	08	C	15		15		N40°34.714 W121°14.113	SDC
5.18	09	C	15		15		N40°34.744 W121°14.198	RBE

7/10/05 Notes for 32N09 Continued

MP	WP	Surface	Average Width	Downhill Slope %	Average Speed	Sight Distance	Lat/Lon	Comments, Hazard, Mitigation, Etc.
5.69	10	C	12		10		N40°34.470 W121°14.563	SC (in rock) W1-1 (L&R), W13-1 (10 MPH) (2)
6.05	11	C	12		15		N40°34.457 W121°14.918	RBE through narrow cut W5-1 (2)
6.39	12	C	14		15		N40°34.543 W121°15.281	RBE
6.46	13	C	14		15		N40°34.559 W121°15.362	Intersection 32N09F & 32N69Y
7.07	14	C	14		10		N40°34.480 W121°16.006	SDC, grade break W1-1 (L&R), W13-1 (10 MPH) (2)
7.73	15	C	14		15		N40°34.956 W121°16.006	End 32N09
		Overall	15	<40%	15*			
		Widening exists on outside of nearly every curve						

*Measured at 20 MPH with GPS



Route 32N09
Share the Dream Trail
Lassen National Forest

NORTH

September 2005

National Forest Land
Non-National Forest Land
Lassen National Park

200 Foot Buffer

Slope Percent
0-40%
40-60%
+60%

OPER_MAINT_LEVEL
0 - NOT MAINTAINED
1 - BASIC CUSTODIAL CARE (CLOSED)
2 - HIGH CLEARANCE VEHICLES
3 - SUITABLE FOR PASSENGER CARS
4 - MODERATE DEGREE OF USER COMFORT
5 - HIGH DEGREE OF USER COMFORT

0 0.1250.25 0.5 Miles

1:26,877

Slope Analysis, contours, hillshade all generated from Lassen National Forest 10m Digital Elevation Model Data. Analysis done using ArcGIS 9.0, ArcInfo 9.0, Spatial Analyst 9.0.

7/10/05 Notes Road 32N21

MP	WP	Surface	Average Width	Downhill Slope %	Average Speed	Sight Distance	Lat/Lon	Comments, Hazard, Mitigation, Etc.
0.0	01	Agg	24	0 to 10	18.7		N40°36.052 W121°17.942	Begin 32N21 (Butte Lake Rd) R1-1 2 foot shoulders
0.36	02	Agg	24	0 to 10	18.7		N40°36.352 W121°17.972	End 32N21, R1-1 Intersection 32N92Y
		Overall	24	<40%	20			
		Widening exists on outside of nearly every curve.						

7/10/05 Notes Road 32N12

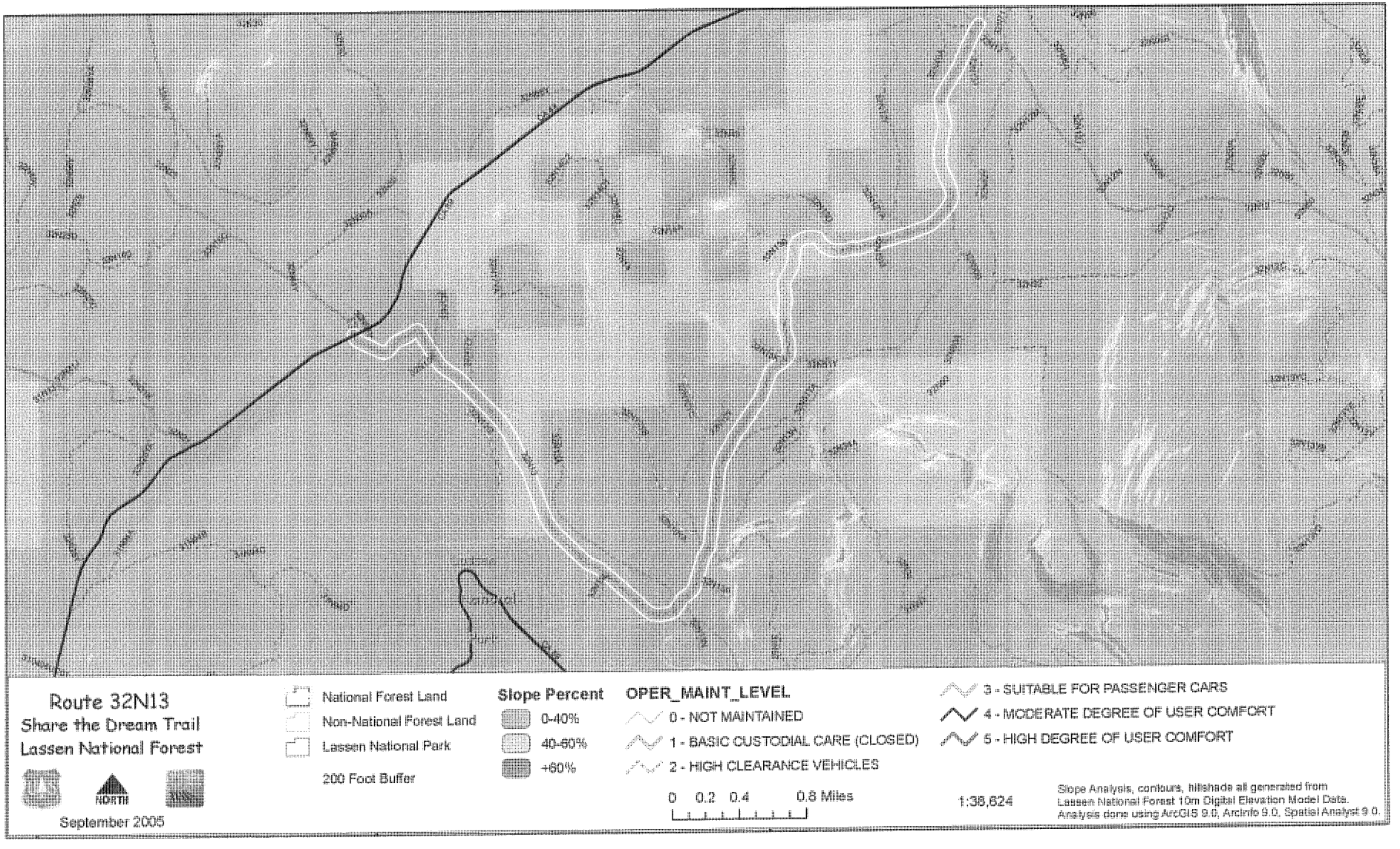
MP	WP	Surface	Average Width	Downhill Slope %	Average Speed	Sight Distance	Lat/Lon	Comments, Hazard, Mitigation, Etc.
0.0	01	C	14	0 to 10	10		N40°36.814 W121°28.025	Begin 32N12
0.06	02	C	12	0 to 10	5		N40°36.834 W121°28.060	Bridge, narrow, Object markers are in place W5-2 (2)
0.09	03	C	14	0 to 10	10	ok	N40°36.846 W121°28.091	SDC
0.24	04	C	14				N40°36.937 W121°28.193	End 32N12
		Overall	14	<40%	10			
		Widening exists on outside of nearly every curve.						

7/10/05 Notes Road 32N13

MP	WP	Surface	Average Width	Downhill Slope %	Average Speed	Sight Distance	Lat/Lon	Comments, Hazard, Mitigation, Etc.
0.0		C	16	0 to 5	15 to 20		N40°36.973 W121°28.193	Begin 32N13,Has vertical maintenance level 2 route marker at both ends
0.06		C	16		15 to 20		N40°36.890 W121°28.242	Cattle Guard, needs paddles, OM-3L (2) OM-3R (2)
0.08		C	16		15 to 20		N40°36.874 W121°28.251	Count Station 8, Shoulders 2'
0.09		C	16		15 to 20		N40°36.883, W121°28.245	Campground entrance
0.34		C	16	0 to 5	15 to 20		N40°36.836 W121°28.270	Campground entrance
0.66		C	16		15 to 20		N40°36.432 W121°28.446	Private Campground entrance
1.49		C	12	10 to 30	15 to 20		N40°35.863, W121°28.719	RBE
1.73		C	12	10 to 30	15 to 20		N40°35.811, W121°28.985	RBE
2.0		C	16	<40	15 to 20		N40°35.820 W121°29.283	SDC
2.17		C	16	40	15 to 20	160'	N40°35.850 W121°29.447	SDC

7/10/05 Notes for 32N13 continued

MP	WP	Surface	Average Width	Downhill Slope %	Average Speed	Sight Distance	Lat/Lon	Comments, Hazard, Mitigation, Etc.
2.48		C	16	10 to 20	15 to 20		N40°35.608 W121°29.566	SDC
2.9		C	16		15 to 20		N40°35.251 W121°29.529	SDC
4.12		C	16		15 to 20		N40°34.305 W121°30.101	RBE
4.47		C	16		15 to 20		N40°34.045 W121°30.231	SDC
450		C	16		15 to 20		N40°34.020 W121°30.254	Intersection 32N75Y
4.67		C	18		20 to 25		N40°33.935, W121°30.398	Count Station #9
5.93		C	18		20		N40°34.708 W121°31.321	SDC
7.49		C	18		20		N40°35.409 W121°32.485	End 32N13 at SR 44/89, R1-1 exists
		Overall	16	<40%	20			
		Widening exists on outside of nearly every curve.						


Route 32N13
Share the Dream Trail
Lassen National Forest
NORTH
September 2005
National Forest Land
Non-National Forest Land
Lassen National Park
200 Foot Buffer
Slope Percent
0-40%
40-60%
+60%
OPER_MAINT_LEVEL
0 - NOT MAINTAINED
1 - BASIC CUSTODIAL CARE (CLOSED)
2 - HIGH CLEARANCE VEHICLES
3 - SUITABLE FOR PASSENGER CARS
4 - MODERATE DEGREE OF USER COMFORT
5 - HIGH DEGREE OF USER COMFORT
0 0.2 0.4 0.8 Miles
1:38,624
Slope Analysis, contours, hillshade all generated from
Lassen National Forest 10m Digital Elevation Model Data.
Analysis done using ArcGIS 9.0, ArcInfo 9.0, Spatial Analyst 9.0.

7/10/05 Notes for 33N16 (16 Road)

MP	WP	Surface	Average Width	Downhill Slope %	Average Speed	Sight Distance	Lat/Lon	Comments, Hazard, Mitigation, Etc.
0.0	19	Cinders	18	0 to 10	20-25		N40°35.406 W121°32.488	Begin 32N16 (16 Road) at SR 44/89 Stop Sign in place
0.52	20	Cinders	18		20-25		N40°35.734 W121°32.923	Intersection 32N30
1.61	21	Cinders	18		20 to 25		N40°36.327 W121°33.737	Intersection 32N25
2.60	22	Cinders	18		20 to 25		N40°37.189 W121°33.874	SDC
3.40	23	Cinders	18		20 to 25		N40°37.549 W121°34.501	End of 33N16, Count Station 10
		Overall	18	<40%	23			
		Widening exists on outside of nearly every curve.						

7/10/05 Notes for 32N24

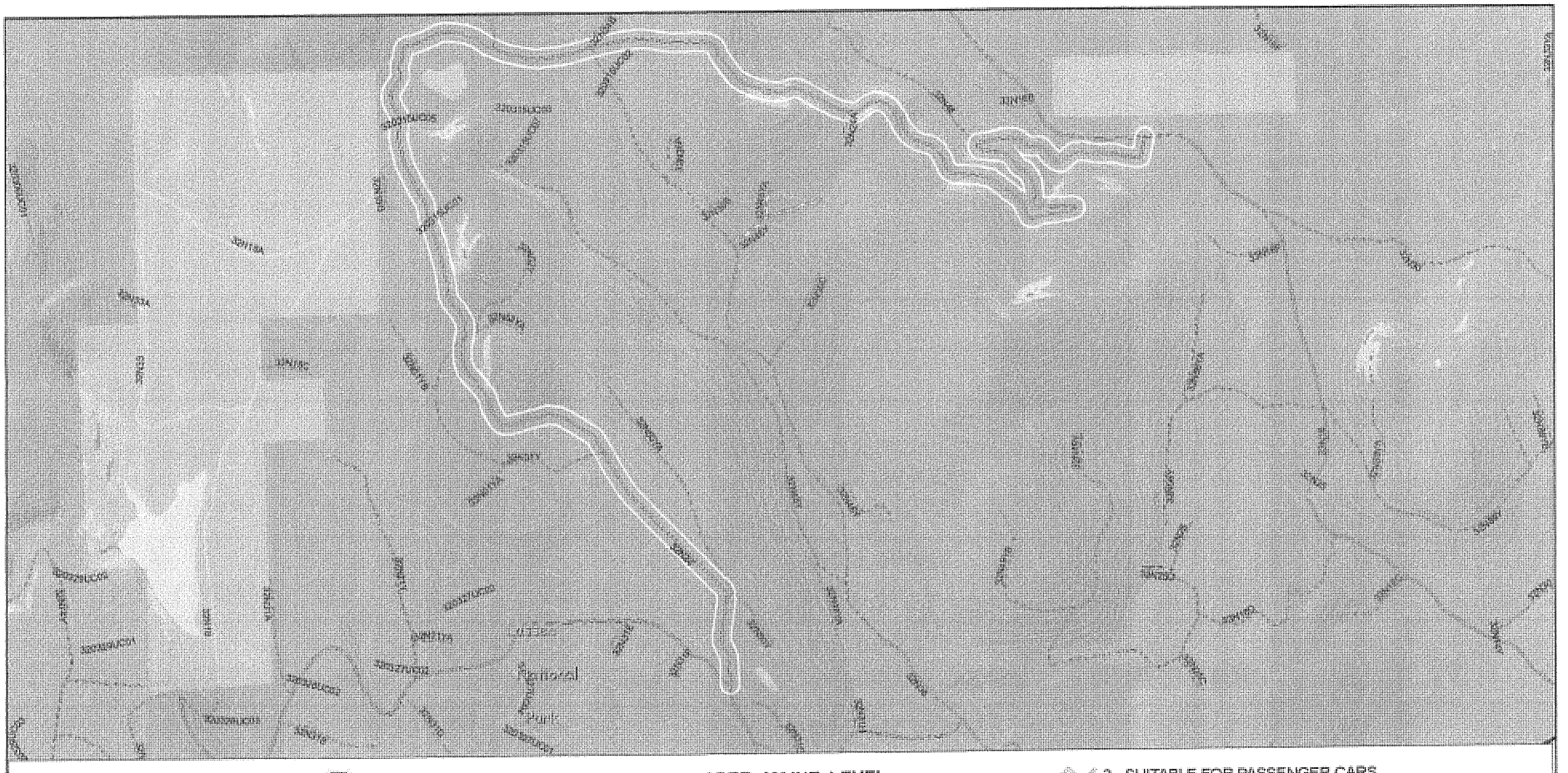
MP	WP	Surface	Average Width	Downhill Slope %	Average Speed	Sight Distance	Lat/Lon	Comments, Hazard, Mitigation, Etc.
0.0	23	Cinders	14	0 to 10	20		N40°37.549 W121°34.501	Begin 32N24 at 16 Road
0.1	24	Cinders	14	10 to 20	12 to 15		N40°37.475 W121°34.534	Begin steeper slope
0.3	24A	C		30	12 to 15		N40°37.482 W121°34.755	
0.4	25	Cinders	14	30	12 to 15		N40°37.466 W121°34.889	SDC
0.5	25A	C		10 to 20	12 to 15		N40°37.494 W121°34.967	Slope lessens
0.6	26	Cinders	14	10 to 20	12 to 15		N40°37.525 W121°35.043	SDC
0.8	27	Cinders	14	10 to 20	12 to 15		N40°37.545 W121°35.273	Intersection 32N46, SDC
0.9	27A	C		30	12 to 15		N40°37.499 W121°35.203	
1.0	27B	C			15 to 18		N40°37.457 W121°35.098	
1.1	28	Cinders	14	35	15 to 18		N40°37.363 W121°35.008	

7/10/05 Notes for 32N24 Continued

MP	WP	Surface	Average Width	Downhill Slope %	Average Speed	Sight Distance	Lat/Lon	Comments, Hazard, Mitigation, Etc.
1.2	29	Cinders	14		15 to 18		N40°37.310 W121°35.003	SDC
1.4	30	Cinders	14				N40°37.293 W121°34.781	SC, W1-1 (L&R),W13-1 (5 MPH) (2)
1.8	30A	Cinders	14		15 to 20		N40°37.281 W121°34.934	
1.9	30B	Cinders	14	40 to 50	15 to 20		N40°37.273 W121°34.973	Begin steeper slope
2.1	30C	Cinders	14	30 to 40	15 to 20		N40°37.350 W121°35.154	Shoulder 2 feet
3.3	30D	Cinders	14	10 to 20	15 to 20		N40°37.732 W121°36.080	Slope lessens
3.6	31	Cinders	14		20 to 25		N40°37.922 W121°37.015	Cattle Guard, Intersection 32N36 OM-3L (2), OM-3R (2)
4.6	31A	Cinders	14		20 to 25		N40°37.927 W121°37.945	SDC
4.8	31B	Cinders	14		15 to 20		N40°37.760 W121°38.006	
5.0	31C	Cinders	14		20 to 25		N40°37.588 W121°37.970	

7/10/05 Notes for 32N24 continued

MP	WP	Surface	Average Width	Downhill Slope %	Average Speed	Sight Distance	Lat/Lon	Comments, Hazard, Mitigation, Etc.
6.1	31D	Cinders	14	0 to 10	20 to 25		N40°36.705 W121°37.601	
7.0	32	Cinders	14		20 to 25		N40°36.286 W121°36.888	SCMP, OM2-IV (2)
7.2	32A	Cinders	16'		20 to 25		N40°36.149 W121°36.735	Shoulder 2 feet
7.5	33	Cinders	16		20 to 25		N40°35.976 W121°36.488	SDC
7.9	34	Cinders	16		20 to 25		N40°35.636 W121°36.473	End of 32N24
		Overall	14	<40%	18			
		Widening exists on outside on nearly every curve.						



Route 32N24
Share the Dream Trail
Lassen National Forest

NORTH

September 2005

National Forest Land
Non-National Forest Land
Lassen National Park
200 Foot Buffer

Slope Percent
0-40%
40-60%
+60%

OPER_MAINT_LEVEL
0 - NOT MAINTAINED
1 - BASIC CUSTODIAL CARE (CLOSED)
2 - HIGH CLEARANCE VEHICLES
3 - SUITABLE FOR PASSENGER CARS
4 - MODERATE DEGREE OF USER COMFORT
5 - HIGH DEGREE OF USER COMFORT

0 0.15 0.3 0.6 Miles

1:29,717

Slope Analysis, contours, hillshade all generated from Lassen National Forest 10m Digital Elevation Model Data. Analysis done using ArcGIS 9.0, ArcInfo 9.0, Spatial Analyst 9.0.

7/10/05 Notes for 32N31

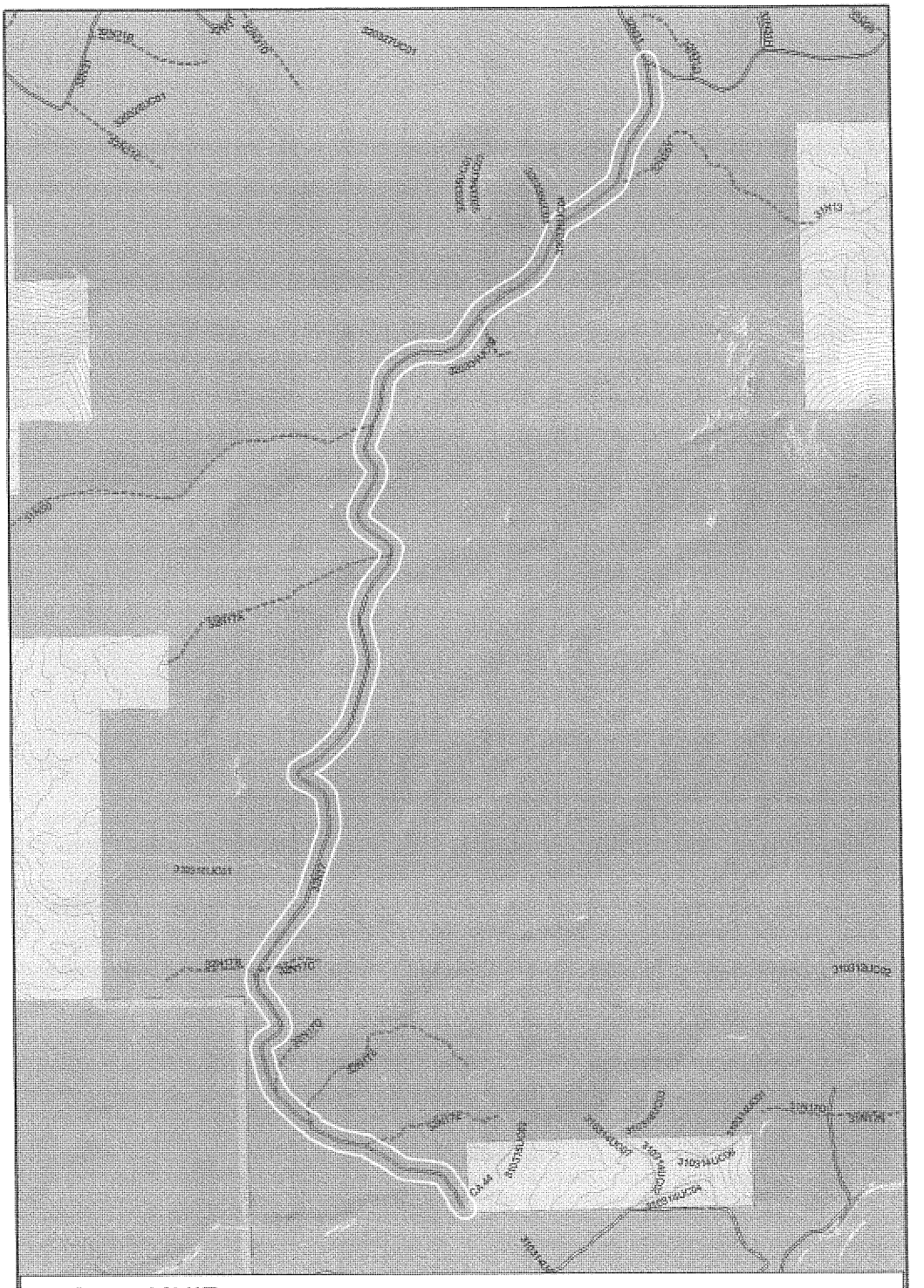
MP	WP	Surface	Average Width	Downhill Slope %	Average Speed	Sight Distance	Lat/Lon	Comments, Hazard, Mitigation, Etc.
0.0	34	Agg	18	10 to 20	25		N40°35.636 W121°36.473	Begin 32N31
0.3	35	Agg	18	10 to 20	25		N40°35.423 W121°36.358	End 32N31
		Overall	18	<40%	25			

7/10/05 Notes for 32N17

MP	WP	Surface	Average Width	Downhill Slope %	Average Speed	Sight Distance	Lat/Lon	Comments, Hazard, Mitigation, Etc.
0.0	35	Cinders	16	0 to 10	10 to020		N40°35.423 W121°36.358	Begin 32N17
0.03	36	Cinders	16		14		N40°35.397 W121°36.351	Station 11
0.65	37	Cinders	16				N40°34.944 W121°36.734	SDC
0.75	37A	C		10 to 20	20 to 25		N40°34.861 W121°36.787	
1.4	37B	C	14 feet	0			N40°34.562 W121°37.325	14 feet for short distance
1.77	37C						N40°34.284 W121°37.535	W1-5, W13-1 (15 MPH) Southbound
1.85	38	Cinders	16		10 to 20		N40°34.211 W121°37.485	Shoulder 8 feet, SDC
2.25	38A		16		15		N40°33.917 W121°37.461	Grade, roughness, W1-5, W13-1 (15MPH) Northbound
3.01	39	Cinders	16		20 to25		N40°33.341 W121°37.754	SDC

7/10/05 Notes for 32N17 Continued

MP	WP	Surface	Average Width	Downhill Slope %	Average Speed	Sight Distance	Lat/Lon	Comments, Hazard, Mitigation, Etc.
3.10	40	Cinders	10		20 to25		N40°33.292 W121°37.834	SC W1-1 (L&R(, W13-1 (10 MPH) (2)
3.5	40A	C	16	flat	20 to 25		N40°32.993 W121°37.774	Shoulders 8 feet
3.93	41	Cinders	16		20 to25		N40°32.672 W121°38.025	SCMP, OM2-IV (2)
4.33	42	Agg	16	10 to 20	20 to 25		N40°32.372 W121°37.970	Rough surface slows speed for short distance. Then returns to 20 to 25MPH. Shoulders 6 feet
5.21		Agg	16	0	20 to25		N40°31.973 W121°37.231	End of 32N17 at SR 44, R1-1 exists
		Overall	16	<40	20			
		Widening exists on outside of nearly every curve.						



Route 32N17
Share the Dream Trail
Lassen National Forest

NORTH

September 2005

0 0.2 0.4 Miles

1:26,545

National Forest Land
Non-National Forest Land
Lassen National Park
200 Foot Buffer

Slope Percent
0-40%
40-60%
+60%

OPER_MAINT_LEVEL
0 - NOT MAINTAINED
1 - BASIC CUSTODIAL CARE (CLOSED)
2 - HIGH CLEARANCE VEHICLES
3 - SUITABLE FOR PASSENGER CARS
4 - MODERATE DEGREE OF USER COMFORT
5 - HIGH DEGREE OF USER COMFORT

Slope Analysis, contours, hillshade all generated from Lassen National Forest 10m Digital Elevation Model Data.
Analysis done using ArcGIS 9.0, ArcInfo 9.0, Spatial Analyst 9.0.

7/10/05 Notes for 31N17 (17 Road)

MP	WP	Surface	Average Width	Downhill Slope %	Average Speed	Sight Distance	Lat/Lon	Comments, Hazard, Mitigation, Etc.
0.0	44	Agg	10		10		N40°32.329 W121°35.805	Begin 17 Road at SR 44, 10 ft. through cut speed 10 MPH, R1-1 (existing)
0.1	45	Agg	18	0	25 to 30		N40°32.225 W121°35.761	W5-1 W13-1 (10 MPH), (Northbound)
0.4	46	Agg	18		15		N40°31.993 W121°35.690	SC, W1-1 (L&R), W13-1 (15 MPH) (2)
0.5	46A	Agg	18	35	25 to 30		N40°31.882 W121°35.797	SDC
0.9	47	Agg	18		25 to 30		N40°31.721 W121°36.030	SC W1-1 (L&R), W13-1 (15 MPH) (2)
1.0	47A	Agg	18	0	25 to 30		N40°31.744 W121°36.151	
1.5	47B	Agg	18	30	25 to 30		N40°31.692 W121°36.717	
1.6	47C	Agg	18	0	25 to 30		N40°31.605 W121°36.763	
1.7	47D	Agg	18	0 to 10	25 to 30		N40°31.423 W121°36.826	
2.5	47E	Agg	18	30	25 to 30		N40°30.923 W121°37.045	

7/10/05 Notes for 31N17 (17 Road), Continued

MP	WP	Surface	Average Width	Downhill Slope %	Average Speed	Sight Distance	Lat/Lon	Comments, Hazard, Mitigation, Etc.
2.7	47F	Agg	18	50	25 to 30		N40°30.793 W121°37.197	
2.8	48	Agg	18	0 to 20	15		N40°30.718 W121°37.250	SC
4.0	49	Agg	18		25 to 30		N40°30.056 W121°37.235	SDC, SC
4.5	49A	Agg	18	40 to 45	25 to 30		N40°29.848 W121°37.661	
4.6	49B	Agg	18	10 to 20	25 to 30		N40°29.762 W121°37.603	
4.8	50	Agg	18		15		N40°29.624 W121°37.564	SDC (Tanker fill at Bailey Creek), W1-1 (R) W13-1 (15 MPH) (Southbound)
4.9	51	Agg	18		20		N40°29.574 W121° 37.661	SDC, W1-1 (L),W13-1 (15 MPH) (Northbound)
5.1	52	Agg	18		20		N40°26.675 W121°37.875	Intersection Brokeoff Mdws. Road (Shasta County Road 3P001) R1-1 Needed
5.4	53	Agg	18		25 to 30		N40°29.630 W121°38.040	Intersection Shasta County Rd 3P001 to Viola, Continue on 17 Rd., R1-1 Needed
5.8	53A	Agg	18	0 to 10	25 to 30		N40°29.332 W121°38.021	

7/10/05 Notes for 31N17 (17 Road), Continued

MP	WP	Surface	Average Width	Downhill Slope %	Average Speed	Sight Distance	Lat/Lon	Comments, Hazard, Mitigation, Etc.
6.9	54	Agg	18		25 to 30		N40°28.478 W121°37.762	SDC
7.1	55	Agg	18		25 to 30		N40°28.324 W121°37.775	Intersection 31N17B
7.5	56	Agg	18		25 to 30		N40°28.071 W121°37.716	SDC
7.6A	57	Agg	18		25 to 30		N40°27.978 W121°37.724	SDC, Slope at culvert is 60% over fill
7.6B	58	Agg	15		25 to 30		N40°27.951 W121°37.774	15 ft width just past culvert. Lots of it has shoulders 2 feet
8.3	59	Agg	18		25 to 30		N40°27.579 W121°37.832	SDC, over culvert
8.4	60	Agg	18		25 to 30		N40°27.513 W121°37.825	SDC over stream
8.5	61	Agg	18		25 to 30		N40°27.449 W121°37.910	SDC over stream
8.8	62	Agg	18		25 to 30		N40°27.281 W121°38.137	SDC
8.9	63	Agg	18		25 to 30		N40°27.218 W121°38.045	SDC

7/10/05 Notes for 31N17 (17 Road), Continued

MP	WP	Surface	Average Width	Downhill Slope %	Average Speed	Sight Distance	Lat/Lon	Comments, Hazard, Mitigation, Etc.
9.4	63A	Agg	18	50	25 to 30		N40°26.989 W121°38.245	
9.5	64	Agg	18		25 to 30		N40°26.852 W121°38.232	SDC over culvert
9.7	64A	Agg	18	30	25 to 30		N40°26.689 W121°38.165	
9.8	65	Agg	18		25 to 30		N40°26.657 W121°38.156	SDC
9.9	65A	Agg	14		25 to 30		N40°26.584 W121°38.236	width 14 feet
10.0	66	Agg	14		25 to 30		N40°26.466 W121°38.305	SDC
10.3	67	Agg	14		15		N40°26.368 W121°38.598	SDC, W1-1 (L,R), W13-1 (15 MPH) (2)
10.5	67A	Agg	14	40	25 to 30		N40°26.285 W121°38.396	
10.7	67B	Agg	14	30	25 to 30		N40°26.280 W121°38.163	
10.9	68	Agg	14		15		N40°26.282 W121°37.963	SDC over culvert, W1-1 (L,R) W13-1 (15 MPH) (2)

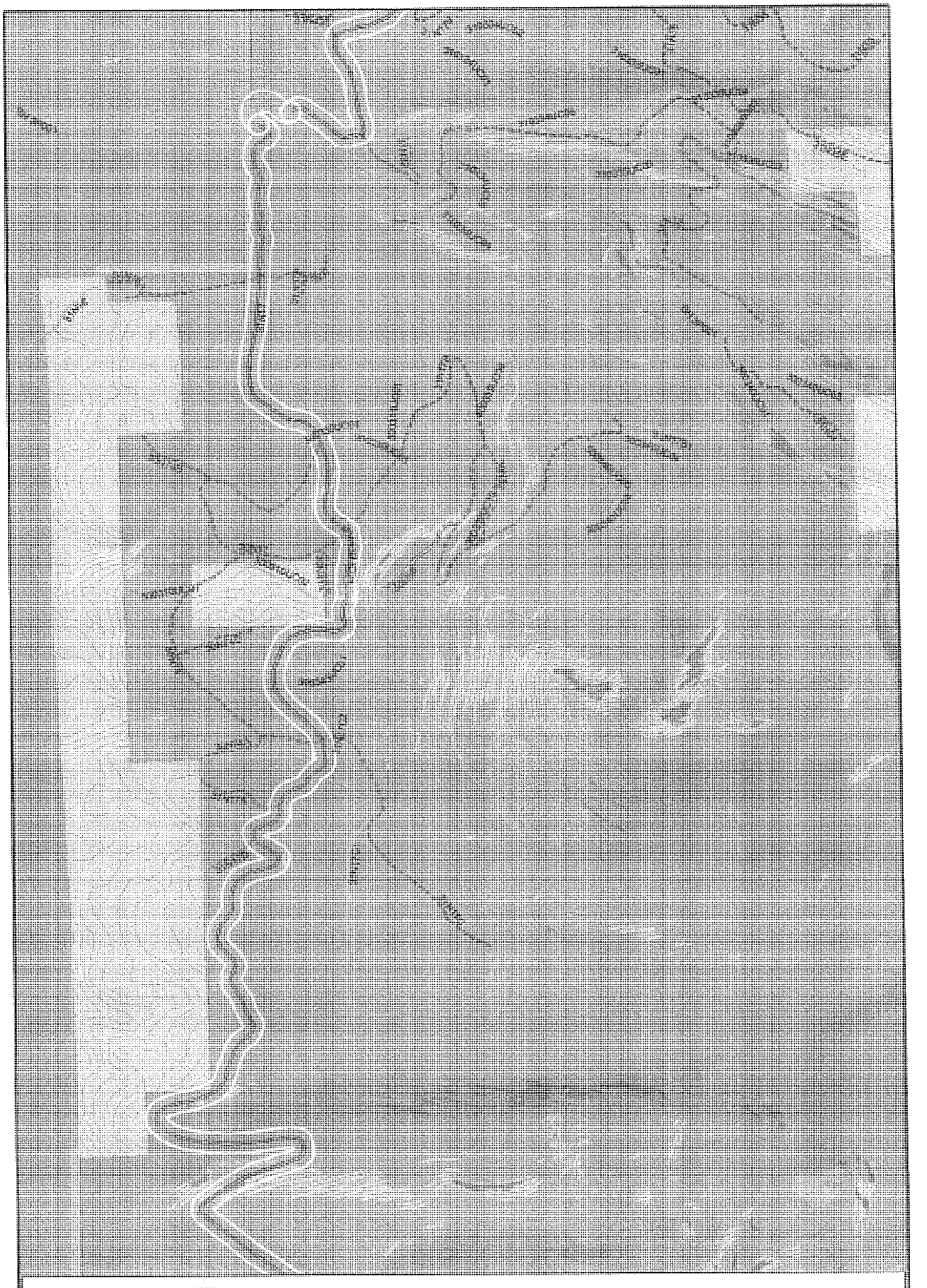
7/10/05 Notes for 31N17 (17 Road), Continued

MP	WP	Surface	Average Width	Downhill Slope %	Average Speed	Sight Distance	Lat/Lon	Comments, Hazard, Mitigation, Etc.
11.0	69	Agg	14		15		N40°26.233 W121°37.979	SDC
11.1	70	Agg	14	50 to 60	15		N40°26.211 W121°37.998	RBE
11.6	70A	Agg	14		25 to 30		N40°25.979 W121°38.278	
11.9	70B	Agg	14	40 to 50	25 to 30		N40°250816 W121°32.923	
12.1A	71	Agg	14	40 to 50	15		N40°25.723 W121°37.843	Count station #12, 10 feet wide through cut
12.1B	72	Agg	14	40 to 50	15		N40°25.681 W121°37.800	SDC over SF Digger Creek
12.2	73	Agg	14	40 to 50	15		N40°25.645 W121°37.857	SDC, Slope still steep, W1-1 (L,R), W13-1 (15 MPH) (2)
12.3	74	Agg	12	50	20		N40°25.665 W121°38.033	Needs sign, narrow roadway for 300 feet with 50% slope, W5-1, W16-4 (300) (2) (Both Directions)
12.6	74A	Agg	14	0 to 10	25 to 30		N40°25.549 W121°38.188	
13.0	74B	Agg	14		25 to 30		N40°25.410 W121°37.784	2 foot shoulders
14.6	75	Agg	14		25 to 30		N40°24.411 W121°37.119	SCMP and SDC, OM2-IV (2)

7/10/05 Notes for 31N17 (17 Road), Continued

15.3	76	Agg	14		25 to 30		N40°23.885 W121°37.217	End of 17 Road, end of loop back to beginning at 0.0 on 30N16
		Overall	16	<40%	23			
		Widening exists on outside of nearly every curve.						


Route 31N17
Share the Dream Trail
Lassen National Forest
NORTH
September 2005
0 0.2 0.4 Miles
1:28,773
National Forest Land
Non-National Forest Land
Lassen National Park
200 Foot Buffer
Slope Percent
0-40%
40-60%
+60%
OPER_MAINT_LEVEL
0 - NOT MAINTAINED
1 - BASIC CUSTODIAL CARE (CLOSED)
2 - HIGH CLEARANCE VEHICLES
3 - SUITABLE FOR PASSENGER CARS
4 - MODERATE DEGREE OF USER COMFORT
5 - HIGH DEGREE OF USER COMFORT
Slope Analysis, contours, hillshade all generated from Lassen National Forest 10m Digital Elevation Model Data.
Analysis done using ArcGIS 9.0, ArcInfo 9.0, Spatial Analyst 9.0.



Route 31N17
Share the Dream Trail
Lassen National Forest

NORTH

September 2005

0 0.2 0.4 Miles

1:28,773

National Forest Land
Non-National Forest Land
Lassen National Park
200 Foot Buffer

Slope Percent
0-40%
40-60%
+60%

OPER_MAINT_LEVEL
0 - NOT MAINTAINED
1 - BASIC CUSTODIAL CARE (CLOSED)
2 - HIGH CLEARANCE VEHICLES
3 - SUITABLE FOR PASSENGER CARS
4 - MODERATE DEGREE OF USER COMFORT
5 - HIGH DEGREE OF USER COMFORT

Slope Analysis, contours, hillshade all generated from Lassen National Forest 10m Digital Elevation Model Data.
Analysis done using ArcGIS 9.0, ArcInfo 9.0, Spatial Analyst 9.0.

Traffic Engineer Shared Use Assessment ...ssen National Forest Summer 2005

Road Number 30N16 BCDT Segment Number 1 Length 6.56 Sheet 1 of 3

Maint. Level: Objective 3 Operational 3 Observed June–August 2005 2 Functional Class L Service Level B

Probability of an Accident	Benchmark Rankings		Summary 2005 Observations	Assessed Rankings		
	High	Low		H	M	L
Crash History	Several Crashes	None Known	None Known			L
Average Daily Traffic (ADT)	>150	30 or less	Count Sta ① 5.48			L
User Knowledge	Not Acquainte		Unknown		M	
Average Speed (MPH)	>40		15			L
Cross Section Changes	Changes		None Abrupt			L
Surface Type Changes	Changes		None			L
Curvature	Abrupt		Smooth *			L
Road Widths (Feet)	Variable		Uniform @ 15'			L

R4 uses <100

R8 uses <100

WO Did not list

R3 & R6 use 30

I chose the SAFER #

all Probability Assessed Ranking Low

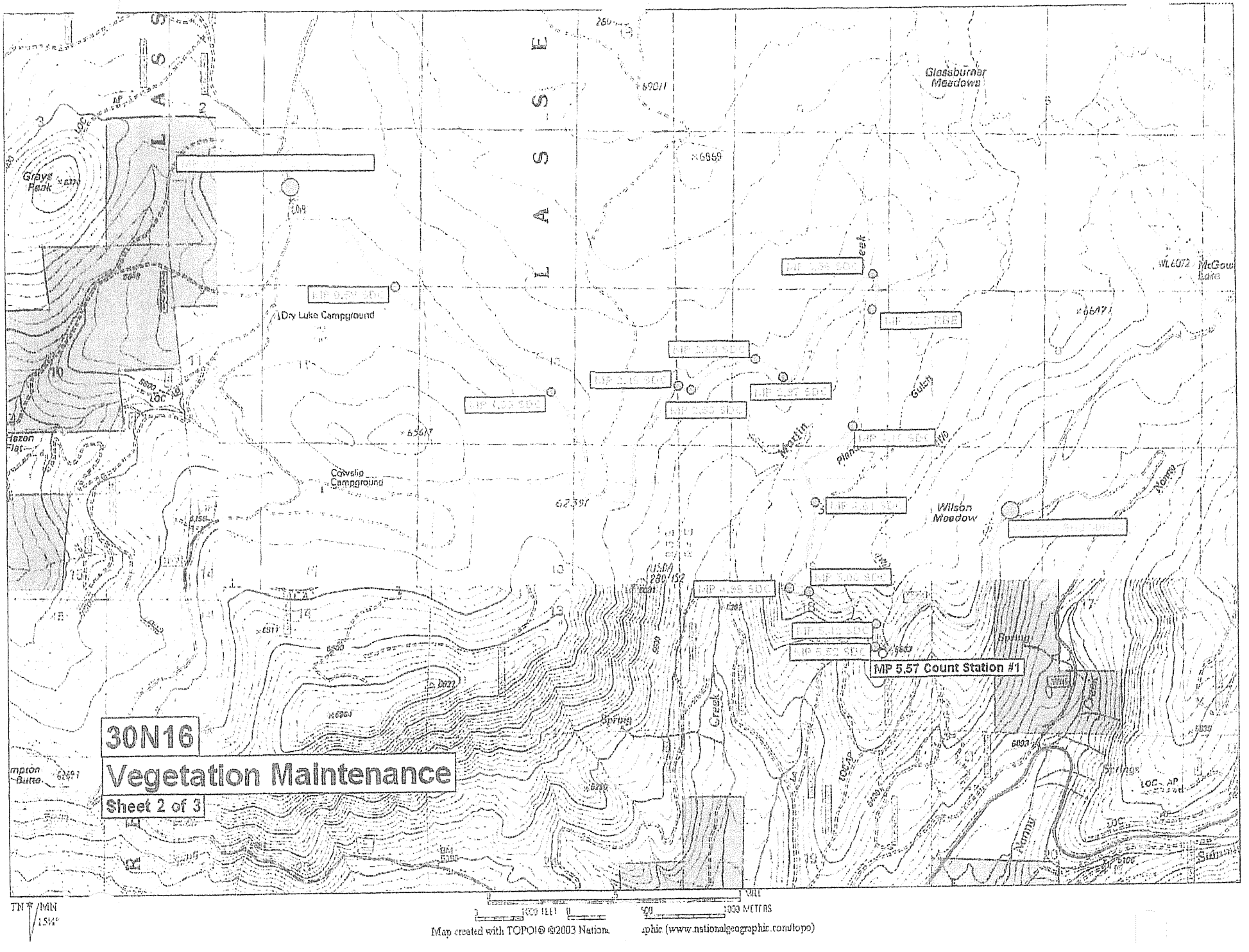
Severity of an Accident	B		Summary 2005 Observations	Assessed Rankings		
	High			H	M	L
Average Speed (MPH)	>40		15			L
Clearance from Hazards	Little or none		Adequate *			L
Alignment & Sight Distance	Poor	Adequate	Adequate *			L
Roadway Gradient	>12%	<12%	<12%			L
Downhill Side Slopes	>60%	<40%	<40%			L
Radical Speed Changes	Many	Few	Few			L
Multi-passenger Vehicles	Buses	Cars, SUVs	Cars, SUVs			L

Overall Severity Assessed Ranking Low

Season of Use June - November Surface Native % Street Legal 42 % Non-Street Legal 58

SHARED USE RECOMMENDATION YES (Yes or No)

*Mitigation opportunities by milepost, or other pertinent information on following page(s).

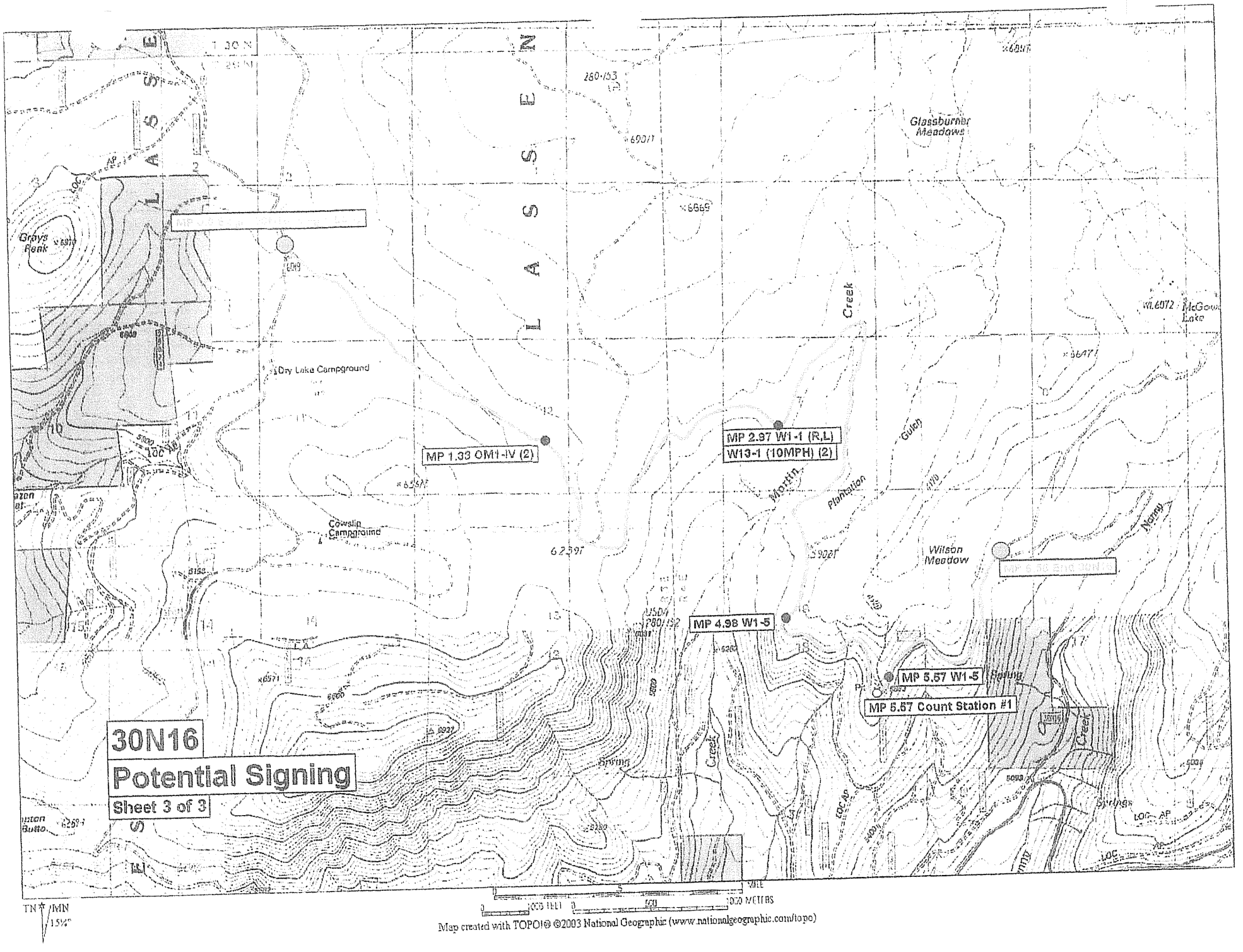


30N16

Vegetation Maintenance

Sheet 2 of 3

Map created with TOPO!® ©2003 National Geographic (www.nationalgeographic.com/topo)


30N16
Potential Signing
Sheet 3 of 3
MP 1.33 OM1-IV (2)
MP 2.97 W1-1 (R,L)
W13-1 (10MPH) (2)
MP 4.98 W1-5
MP 5.57 W1-5
MP 5.57 Count Station #1
Dry Lake Campground
Cowslip Campground
Wilson Meadow
Glassburner Meadows
Grays Peak
Martin Creek
Plantation Gulch
Hoing Creek
Spring Creek
LASSEN
TN
MN
15½°
Map created with TOPO!® ©2003 National Geographic (www.nationalgeographic.com/topo)

Traffic Engineer Shared Use Assessment Lassen National Forest Summer 2005

Road Number 29N22 BCDT Segment Number 1 Length 2.96 Sheet 1 of 3

Maint. Level: Objective 3 Operational 3 Observed June–August 2005 2 [Signed as Level 2] Functional Class L Service Level B

Probability of an Accident	Benchmark Rankings		Summary 2005 Observations	Assessed Rankings		
	High	Low		H	M	L
Crash History	Several Crashes	None Known	None Known			L
Average Daily Traffic (ADT)	>150	30 or less	Count Sta ① 5.48			L
User Knowledge	Not Acquainted	Well Acquainted	Unknown		M	
Average Speed (MPH)	>40	25 or less	15			L
Cross Section Changes	Changes	None Abrupt	None Abrupt			L
Surface Type Changes	Changes	No changes	None			L
Curvature	Abrupt	Smooth	Smooth			L
Road Widths (Feet)	Variable	Uniform	Uniform @ 15'			L

Overall Probability Assessed Ranking Low

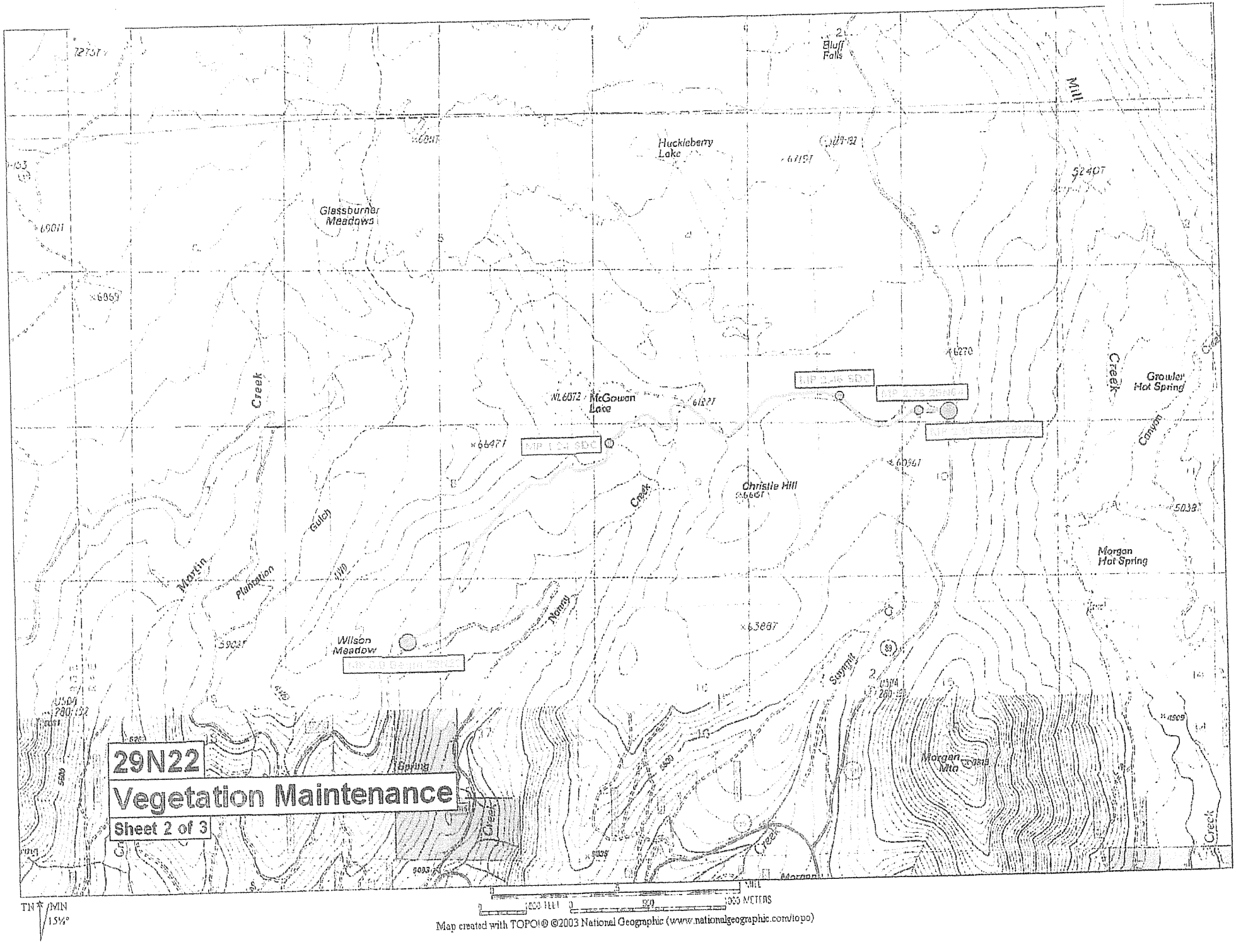
Severity of an Accident	Benchmark Rankings		Summary 2005 Observations	Assessed Rankings		
	High	Low		H	M	L
Average Speed (MPH)	>40	25 or Less	15			L
Clearance from Hazards	Little or none	Adequate	Adequate			L
Alignment & Sight Distance	Poor	Adequate	Adequate *			L
Roadway Gradient	>12%	<12%	<12%			L
Downhill Side Slopes	>60%	<40%	<40%			L
Radical Speed Changes	Many	Few	Few			L
Multi-passenger Vehicles	Buses	Cars, SUVs	Cars, SUVs			L

Overall Severity Assessed Ranking Low

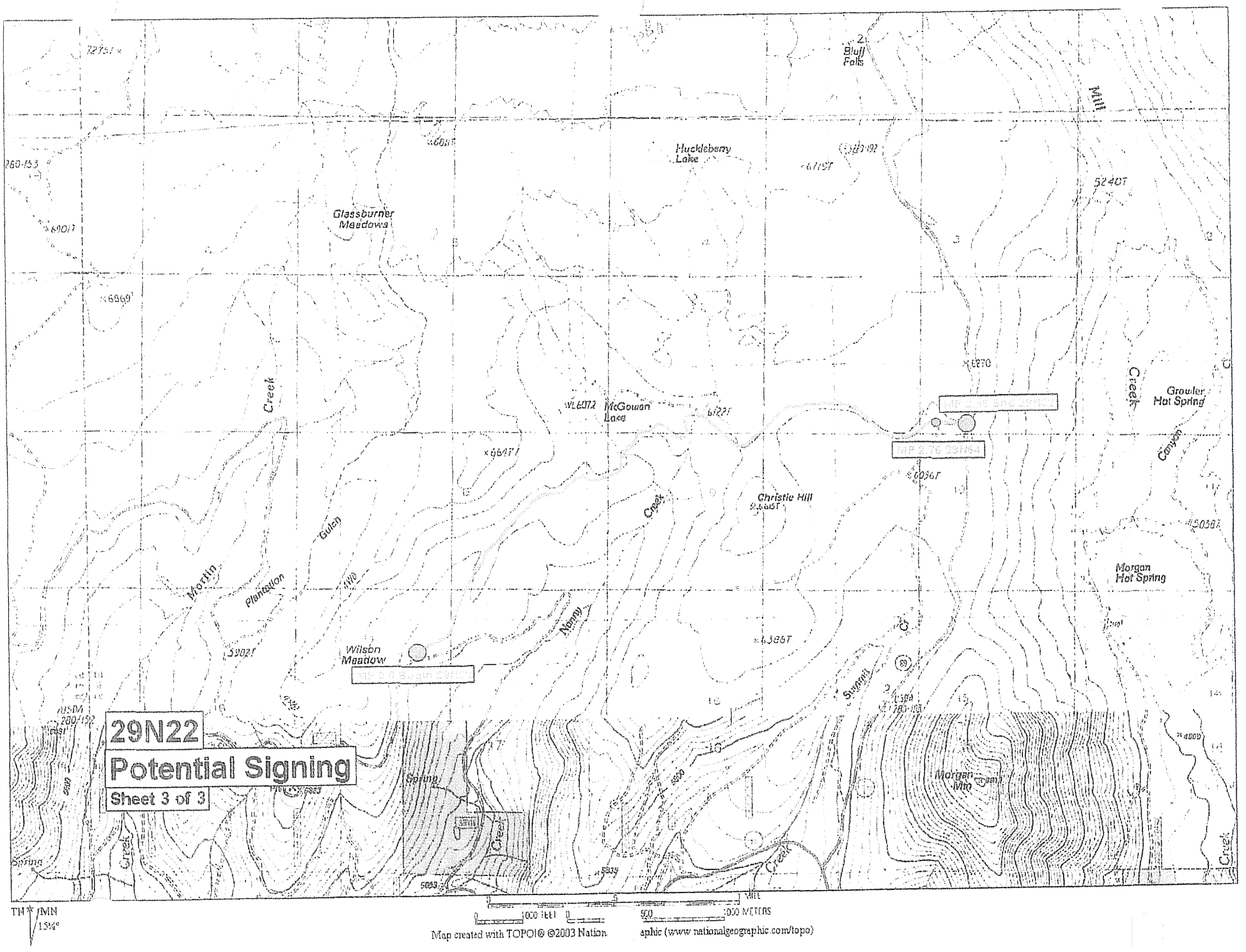
Season of Use June - November Surface Native % Street Legal 42 % Non-Street Legal 58

SHARED USE RECOMMENDATION YES (Yes or No)

*Mitigation opportunities by milepost, or other pertinent information on following page(s).



Map created with TOPO!® ©2003 National Geographic (www.nationalgeographic.com/topo)


29N22
Potential Signing
Sheet 3 of 3
Bluff Falls
Huckleberry Lake
Glassburner Meadows
McGowan Lake
Christie Hill
Grouler Hot Spring
Morgan Hot Spring
Wilson Meadow
Morgan Mtn
Martin
Plantation
Gulch
Creek
Canyon
Mill
Swamp
Spring
5240T
6072
6221
6447
6386T
5902T
5900
5903
5939
TN
MN
15¼°
500
Map created with TOPO! ©2003 National Geographic (www.nationalgeographic.com/topo)

Traffic Engineer Shared Use Assessment ...ssen National Forest Summer 2005

Sheet 1 of 8

Road Number 10 (32N10) BCDT Segment Number 13 Length 14.30

Maint. Level: Objective 4 Operational 3 Observed June–August 2005 2 Functional Class C Service Level B

Probability of an Accident	Benchmark Rankings		Summary 2005 Observations	Assessed Rankings		
	High	Low		H	M	L
Crash History	Several Crashes	None Known	None Known			L
Average Daily Traffic (ADT)	>150	30 or less	Average 16.14 Std (3.455)			L
User Knowledge	Not Acquainted	Well Acquainted	Unknown		M	
Average Speed (MPH)	>40	25 or less	20			L
Cross Section Changes	Changes	None Abrupt	None Abrupt			L
Surface Type Changes	Changes	No changes	None			L
Curvature	Abrupt	Smooth	Smooth *			L
Road Widths (Feet)	Variable	Uniform	Uniform @ 16'			L

Overall Probability Assessed Ranking Low

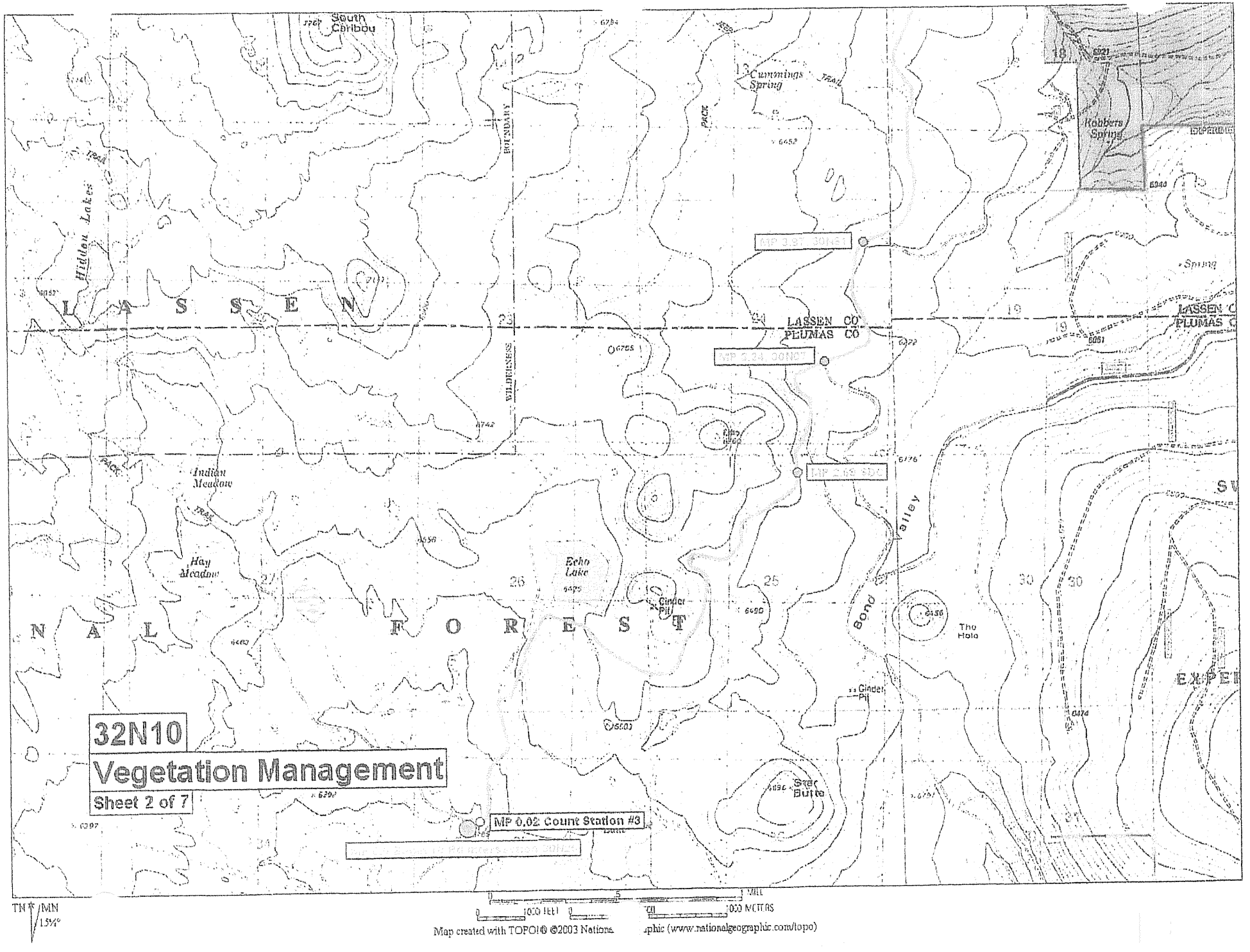
Severity of an Accident	Benchmark Rankings		Summary 2005 Observations	Assessed Rankings		
	High	Low		H	M	L
Average Speed (MPH)	>40	25 or Less	20			L
Clearance from Hazards	Little or none	Adequate	Adequate			L
Alignment & Sight Distance	Poor	Adequate	Adequate *			L
Roadway Gradient	>12%	<12%	<12%			L
Downhill Side Slopes	>60%	<40%	<40%			L
Radical Speed Changes	Many	Few	Few			L
Multi-passenger Vehicles	Buses	Cars, SUVs	Cars, SUVs			L

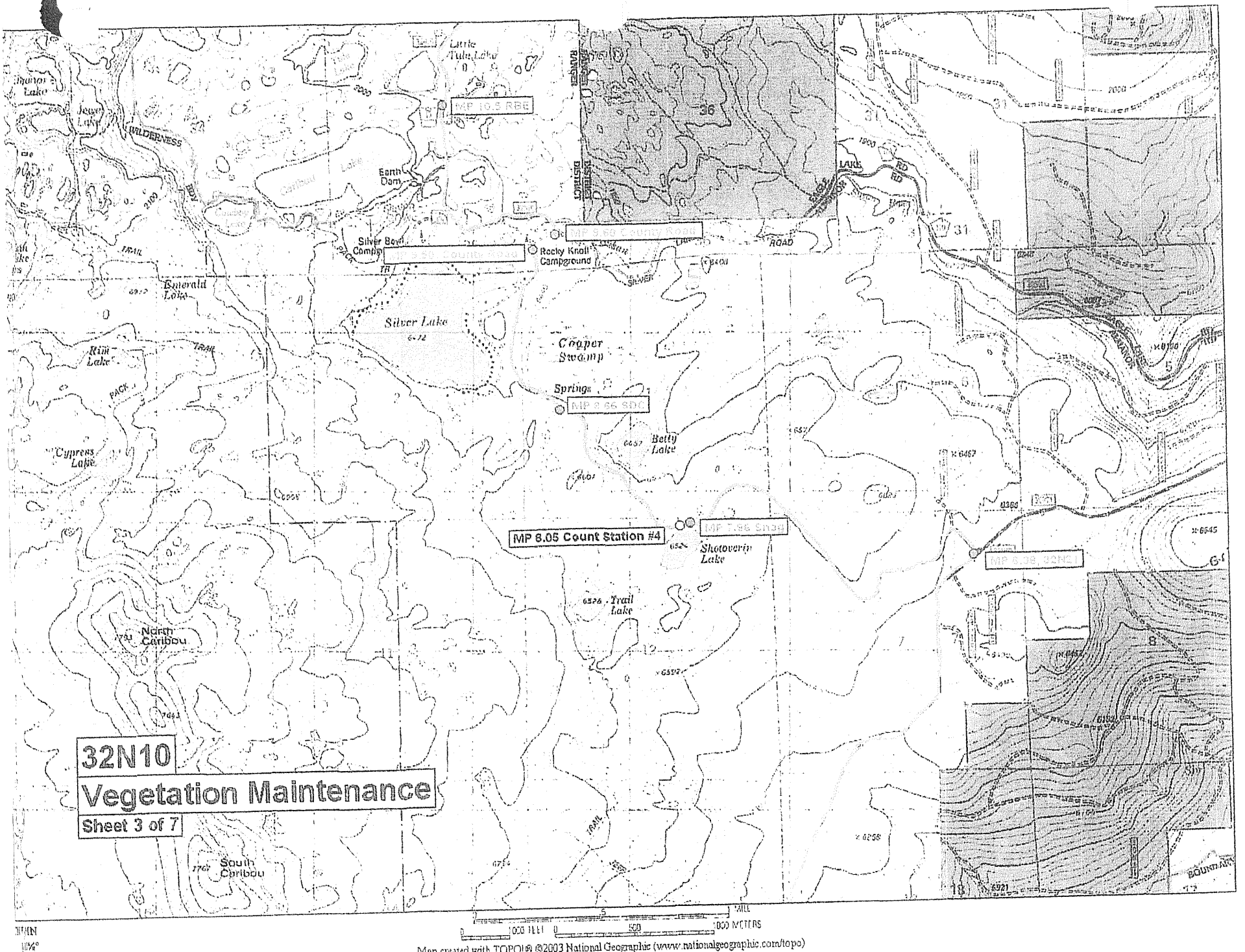
Overall Severity Assessed Ranking Low

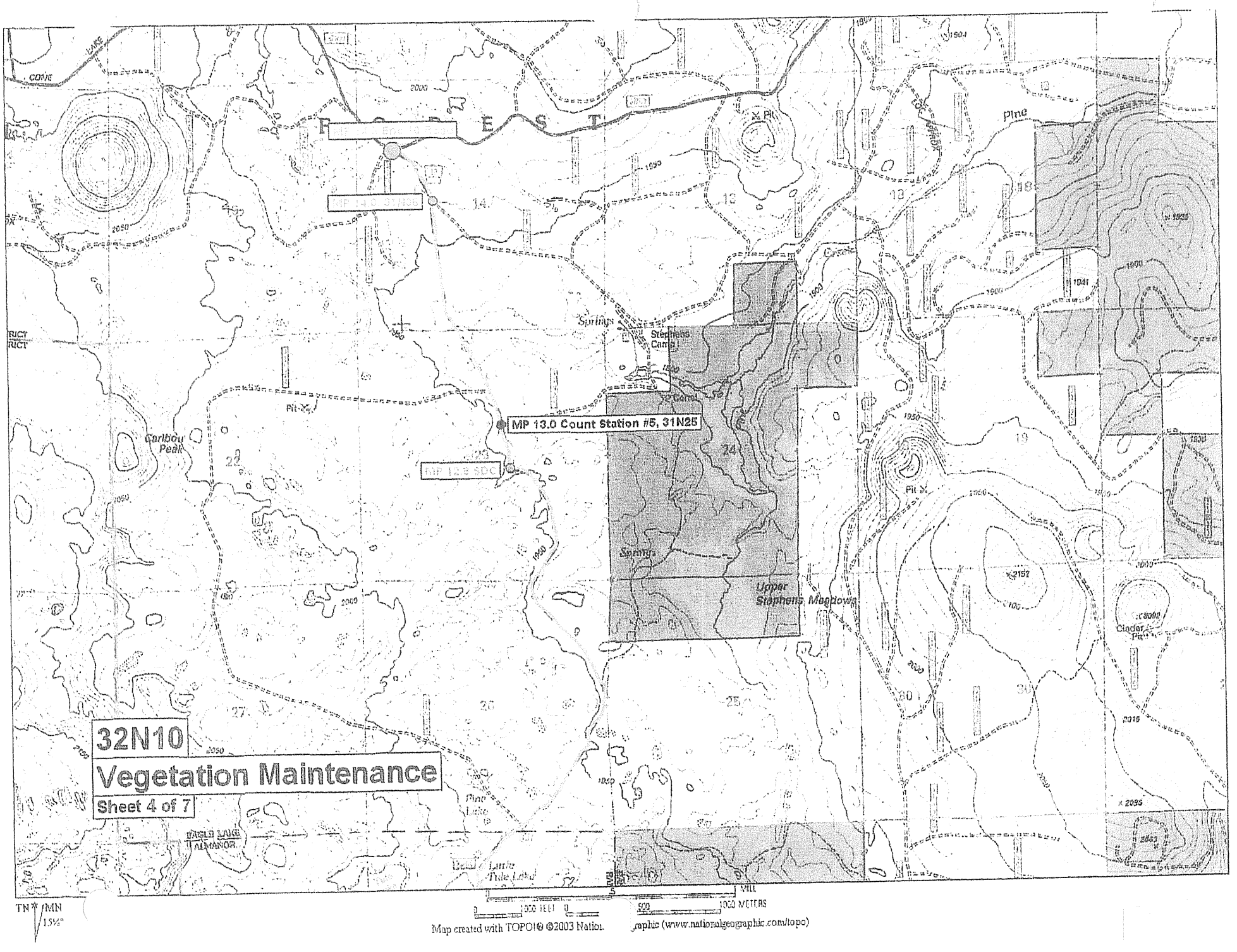
Season of Use June - November Surface Cinders % Street Legal 88 % Non-Street Legal 12

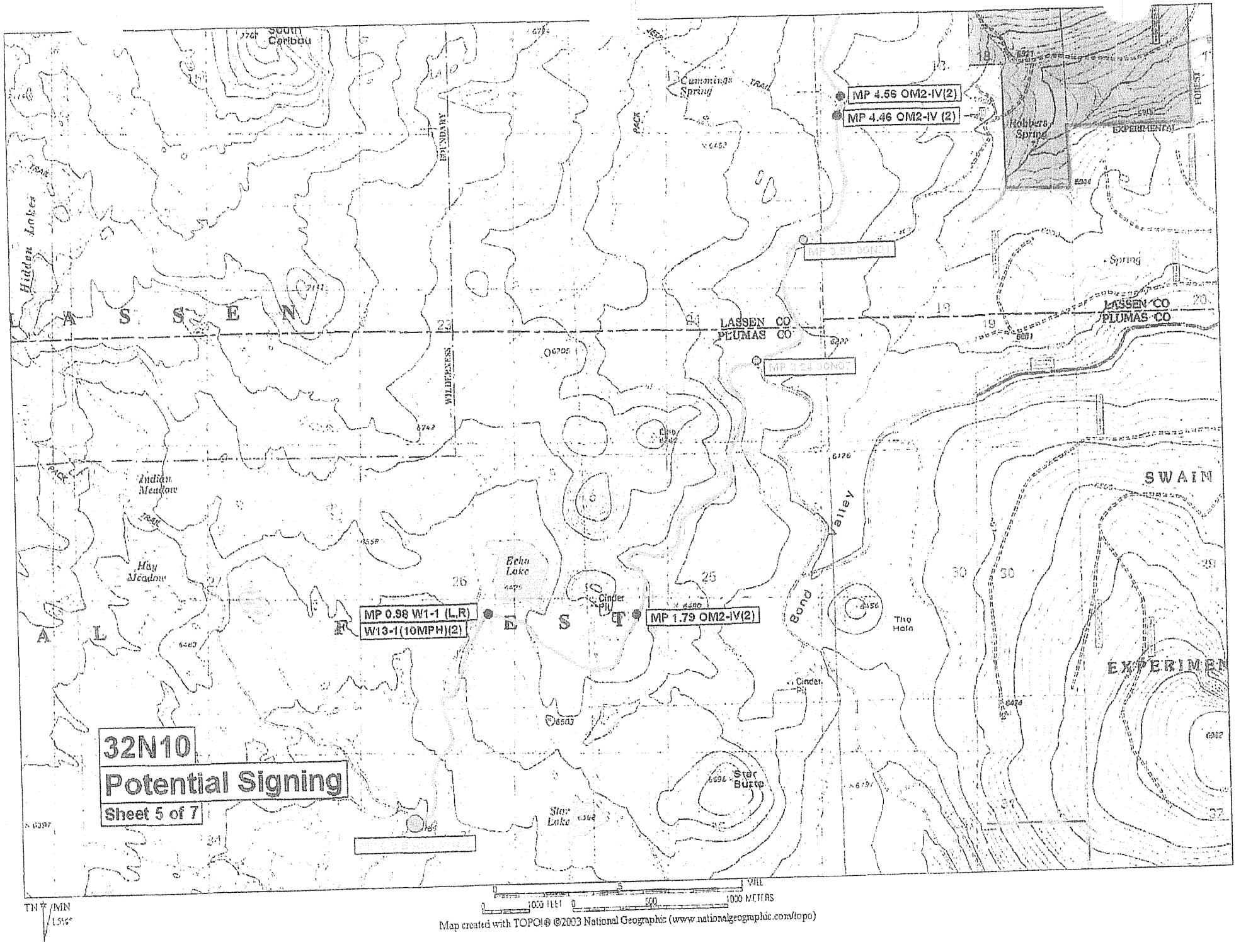
SHARED USE RECOMMENDATION YES
Yes or No

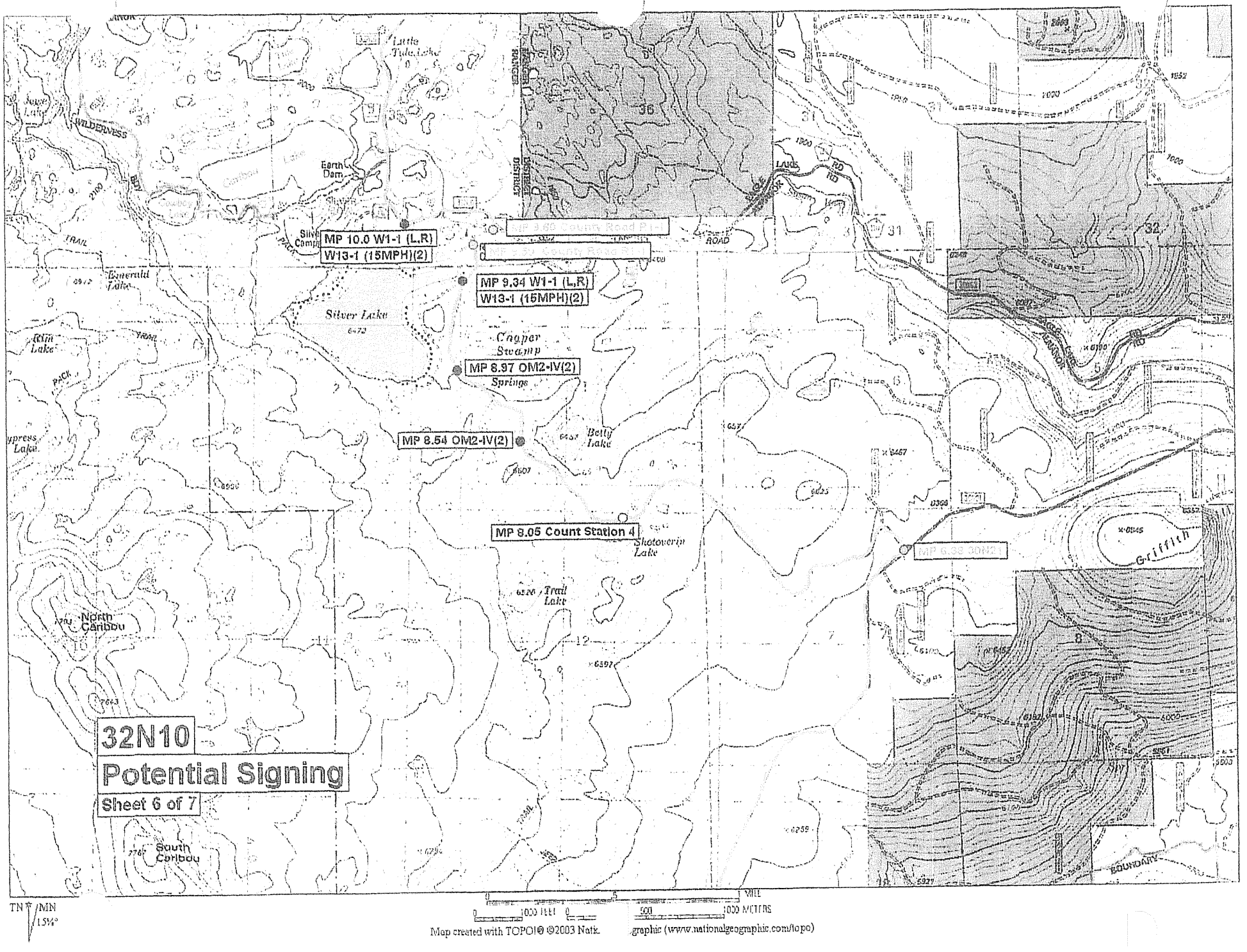
*Mitigation opportunities by milepost, or other pertinent information on following page(s).


32N10
Vegetation Management
Sheet 2 of 7
MP 0.02 Count Station #3
South Caribou
Cummings Spring
Robbers Spring
Hidden Lakes
Indian Meadow
Hay Meadow
Echo Lake
Cinder Pit
Star Butte
Tho Hole
Bond Valley
LASSEN CO
PLUMAS CO
L A S S E N
N A L F O R E S T
WILDERNESS
BOUNDARY
TRAIL
PACK
Map created with TOPO!® ©2003 National Geographic (www.nationalgeographic.com/topo)


32N10
Vegetation Maintenance
Sheet 3 of 7
MP 8.05 Count Station #4
Silver Lake
Copper Swamp
Betty Lake
Shotoverip Lake
Trail Lake
Emerald Lake
Cypress Lake
Rill Lake
Jewel Lake
Little Tule Lake
Earth Dam
Silver Bowl Camp
Rocky Knoll Campground
Springs
North Caribou
South Caribou
WILDERNESS
TRAIL
ROAD
Map created with TOPO!® ©2003 National Geographic (www.nationalgeographic.com/topo)

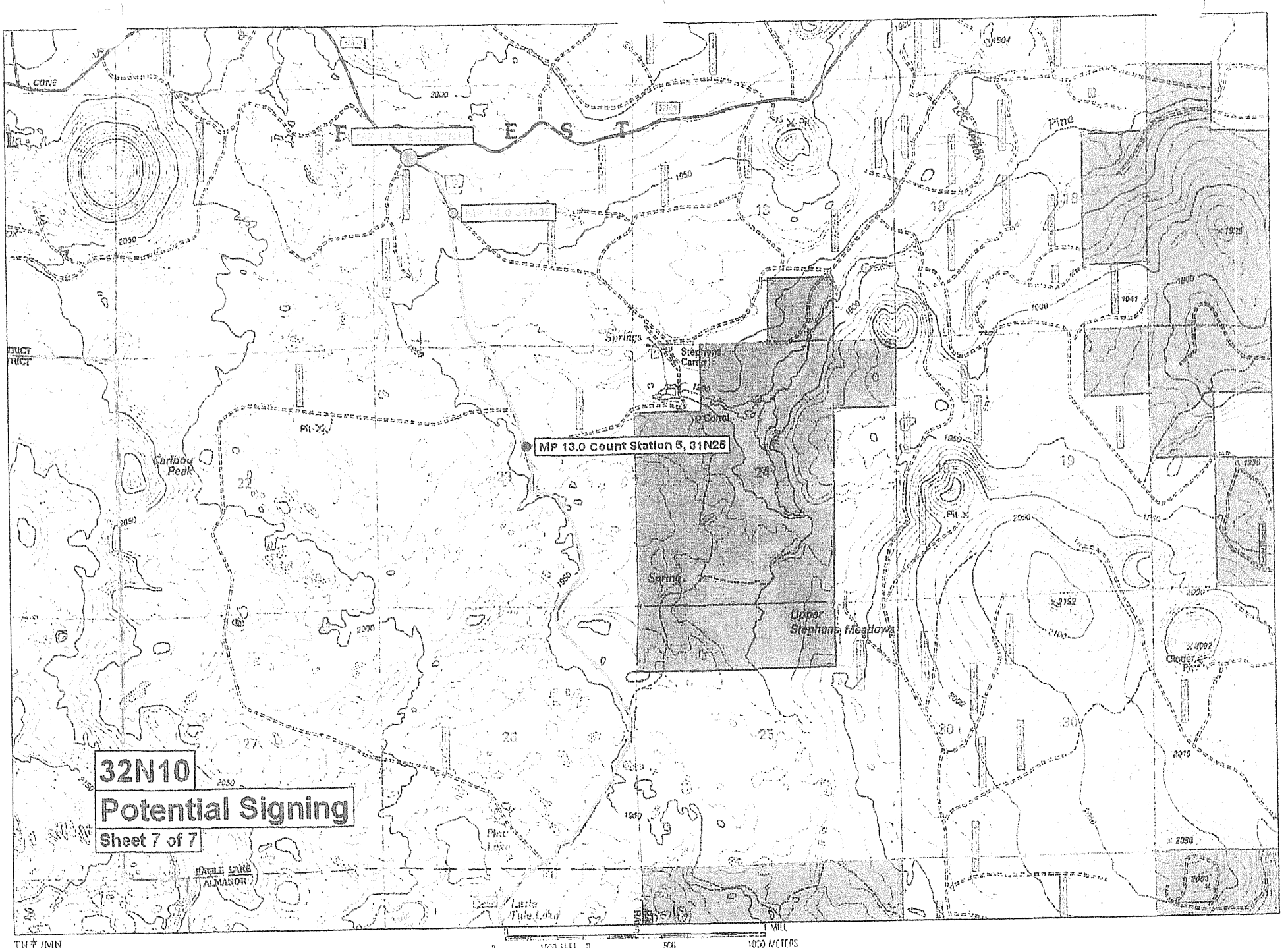

32N10
Vegetation Maintenance
Sheet 4 of 7
MP 13.0 Count Station #5, 31N25
Upper Stephens Meadows
Stephens Camp
Springs
Carlibou Peak
Cinder Pit
Pine
Pit X
TN MN
15½°
1000 FEET
500
1000 METERS
Map created with TOPO! © 2003 National Geographic (www.nationalgeographic.com/topo)


32N10
Potential Signing
Sheet 5 of 7
MP 0.98 W1-1 (L,R)
W13-1(10MPH)(2)
MP 1.79 OM2-IV(2)
MP 4.56 OM2-IV(2)
MP 4.46 OM2-IV (2)
LASSEN CO
PLUMAS CO
LASSEN CO
PLUMAS CO
SWAIN
EXPERIMEN
Cummings Spring
Hobbers Spring
Hidden Lakes
Indian Meadow
Hay Meadow
Echo Lake
Cinder Pit
Star Butte
Star Lake
Bond Valley
The Hole
WILDERNESS
BOUNDARY
South Caribou
TN
MN
1.514°
MILE
1000 METERS
Map created with TOPO!® ©2003 National Geographic (www.nationalgeographic.com/topo)



TN 7°/MN
15¼°

Map created with TOPO!® ©2003 Natic graphic (www.nationalgeographic.com/topo)


32N10
Potential Signing
Sheet 7 of 7
MP 13.0 Count Station 5, 31N25
Caribou Peak
Stephens Camp
Upper Stephens Meadows
Spring
Pine
Glader Pit
Pit X
TN
MN
15½°
1000 FEET
500
1000 METERS
Map created with TOPO!® ©2003 National Geographic (www.nationalgeographic.com/topo)

Traffic Engineer Shared Use Assessment Lassen National Forest Summer 2005

Road Number 32N09 BCDT Segment Number 14 Length 7.73 Sheet 1 of 5

Maint. Level: Objective 3 Operational 3 Observed June–August 2005 2 Functional Class C Service Level B

Probability of an Accident	Benchmark Rankings		Summary 2005 Observations	Assessed Rankings		
	High	Low		H	M	L
Crash History	Several Crashes	None Known	None Known			L
Average Daily Traffic (ADT)	>150	30 or less	Count Sta. 5, 11.19			L
User Knowledge	Not Acquainted	Well Acquainted	Unknown		M	
Average Speed (MPH)	>40	25 or less	20			L
Cross Section Changes	Changes	None Abrupt	None Abrupt			L
Surface Type Changes	Changes	No changes	None			L
Curvature	Abrupt	Smooth	Smooth *			L
Road Widths (Feet)	Variable	Uniform	Basically Uniform @ 15' *			L

Overall Probability Assessed Ranking Low

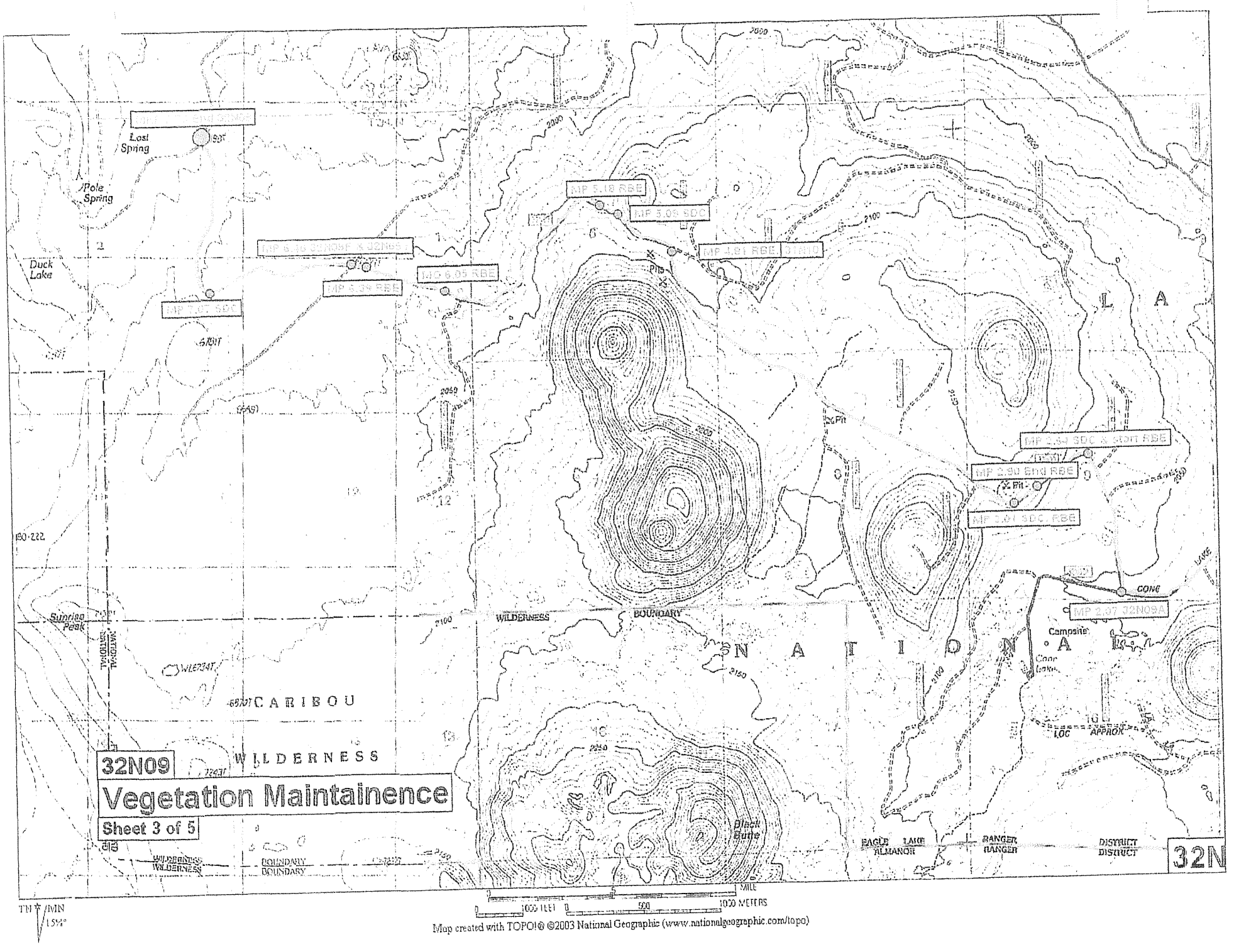
Severity of an Accident	Benchmark Rankings		Summary 2005 Observations	Assessed Rankings		
	High	Low		H	M	L
Average Speed (MPH)	>40	25 or Less	20			L
Clearance from Hazards	Little or none	Adequate	Adequate *			L
Alignment & Sight Distance	Poor	Adequate	Adequate *			L
Roadway Gradient	>12%	<12%	<12%			L
Downhill Side Slopes	>60%	<40%	<40%			L
Radical Speed Changes	Many	Few	Few *			L
Multi-passenger Vehicles	Buses	Cars, SUVs	Cars, SUVs			L

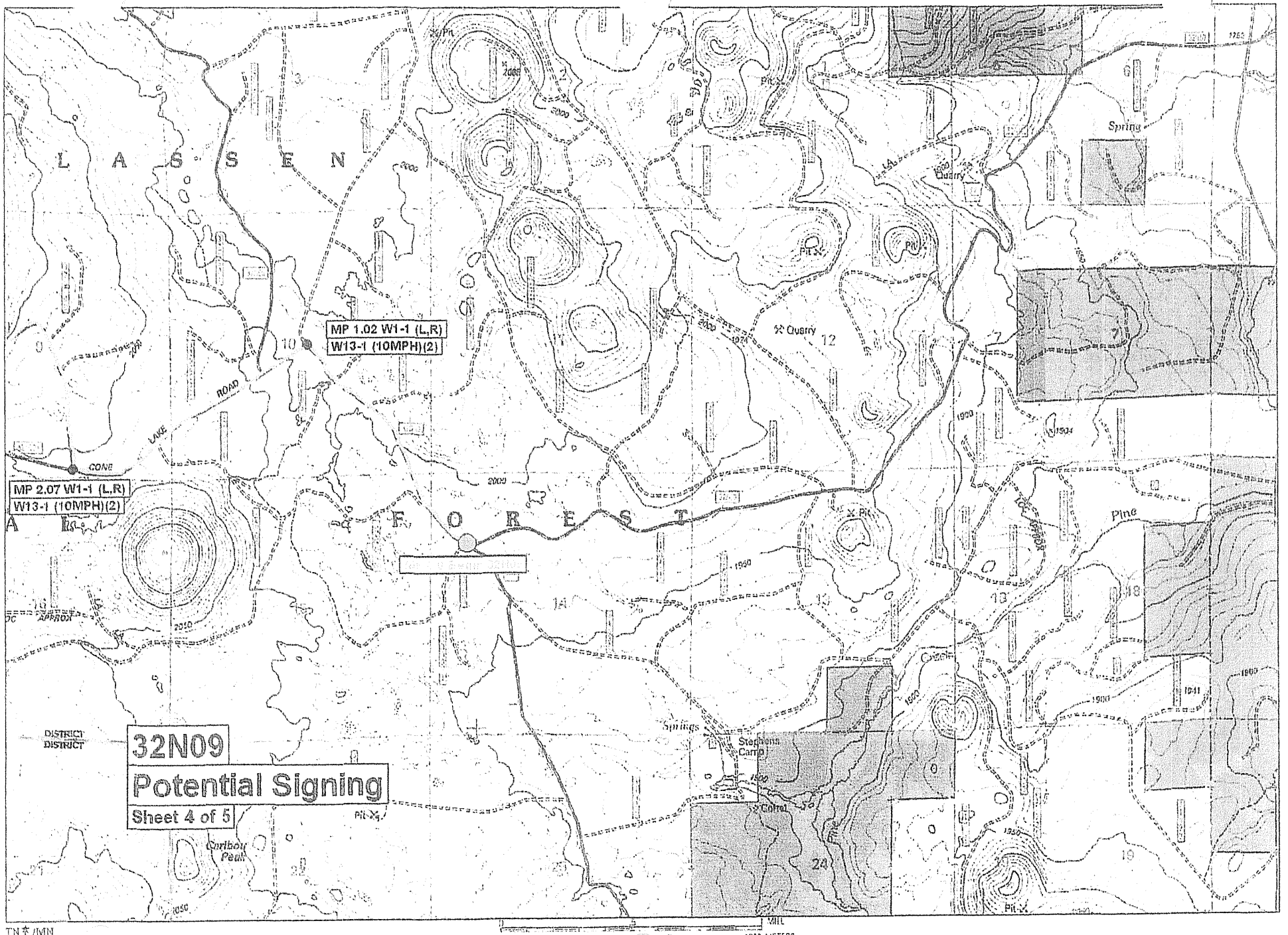
Overall Severity Assessed Ranking Low

Season of Use June - November Surface Cinders % Street Legal 87 % Non-Street Legal 13

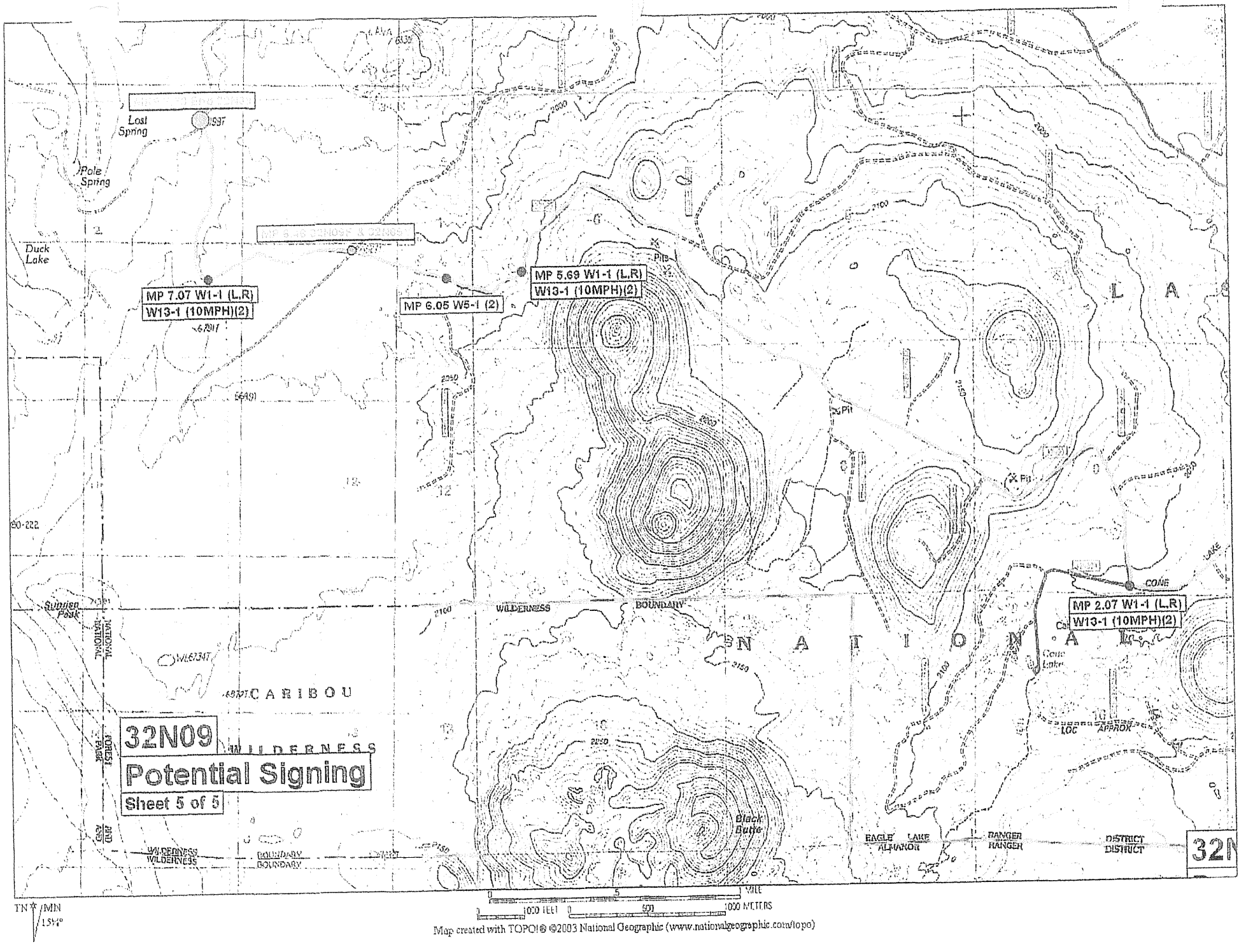
SHARED USE RECOMMENDATION Yes (Yes or No)

*Mitigation opportunities by milepost, or other pertinent information on following page(s).


32N09
Vegetation Maintainence
Sheet 3 of 5
Lost Spring
Pole Spring
Duck Lake
Sunrise Peak
CARIBOU
WILDERNESS
BOUNDARY
NATIONAL
TAHOE
Black Bone
Campsite
Coon Lake
CONE
LOC APPROX
EAGLE LAKE RANGER DISTRICT
ALMANOR RANGER DISTRICT
32N
MP 5.18 RBE
MP 5.05 SDC
MP 4.81 RBE
MP 5.05 RBE
MP 5.39 RBE
MP 2.80 End RBE
MP 2.81 SDC RBE
MP 2.97 32N09A
Pits
TN ★ /MN
15½°
MILE
1000 METERS
500
Map created with TOPO!® ©2003 National Geographic (www.nationalgeographic.com/topo)



Map created with TOPO!® ©2003 Nation phic (www.nationalgeographic.com/topo)



Map created with TOPO!® ©2003 National Geographic (www.nationalgeographic.com/topo)

Traffic Engineer Shared Use Assessment ssen National Forest Summer 2005

Road Number 32N21 BCDT Segment Number 15 Length 0.36 Sheet 1 of 3

Maint. Level: Objective 3 Operational 3 Observed June–August 2005 3 Functional Class C Service Level B

Probability of an Accident	Benchmark Rankings		Summary 2005 Observations	Assessed Rankings		
	High	Low		H	M	L
Crash History	Several Crashes	None Known	None Known			L
Average Daily Traffic (ADT)	>150	30 or less	Butte Lake Rd No count Est +/- 30			L
User Knowl	cquainted	Well Acquainted	Unknown		M	
Average Sp		25 or less	20			L
Cross Sectl	ges	None Abrupt	None Abrupt			L
Surface Typ	ges	No changes	None			L
Curvature	ot	Smooth	Smooth			L
Road Width (feet)	ariable	Uniform	Uniform @ 24'			L

Per LUNP
ADT June - Aug
25

Overall Probability Assessed Ranking Low

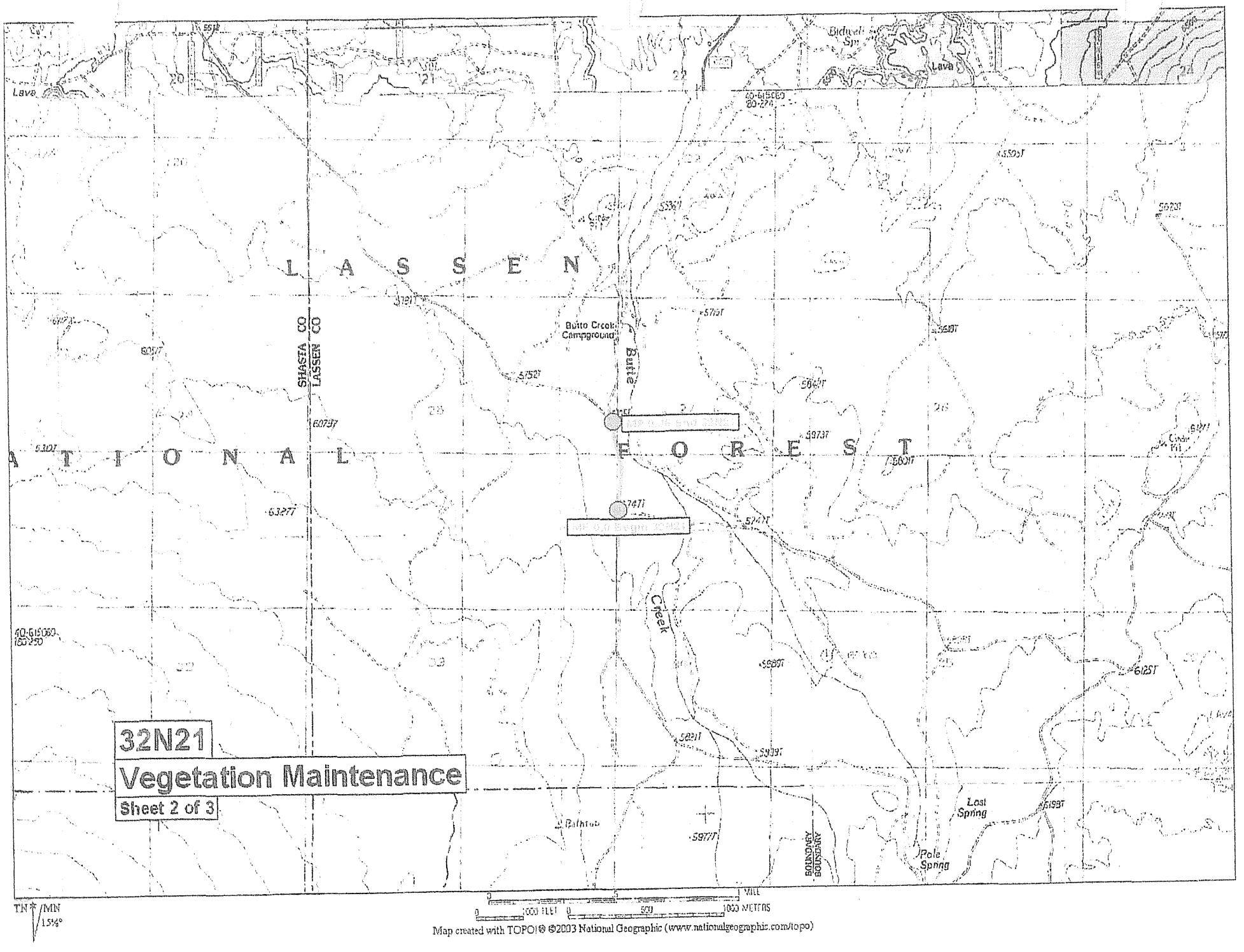
Severity of an Accident	Benchmark Rankings		Summary 2005 Observations	Assessed Rankings		
	High	Low		H	M	L
Average Speed (MPH)	>40	25 or Less	20			L
Clearance from Hazards	Little or none	Adequate	Adequate			L
Alignment & Sight Distance	Poor	Adequate	Adequate			L
Roadway Gradient	>12%	<12%	<12%			L
Downhill Side Slopes	>60%	<40%	<40%			L
Radical Speed Changes	Many	Few	Few (None)			L
Multi-passenger Vehicles	Buses	Cars, SUVs	Cars, SUVs			L

Overall Severity Assessed Ranking Low

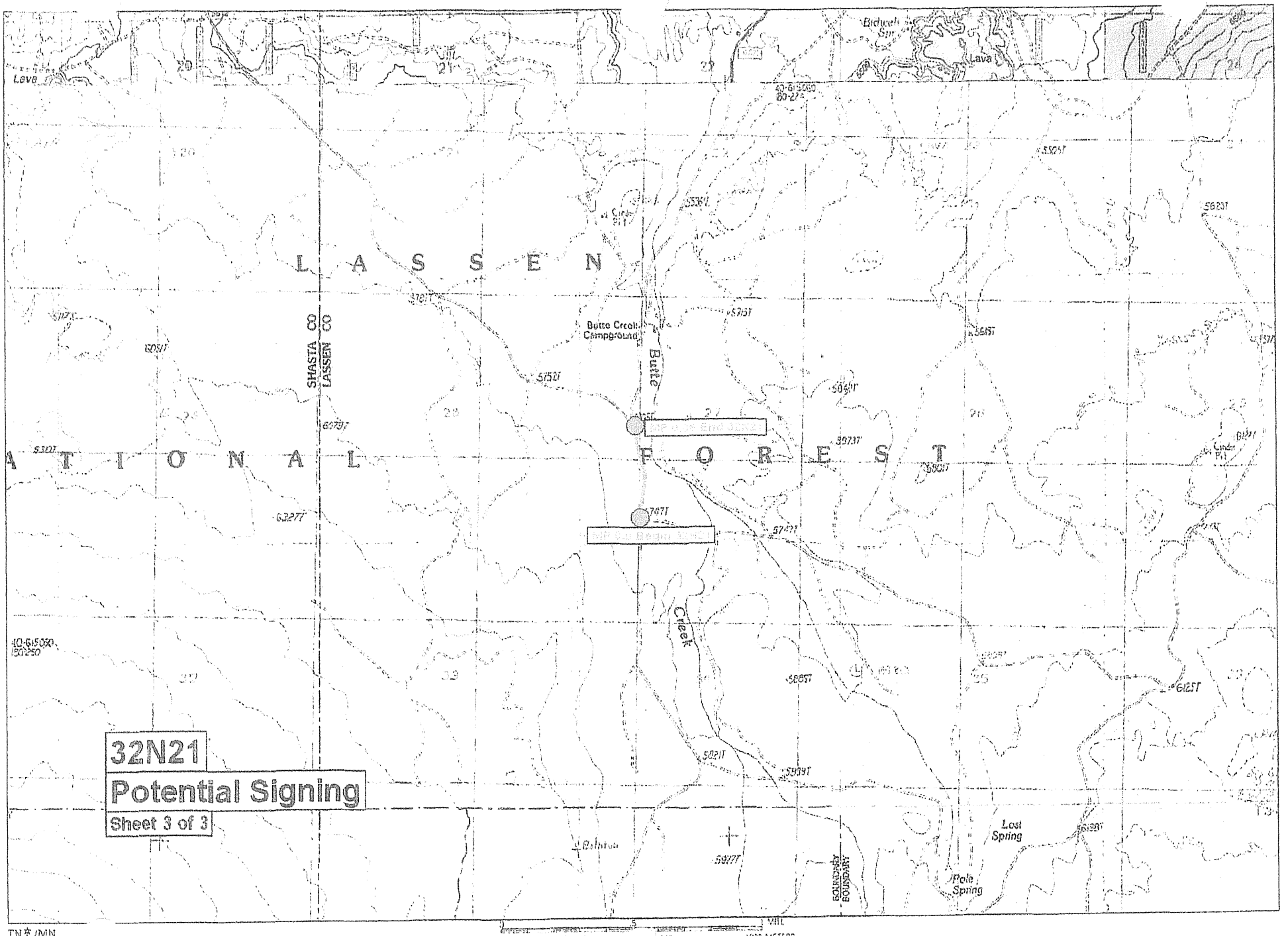
Season of Use May - November Surface Aggregate % Street Legal Est 95 % Non-Street Legal 5%

SHARED USE RECOMMENDATION YES
Yes or No

*Mitigation opportunities by milepost, or other pertinent information llowing page(s).



Map created with TOPO!® ©2003 National Geographic (www.nationalgeographic.com/topo)


32N21
Potential Signing
Sheet 3 of 3
L A S S E N
A T I O N A L F O R E S T
SHASTA CO
LASSEN CO
Butte Creek Campground
Butte
Creek
Lava
Lost Spring
Pole Spring
BOUNDARY
TN
MN
1000 FEET
1000 METERS
Map created with TOPO!® ©2003 National Geographic (www.nationalgeographic.com/topo)

Traffic Engineer Shared Use Assessment ssen National Forest Summer 2005

Sheet 1 of 3

Road Number 32N12 BCDT Segment Number 19 Length 0.24

Functional Class L Service Level B

Maint. Level: Objective 3 Operational 3 Observed June–August 2005 2

Probability of an Accident	Benchmark Rankings		Summary 2005 Observations	Assessed Rankings		
	High	Low		H	M	L
Crash History	Several Crashes	None Known	None Known			L
Average Daily Traffic (ADT)	>150	30 or less	Average Sta. (8+9) 16.17			L
User Knowledge	Not Acquainted	Well Acquainted	Unknown		M	
Average Speed (MPH)	>40	25 or less	10			L
Cross Section Changes	Changes	None Abrupt	None Abrupt			L
Surface Type Changes	Changes	No changes	None			L
Curvature	Abrupt	Smooth	Smooth *			L
Road Widths (Feet)	Variable	Uniform	Uniform @ 14 *			L

Overall Probability Assessed Ranking Low

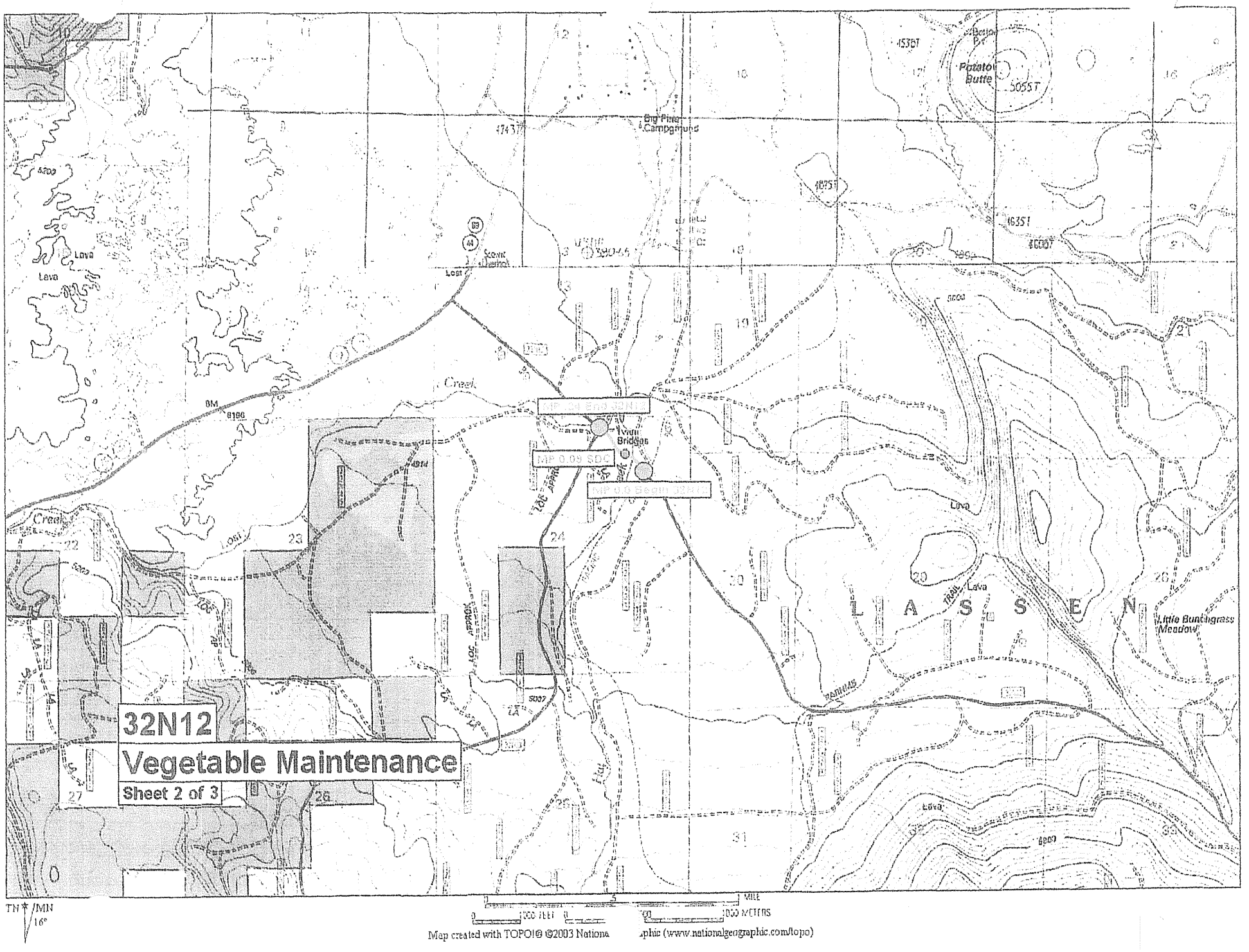
Severity of an Accident	Benchmark Rankings		Summary 2005 Observations	Assessed Rankings		
	High	Low		H	M	L
Average Speed (MPH)	>40	25 or Less	10			L
Clearance from Hazards	Little or none	Adequate	Adequate *			L
Alignment & Sight Distance	Poor	Adequate	Adequate *			L
Roadway Gradient	>12%	<12%	<12%			L
Downhill Side Slopes	>60%	<40%	<40% (0-10)			L
Radical Speed Changes	Many	Few	Few (None)			L
Multi-passenger Vehicles	Buses	Cars, SUVs	Cars, SUV's			L

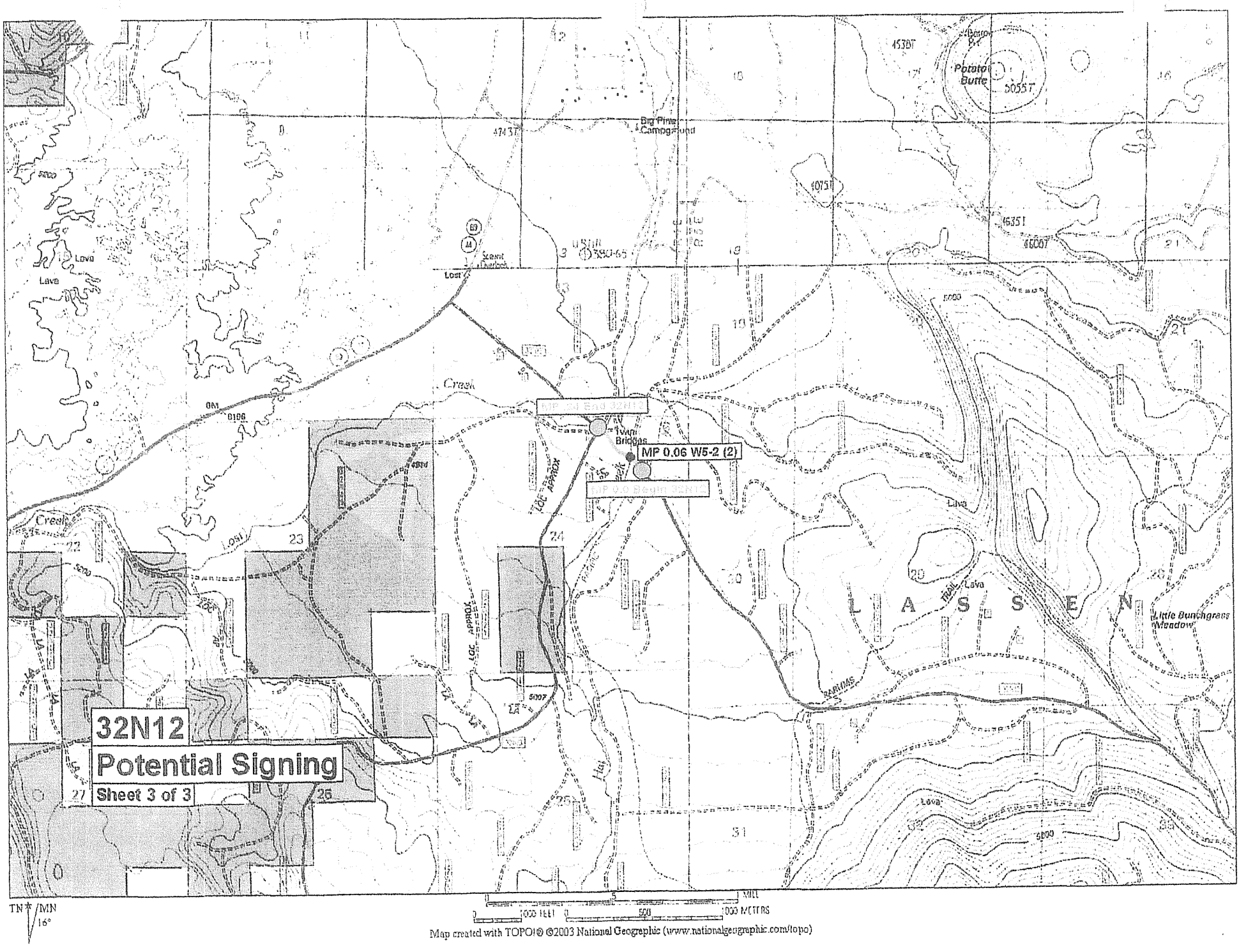
Overall Severity Assessed Ranking Low

Season of Use May-November Surface Cinders % Street Legal 83 % Non-Street Legal 17

SHARED USE RECOMMENDATION YES
Yes or No

*Mitigation opportunities by milepost, or other pertinent information on following page(s).


32N12
Vegetable Maintenance
Sheet 2 of 3
Big Pine Campground
Potato Butte
Lava
Creek
Lost
Scenic Overlook
Little Bunchgrass Meadow
L A S S E N
TN
MN
16°
Map created with TOPO!® ©2003 National Geographic (www.nationalgeographic.com/topo)



Map created with TOPO!® ©2003 National Geographic (www.nationalgeographic.com/topo)

Traffic Engineer Shared Use Assessment ..sen National Forest **Summer 2005**

Road Number 32N13 BCDT Segment Number 19 Length 7.49 Sheet 1 of 5

Maint. Level: Objective 2 Operational 3 Observed June–August 2005 2 [Signed as level 2] Functional Class L Service Level C

Probability of an Accident	Benchmark Rankings		Summary 2005 Observations	Assessed Rankings		
	High	Low		H	M	L
Crash History	Several Crashes	None Known	None Known			L
Average Daily Traffic (ADT)	>150	30 or less	Average Sta 8.9 16.17			L
User Knowledge	Not Acquainted	Well Acquainted	Unknown		M	
Average Speed (MPH)	>40	25 or less	20			L
Cross Section Changes	Changes	None Abrupt	None Abrupt			L
Surface Type Changes	Changes	No changes	None			L
Curvature	Abrupt	Smooth	Smooth			L
Road Widths (Feet)	Variable	Uniform	Uniform @ 16' *			L

Overall Probability Assessed Ranking Low

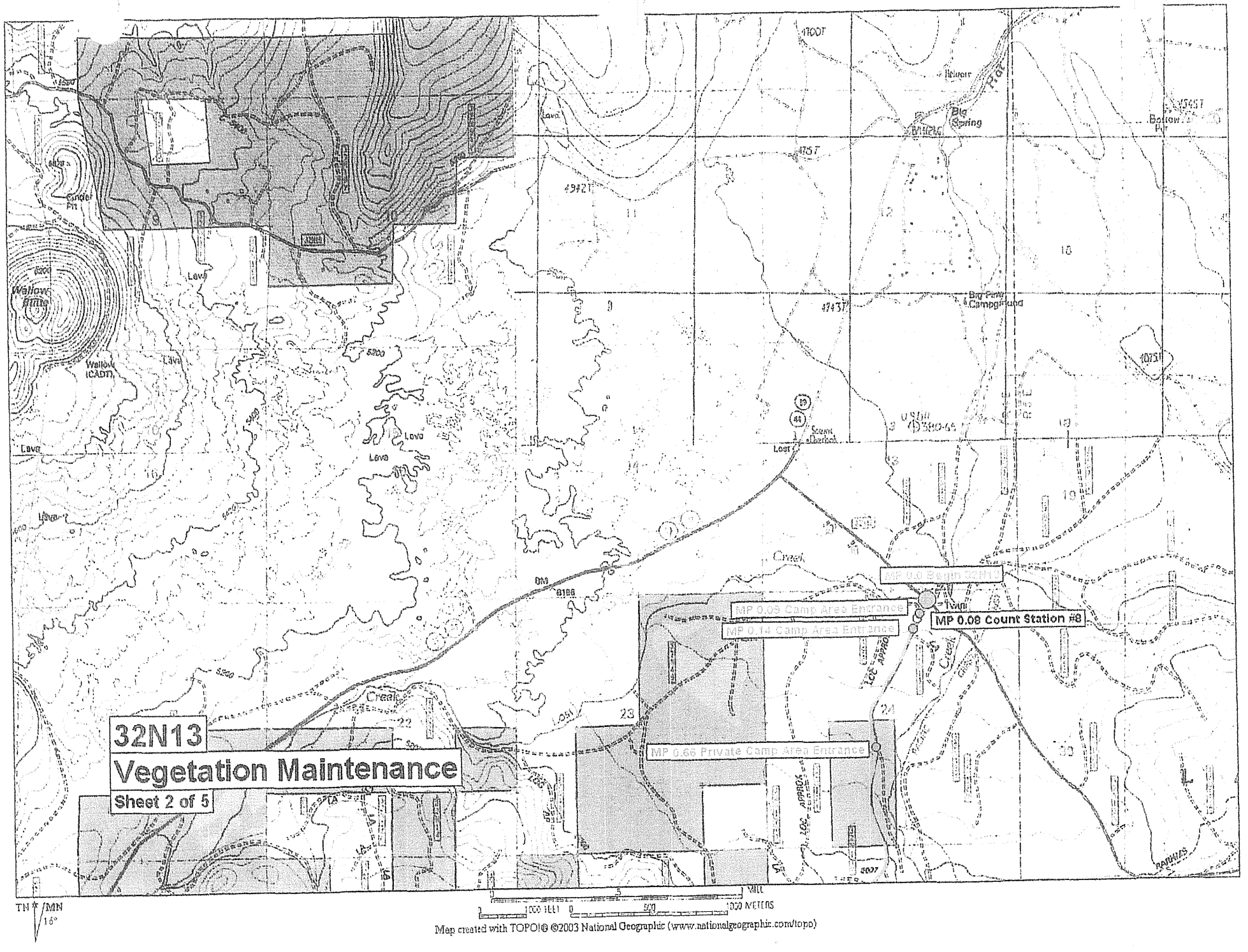
Severity of an Accident	Benchmark Rankings		Summary 2005 Observations	Assessed Rankings		
	High	Low		H	M	L
Average Speed (MPH)	>40	25 or Less	20			L
Clearance from Hazards	Little or none	Adequate	Adequate *			L
Alignment & Sight Distance	Poor	Adequate	Adequate *			L
Roadway Gradient	>12%	<12%	<12%			L
Downhill Side Slopes	>60%	<40%	<40%			L
Radical Speed Changes	Many	Few	Few			L
Multi-passenger Vehicles	Buses	Cars, SUVs	Cars, SUVs			L

Overall Severity Assessed Ranking Low

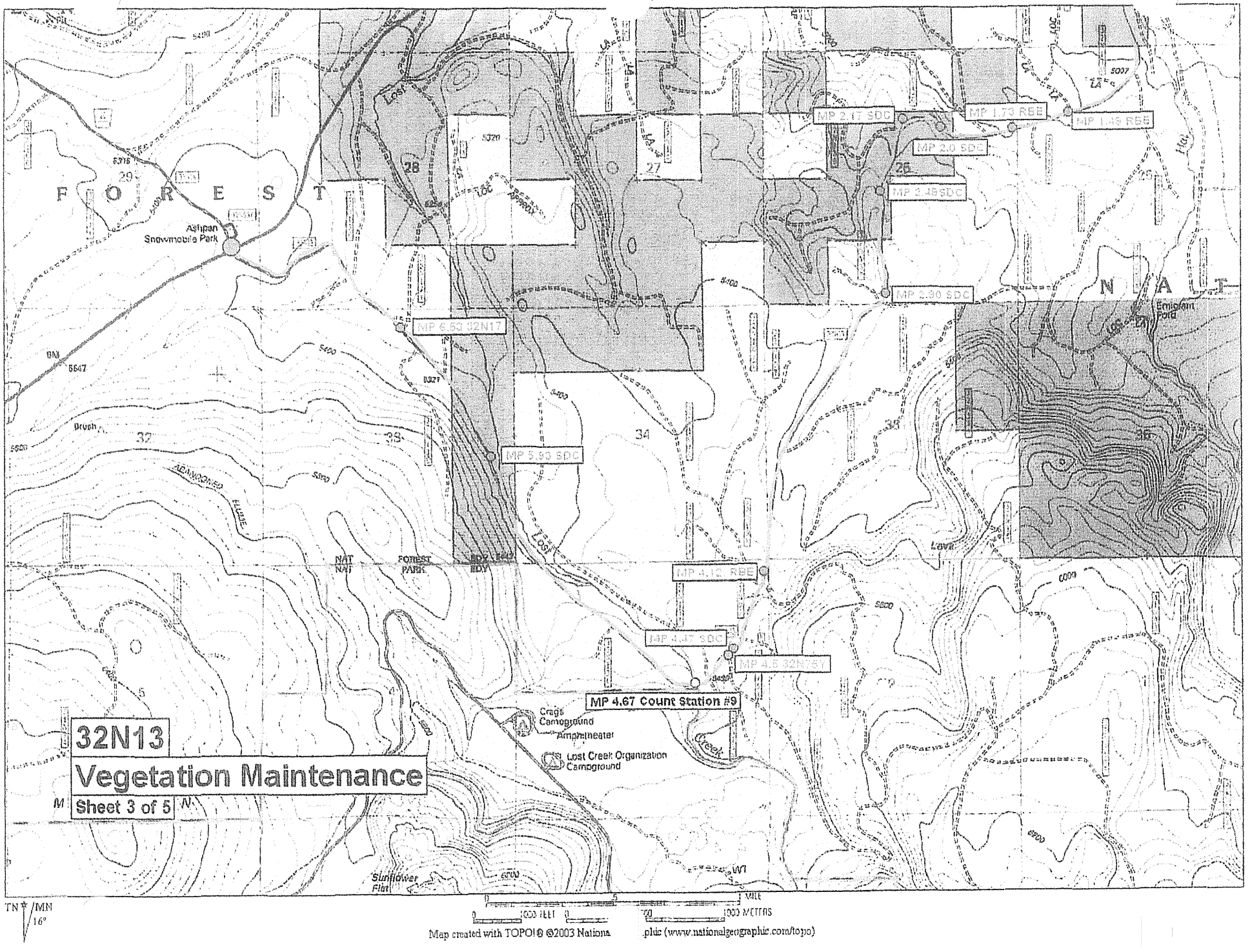
Season of Use May-November Surface Cinders % Street Legal 83 % Non-Street Legal 17

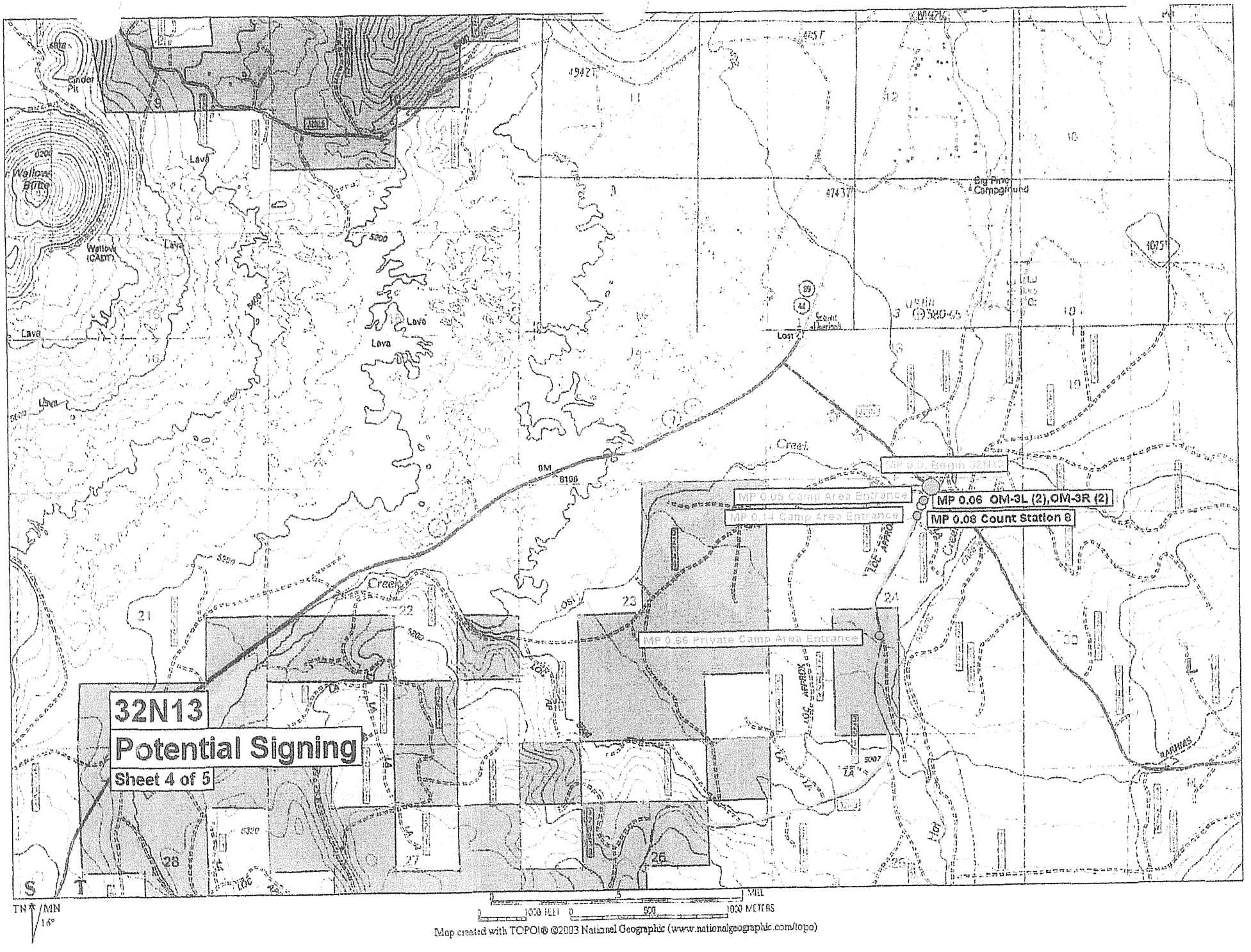
SHARED USE RECOMMENDATION YES
Yes or No

*Mitigation opportunities by milepost, or other pertinent information on f ..ing page(s).

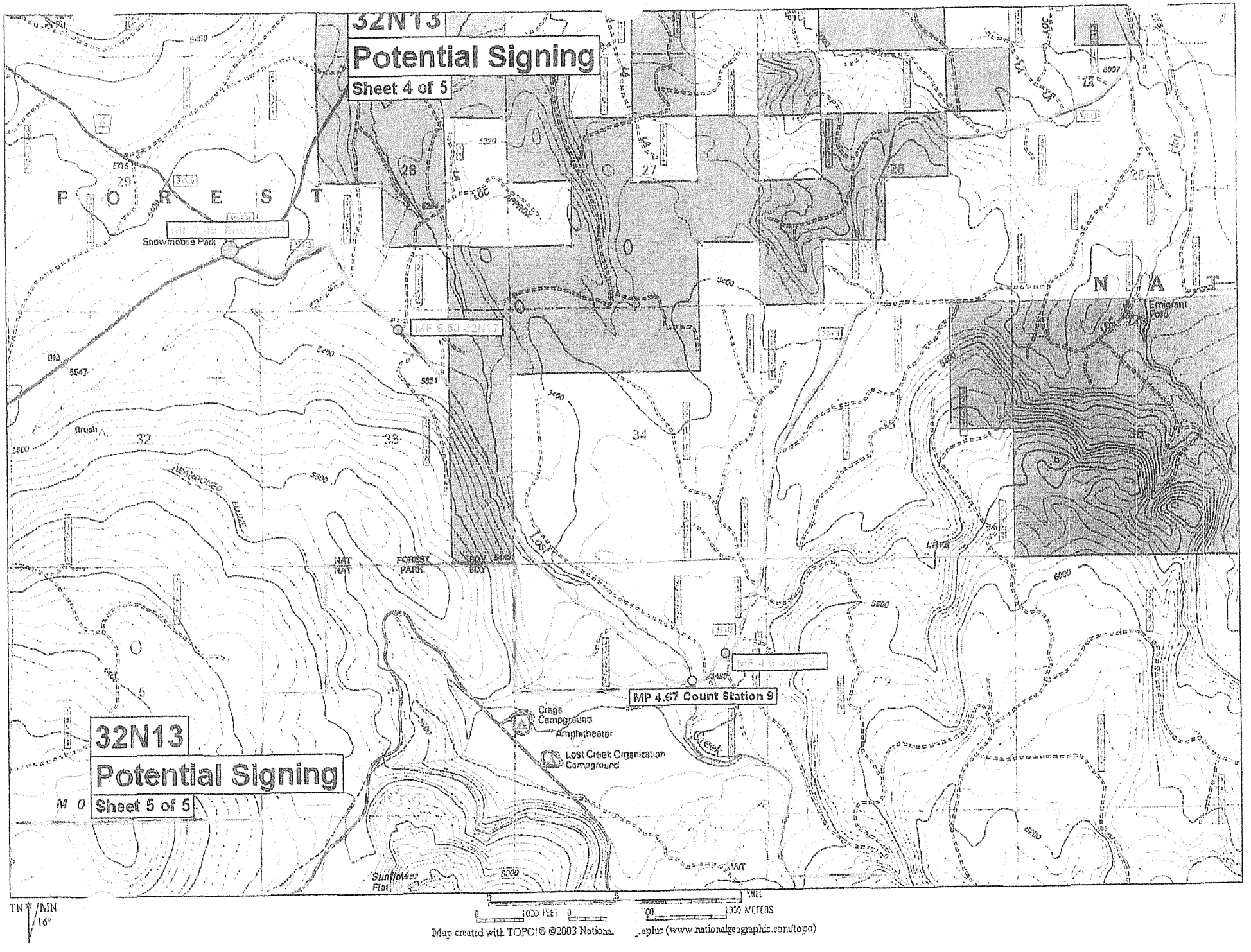


Map created with TOPO!® ©2003 National Geographic (www.nationalgeographic.com/topo)


32N13
Vegetation Maintenance
Sheet 3 of 5
MP 4.67 Count Station #9
MP 2.17 SDC
MP 1.73 RBE
MP 1.49 RBE
MP 2.0 SDC
MP 2.48 SDC
MP 2.90 SDC
MP 6.53 32N17
MP 5.90 SDC
MP 4.12 RBE
MP 4.47 SDC
MP 4.6 32N16Y
Ashpan Snowmobile Park
Crags Campground
Amphitheater
Lost Creek Organization Campground
Emigrant Ford
Sunflower Flat
Lost Creek
Lava
Brush
ABANDONED FLUME
NAT NAT
FOREST PARK
F O R E S T
N A T
TN
MN
16°
MILE
1000 FEET
1000 METERS
Map created with TOPO!® ©2003 National Geographic (www.nationalgeographic.com/topo)



Map created with TOPO!® ©2003 National Geographic (www.nationalgeographic.com/topo)


32N13
Potential Signing
Sheet 4 of 5
32N13
Potential Signing
Sheet 5 of 5
F O R E S T
N A T
Snowmobile Park
MP 7.45 End 32N13
MP 6.53 32N17
MP 4.67 Count Station 9
Crags Campground
Amphitheater
Lost Creek Organization Campground
Emigrant Ford
Sunflower Flat
Lost Creek
Lava
Creek
Abandoned Road
Trail
Brush
Hot
TN
MN
16°
1000 FEET
300 METERS
Map created with TOPO!® ©2003 National Geographic (www.nationalgeographic.com/topo)

Traffic Engineer Shared Use Assessment ...ssen National Forest Summer 2005

Road Number 16 (32N16) BCDT Segment Number 20 Length 3.40 Sheet 1 of 3

Maint. Level: Objective 4 Operational 3 Observed June-August 2005 2 Functional Class C Service Level B

Probability of an Accident	Benchmark Rankings		Summary 2005 Observations	Assessed Rankings		
	High	Low		H	M	L
Crash History	Several Crashes	None Known	None Known			L
Average Daily Traffic (ADT)	>150	30 or less	Countsta (10) 13.62			L
User Knowledge	Not Acquainted	Well Acquainted	Unknown		M	
Average Speed (MPH)	>40	25 or less	24			L
Cross Section Changes	Changes	None Abrupt	None Abrupt			L
Surface Type Changes	Changes	No changes	None			L
Curvature	Abrupt	Smooth	Smooth			L
Road Widths (Feet)	Variable	Uniform	Uniform @ 18'			L

Overall Probability Assessed Ranking Low

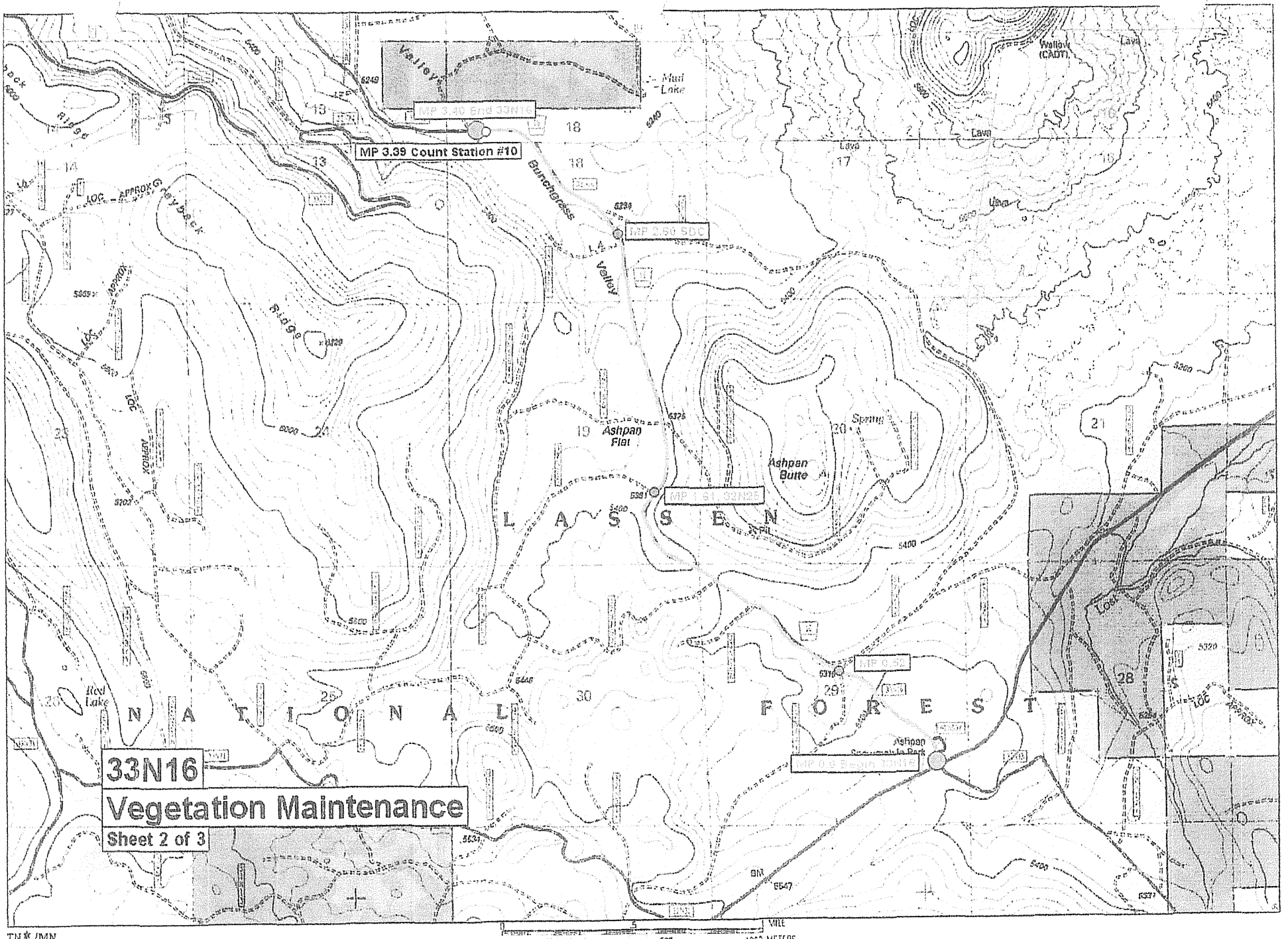
Severity of an Accident	Benchmark Rankings		Summary 2005 Observations	Assessed Rankings		
	High	Low		H	M	L
Average Speed (MPH)	>40	25 or Less	20			L
Clearance from Hazards	Little or none	Adequate	Adequate			L
Alignment & Sight Distance	Poor	Adequate	Adequate *			L
Roadway Gradient	>12%	<12%	<12%			L
Downhill Side Slopes	>60%	<40%	<40			L
Radical Speed Changes	Many	Few	Few (None)			L
Multi-passenger Vehicles	Buses	Cars, SUVs	Cars, SUV's			L

Overall Severity Assessed Ranking Low

Season of Use May-November Surface Cinders % Street Legal 77 % Non-Street Legal 23

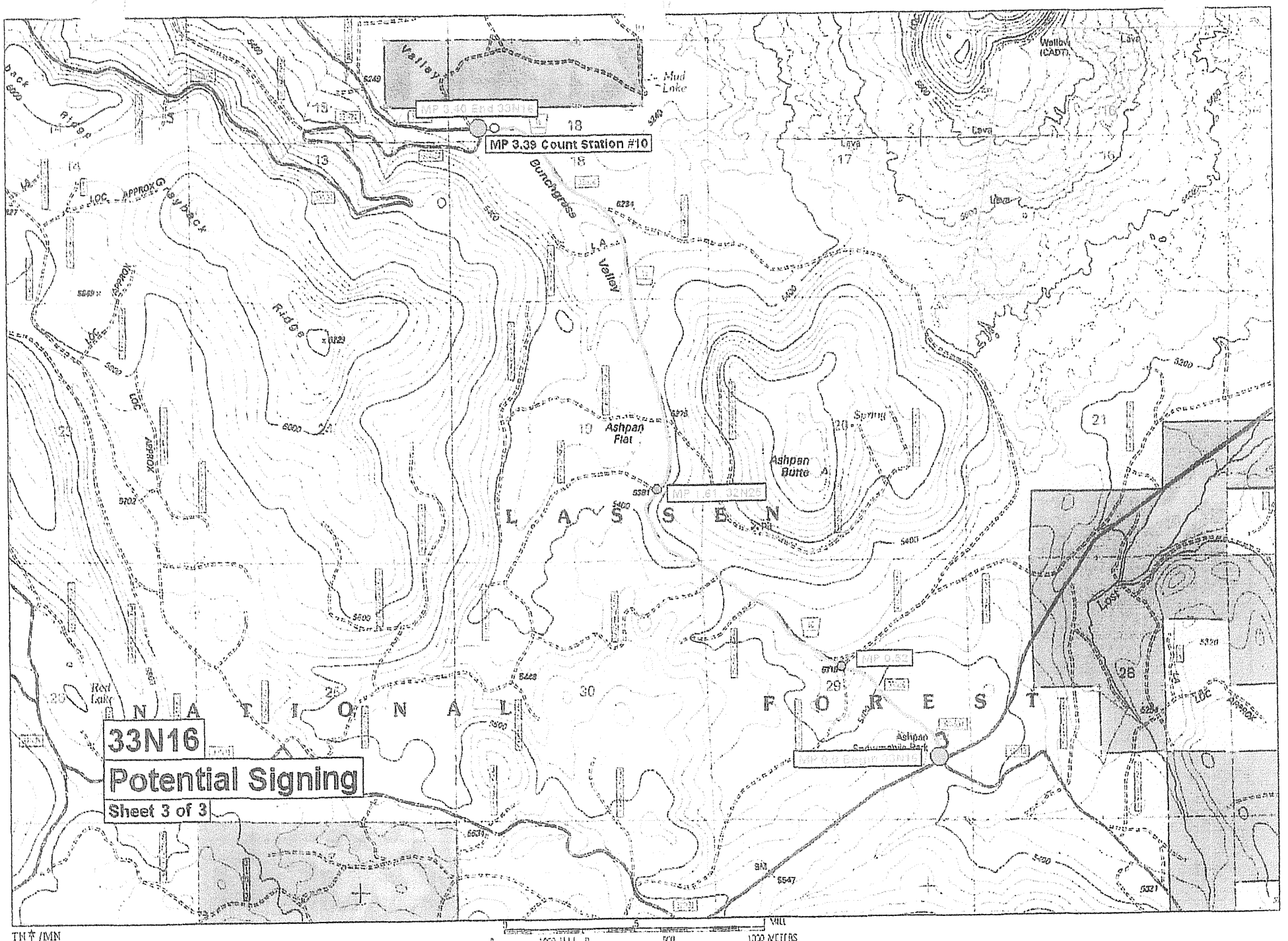
SHARED USE RECOMMENDATION Yes
Yes or No

*Mitigation opportunities by milepost, or other pertinent information on following page(s).



TN 16° /MN

Map created with TOPO!© ©2003 Natio... ...aphic (www.nationalgeographic.com/topo)



Map created with TOPO!® ©2003 National Geographic (www.nationalgeographic.com/topo)

Traffic Engineer Shared Use Assessment .ssen National Forest Summer 2005

Road Number 32N24 BCDT Segment Number 14 Length 7.90 Sheet 1 of 3

Maint. Level: Objective 3 Operational 3 Observed June–August 2005 2 Functional Class L Service Level C

Probability of an Accident	Benchmark Rankings		Summary 2005 Observations	Assessed Rankings		
	High	Low		H	M	L
Crash History	Several Crashes	None Known	None Known			L
Average Daily Traffic (ADT)	>150	30 or less	Count Sta (11) 13.95			L
User Knowledge	Not Acquainted	Well Acquainted	Unknown		M	
Average Speed (MPH)	>40	25 or less	18			L
Cross Section Changes	Changes	None Abrupt	None Abrupt			L
Surface Type Changes	Changes	No changes	None			L
Curvature	Abrupt	Smooth	Smooth *			L
Road Widths (Feet)	Variable	Uniform	Uniform @ 14'			L

Overall Probability Assessed Ranking Low

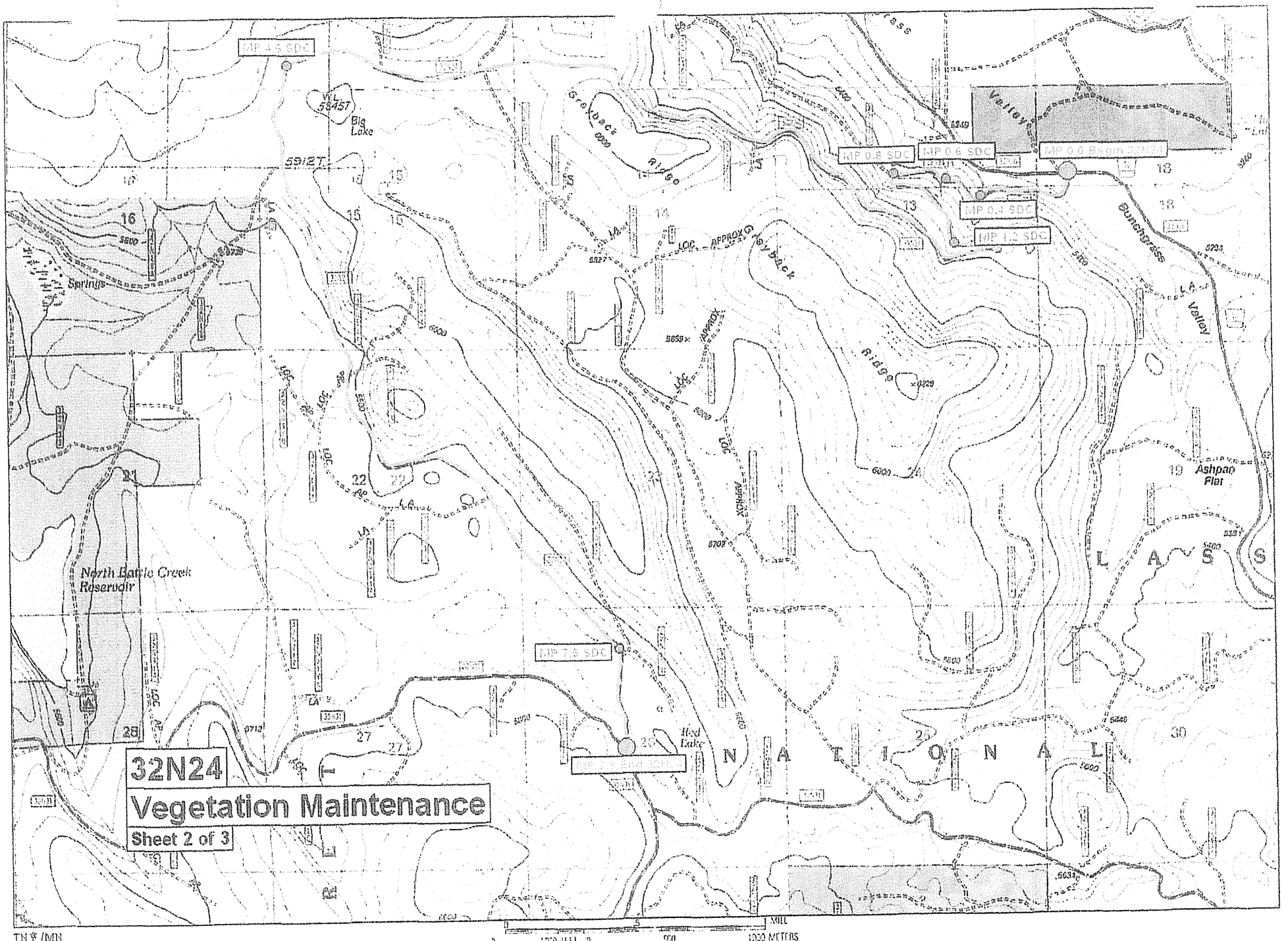
Severity of an Accident	Benchmark Rankings		Summary 2005 Observations	Assessed Rankings		
	High	Low		H	M	L
Average Speed (MPH)	>40	25 or Less	18			L
Clearance from Hazards	Little or none	Adequate	Adequate *			L
Alignment & Sight Distance	Poor	Adequate	Adequate *			L
Roadway Gradient	>12%	<12%	<12%			L
Downhill Side Slopes	>60%	<40%	<40%			L
Radical Speed Changes	Many	Few	Few			L
Multi-passenger Vehicles	Buses	Cars, SUVs	Cars, SUVs			L

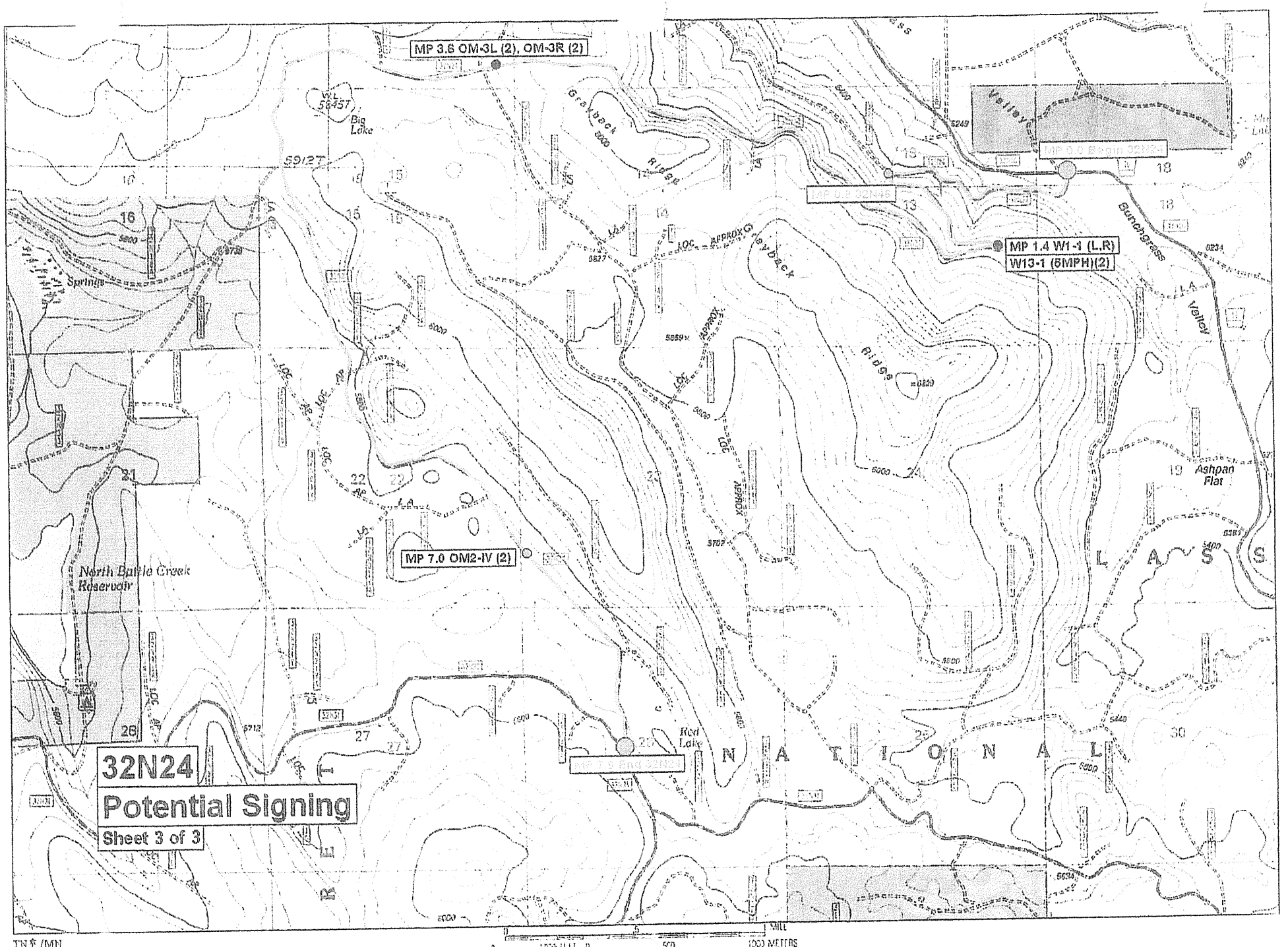
Overall Severity Assessed Ranking Low

Season of Use June-November Surface Cinders % Street Legal 95 % Non-Street Legal 5

SHARED USE RECOMMENDATION YES
Yes or No

*Mitigation opportunities by milepost, or other pertinent information on wing page(s).


32N24
Vegetation Maintenance
Sheet 2 of 3
MP 1.5 SDC
MP 0.8 SDC
MP 0.6 SDC
MP 0.0 Begin 32N24
MP 0.4 SDC
MP 1.2 SDC
MP 7.5 SDC
Big Lake
Red Lake
North Battle Creek Reservoir
Springs
Ashpan Flat
Bunchgrass Valley
Grayback Ridge
Grayback Ridge
Valley
LOC APPROX
NATIONAL
LASS
TN 16° /MN
Map created with TOPO!® ©2003 National Geographic (www.nationalgeographic.com/topo)



TN 16° MN

Map created with TOPO!© ©2003 National Geographic (www.nationalgeographic.com/topo)

Traffic Engineer Shared Use Assessment **Lassen National Forest** **Summer 2005**

Road Number 32N31 BCDT Segment Number 14 Length 0.30 Sheet 1 of 3

Maint. Level: Objective 3 Operational 3 Observed June–August 2005 2 Functional Class L Service Level C

Probability of an Accident	Benchmark Rankings		Summary 2005 Observations	Assessed Rankings		
	High	Low		H	M	L
Crash History	Several Crashes	None Known	None Known			L
Average Daily Traffic (ADT)	>150	30 or less	Count Sta (11) 13.95			L
User Knowledge	Not Acquainted	Well Acquainted	Unknown		M	
Average Speed (MPH)	>40	25 or less	25			L
Cross Section Changes	Changes	None Abrupt	None Abrupt			L
Surface Type Changes	Changes	No changes	None			L
Curvature	Abrupt	Smooth	Smooth			L
Road Widths (Feet)	Variable	Uniform	Uniform @ 18'			L

Overall Probability Assessed Ranking Low

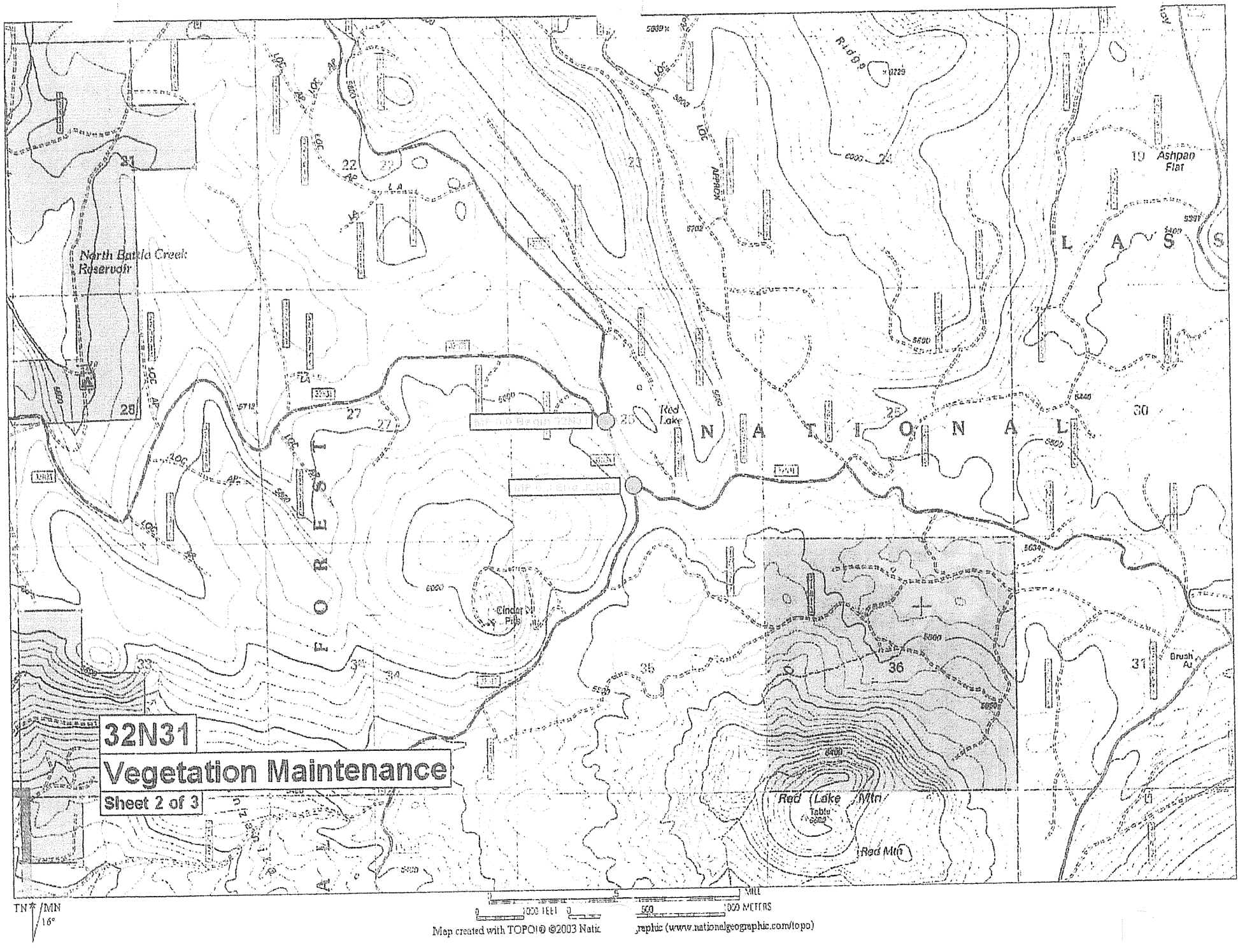
Severity of an Accident	Benchmark Rankings		Summary 2005 Observations	Assessed Rankings		
	High	Low		H	M	L
Average Speed (MPH)	>40	25 or Less	25			L
Clearance from Hazards	Little or none	Adequate	Adequate			L
Alignment & Sight Distance	Poor	Adequate	Adequate			L
Roadway Gradient	>12%	<12%	<12%			L
Downhill Side Slopes	>60%	<40%	< 40%			L
Radical Speed Changes	Many	Few	Few (None)			L
Multi-passenger Vehicles	Buses	Cars, SUVs	Cars, SUV's			L

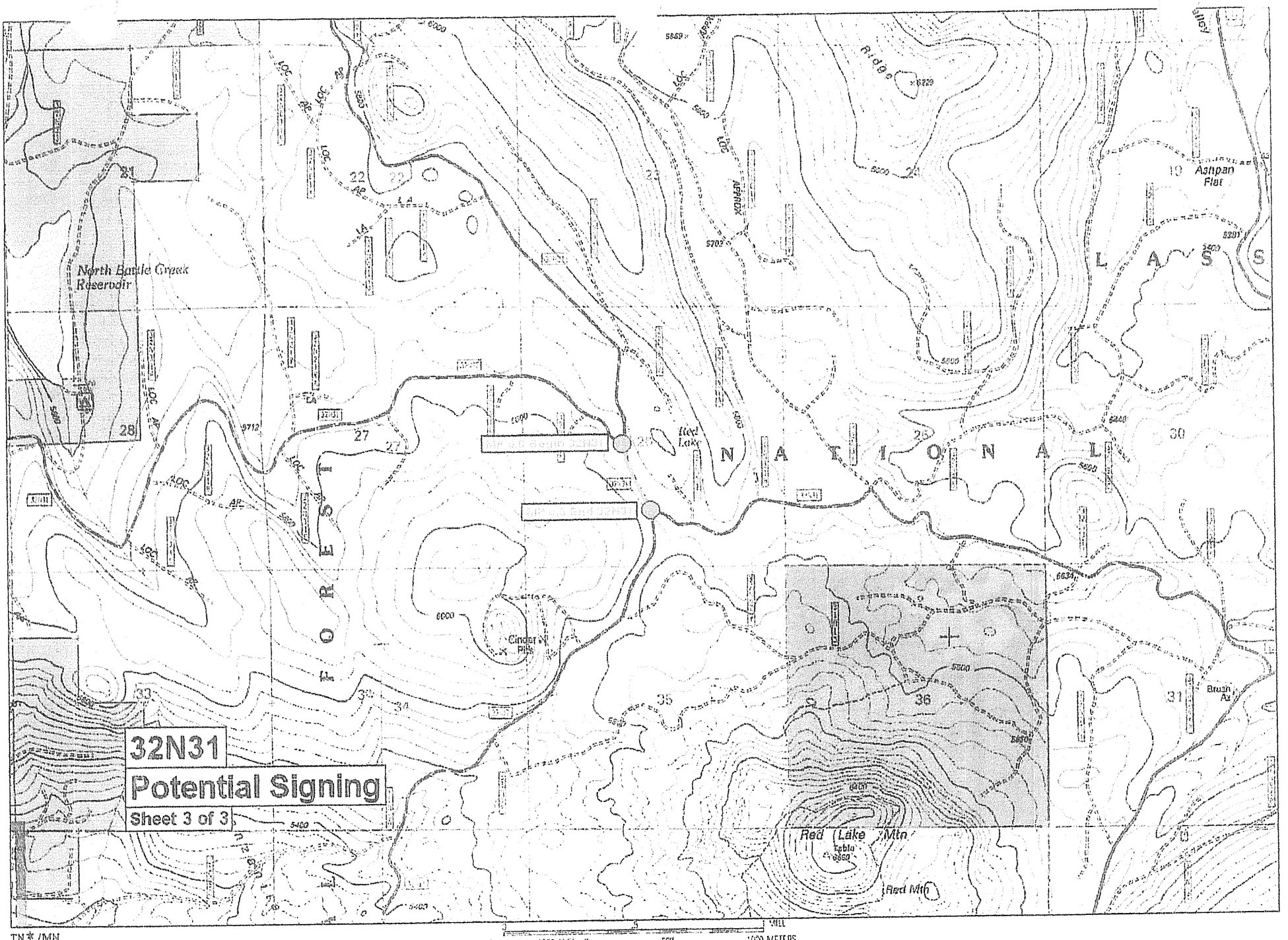
Overall Severity Assessed Ranking Low

Season of Use May – November Surface Aggregate % Street Legal 95 % Non-Street Legal 5

SHARED USE RECOMMENDATION YES
Yes or No

*Mitigation opportunities by milepost, or other pertinent information on following page(s).


32N31
Vegetation Maintenance
Sheet 2 of 3
North Battle Creek Reservoir
Red Lake
Ashpan Flat
Cinder Pit
Red Lake Mtn
Red Mtn
Brush Ar
F O R E S T
N A T I O N A L
L A S S
TN
MN
16°
1000 FEET
500
1000 METERS
Map created with TOPO!® ©2003 Natic
raphic (www.nationalgeographic.com/topo)



Map created with TOPO!® ©2003 National Geographic (www.nationalgeographic.com/topo)

Traffic Engineer Shared Use Assessment .ssen National Forest Summer 2005

Road Number 32N17 BCDT Segment Number 14 Length 5.21 Sheet 1 of 5

Maint. Level: Objective 3 Operational 3 Observed June–August 2005 2 Functional Class L Service Level L

Probability of an Accident	Benchmark Rankings		Summary 2005 Observations	Assessed Rankings		
	High	Low		H	M	L
Crash History	Several Crashes	None Known	None Known			L
Average Daily Traffic (ADT)	>150	30 or less	Count Sta (11) 13.95			L
User Knowledge	Not Acquainted	Well Acquainted	Unknown		M	
Average Speed (MPH)	>40	25 or less	20			L
Cross Section Changes	Changes	None Abrupt	None Abrupt			L
Surface Type Changes	Changes	No changes	0.8 miles aggregate South end			L
Curvature	Abrupt	Smooth	Smooth			L
Road Widths (Feet)	Variable	Uniform	Uniform @ 16'			L

Overall Probability Assessed Ranking Low

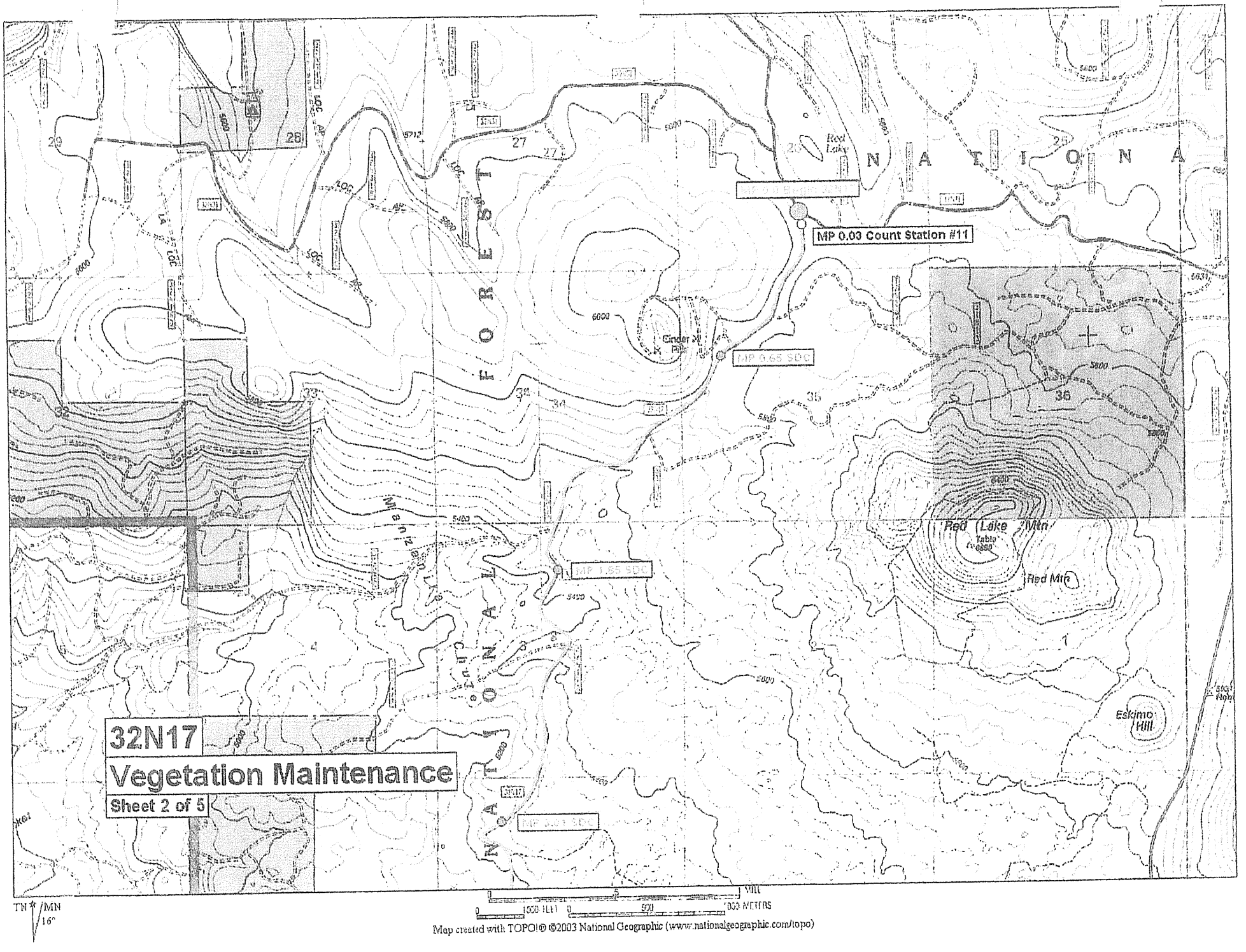
Severity of an Accident	Benchmark Rankings		Summary 2005 Observations	Assessed Rankings		
	High	Low		H	M	L
Average Speed (MPH)	>40	25 or Less	20			L
Clearance from Hazards	Little or none	Adequate	Adequate *			L
Alignment & Sight Distance	Poor	Adequate	Adequate *			L
Roadway Gradient	>12%	<12%	<12%			L
Downhill Side Slopes	>60%	<40%	<40%			L
Radical Speed Changes	Many	Few	Few			L
Multi-passenger Vehicles	Buses	Cars, SUVs	Cars, SUVs			L

Overall Severity Assessed Ranking Low

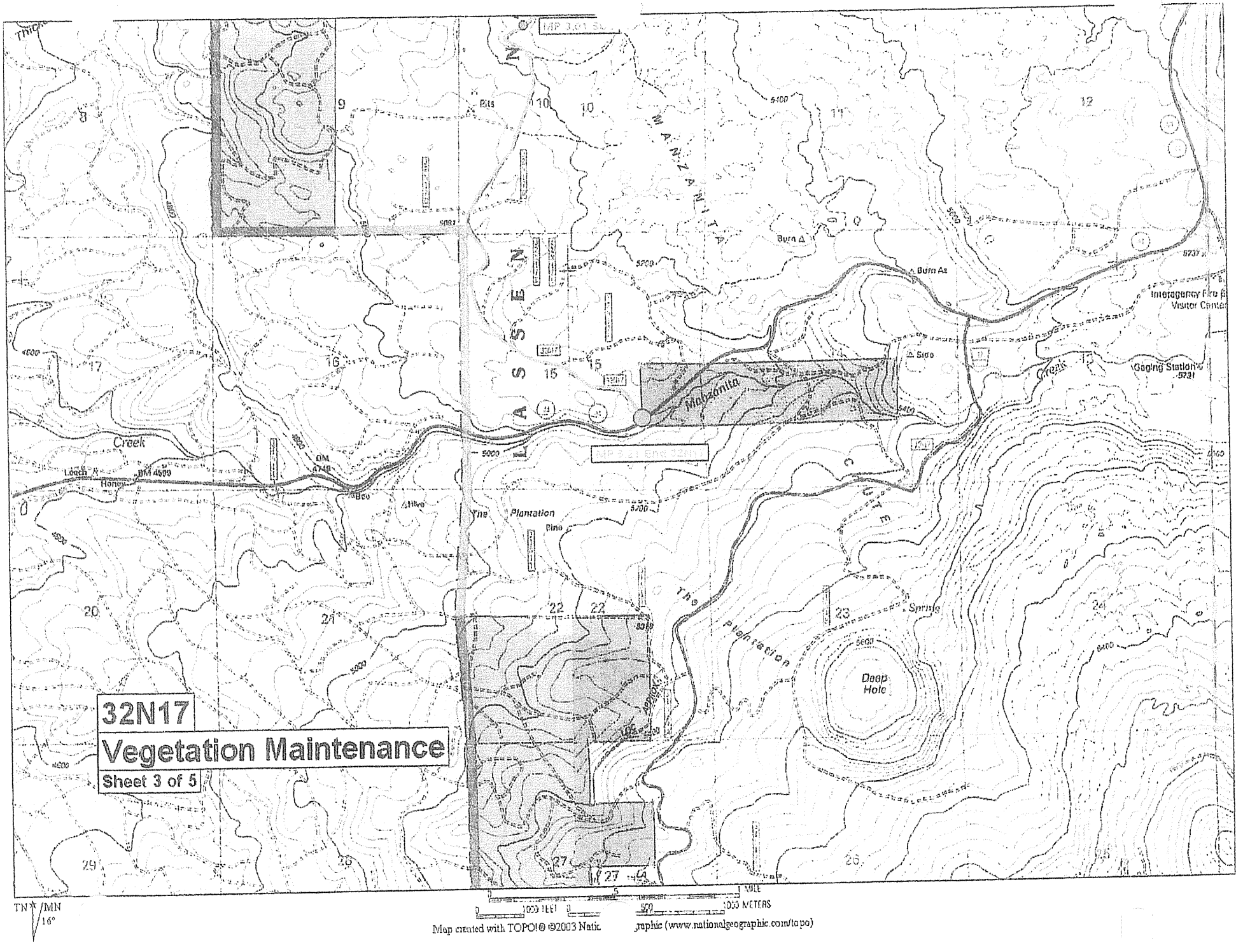
Season of Use May-November Surface Cinders % Street Legal 95 % Non-Street Legal 5

SHARED USE RECOMMENDATION YES
Yes or No

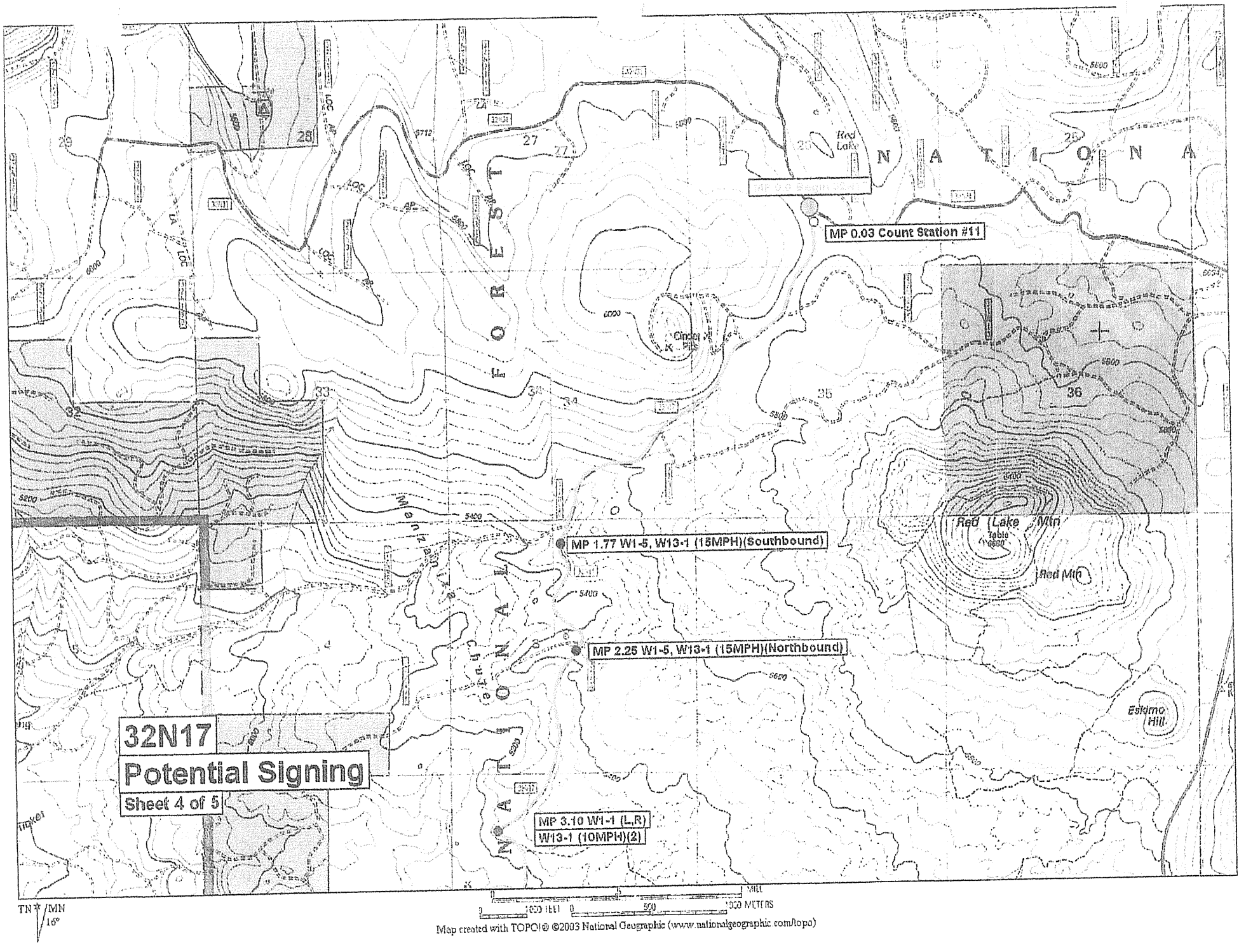
*Mitigation opportunities by milepost, or other pertinent information on following page(s).

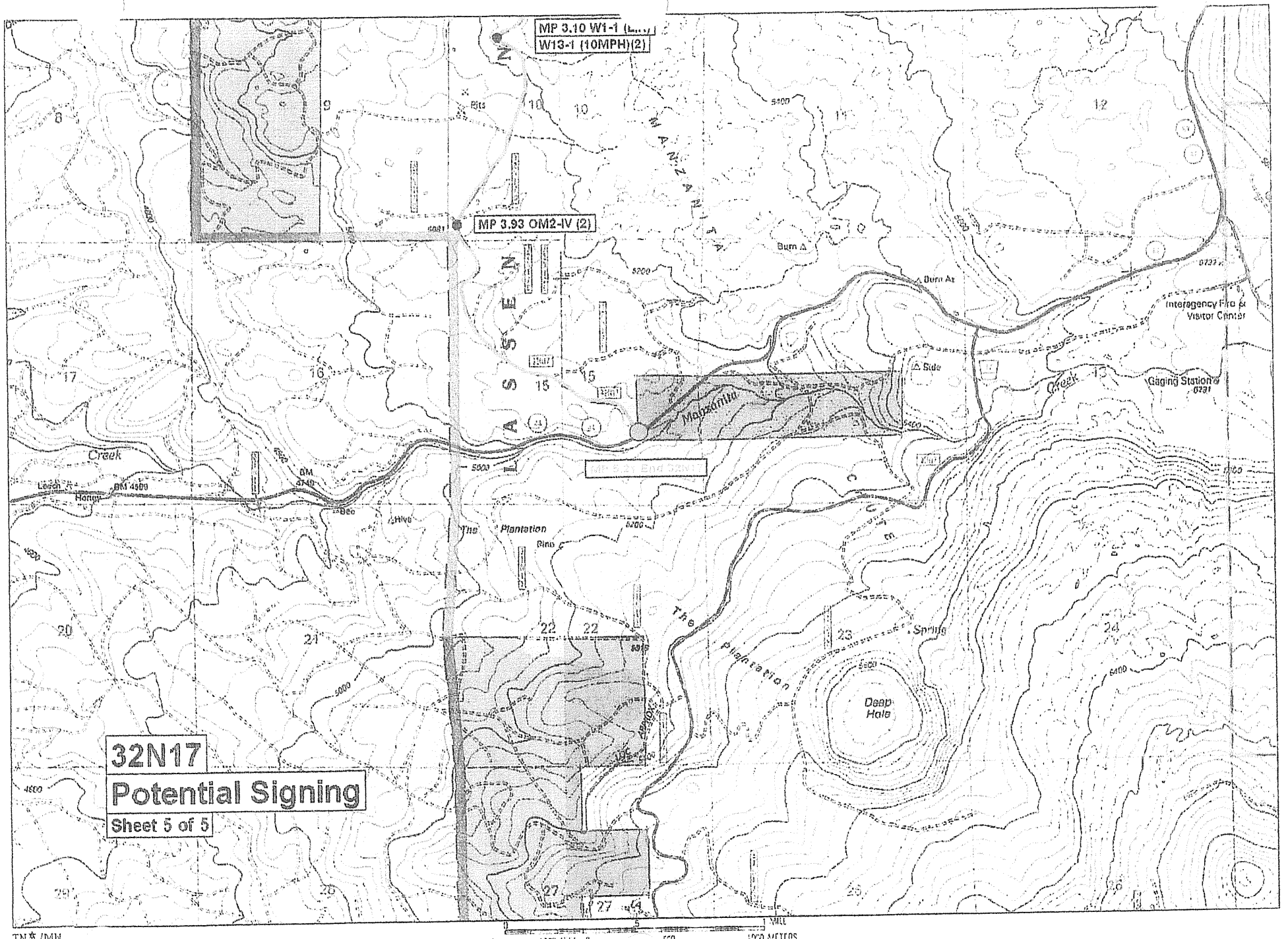


Map created with TOPO!® ©2003 National Geographic (www.nationalgeographic.com/topo)



Map created with TOPO!® ©2003 Natic graphic (www.nationalgeographic.com/topo)


32N17
Potential Signing
Sheet 4 of 5
MP 0.03 Count Station #11
MP 1.77 W1-5, W13-1 (15MPH)(Southbound)
MP 2.25 W1-5, W13-1 (15MPH)(Northbound)
MP 3.10 W1-1 (L,R)
W13-1 (10MPH)(2)
Red Lake
Cinder Pits
Red Lake Mtn
Table
Red Mtn
Eskimo Hill
Mean Creek
NATIONAL FOREST
29
28
27
26
32
33
34
35
36
6000
5600
5400
5200
TN
MN
16°
1000 FEET
500
1000 METERS
Map created with TOPO!® ©2003 National Geographic (www.nationalgeographic.com/topo)


MP 3.10 W1-1 (L...)
W13-1 (10MPH)(2)
MP 3.93 OM2-IV (2)
MP 5.21 End Sign
32N17
Potential Signing
Sheet 5 of 5
Mazamita
Creek
The Plantation
Deep Hole
Spring
Burn A
Burn A2
Side
Interagency Fire & Visitor Center
Gaging Station
Hanger
Hive
Bee
Ring
Pits
BM 4900
BM 5740
5400
5600
5800
6000
6200
6400
6600
6800
TN 16° /MN
1000 FEET
500
1000 METRES
Map created with TOPO!® ©2003 Natio... ...raphic (www.nationalgeographic.com/topo)

Traffic Engineer Shared Use Assessment ssen National Forest Summer 2005

Road Number 17(31N17) BCDT Segment Number 12 Length 15.3 Sheet 1 of ____

Maint. Level: Objective 4 Operational 3 Observed June–August 2005 2 Functional Class C Service Level B

Probability of an Accident	Benchmark Rankings		Summary 2005 Observations	Assessed Rankings		
	High	Low		H	M	L
Crash History	Several Crashes	None Known	None Known			L
Average Daily Traffic (ADT)	>150	30 or less	Count Sta (12) 7.86			L
User Knowledge	Not Acquainted	Well Acquainted	Unknown		M	
Average Speed (MPH)	>40	25 or less	27			L
Cross Section Changes	Changes	None Abrupt	None Abrupt			L
Surface Type Changes	Changes	No changes	None			L
Curvature	Abrupt	Smooth	Smooth			L
Road Widths (Feet)	Variable	Uniform	Fairly Uniform @ 16'			L

Overall Probability Assessed Ranking Low

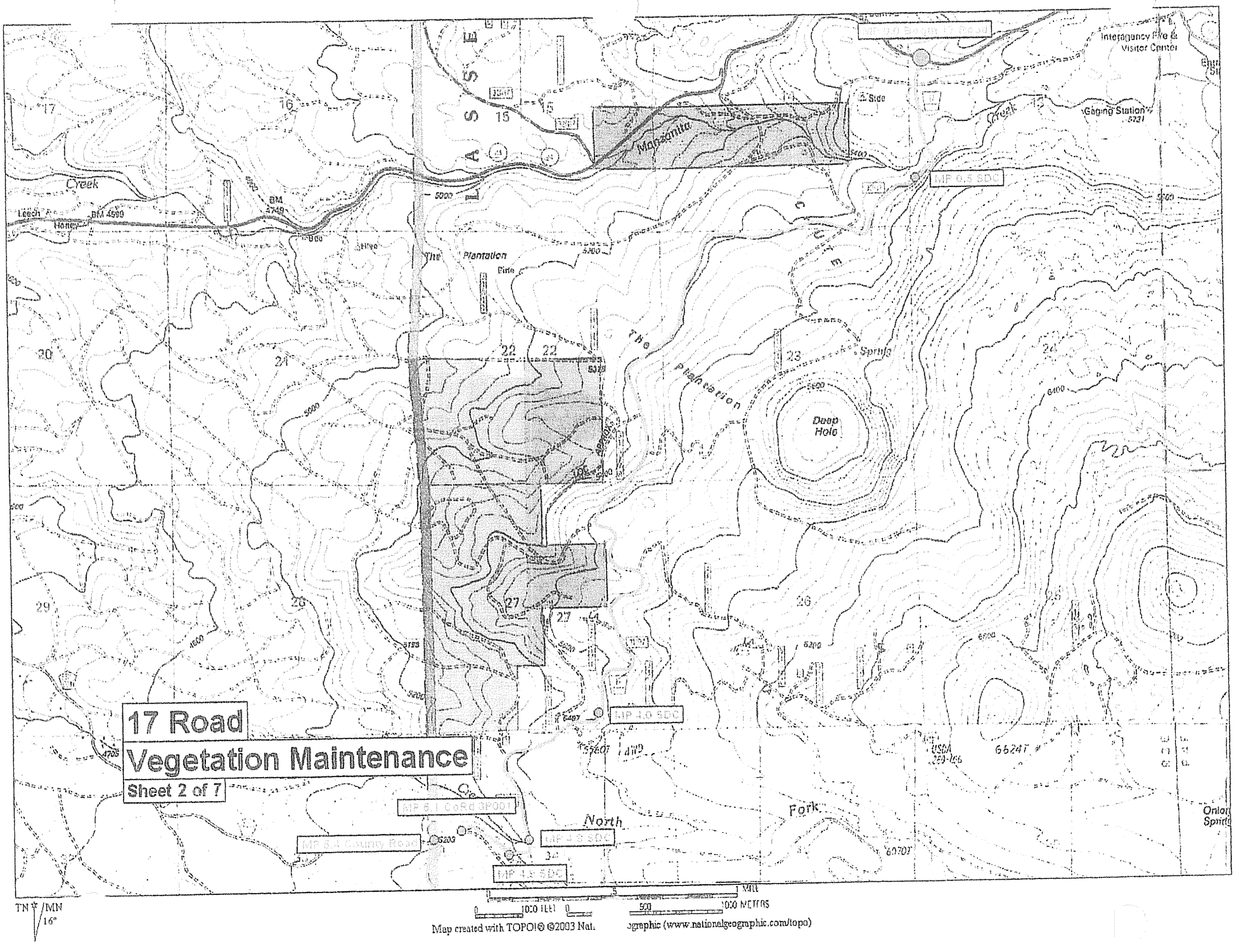
Severity of an Accident	Benchmark Rankings		Summary 2005 Observations	Assessed Rankings		
	High	Low		H	M	L
Average Speed (MPH)	>40	25 or Less	27			L
Clearance from Hazards	Little or none	Adequate	Adequate *			L
Alignment & Sight Distance	Poor	Adequate	Adequate *			L
Roadway Gradient	>12%	<12%	<12%			L
Downhill Side Slopes	>60%	<40%	<40%			L
Radical Speed Changes	Many	Few	Few			L
Multi-passenger Vehicles	Buses	Cars, SUVs	Cars, SUVs			L

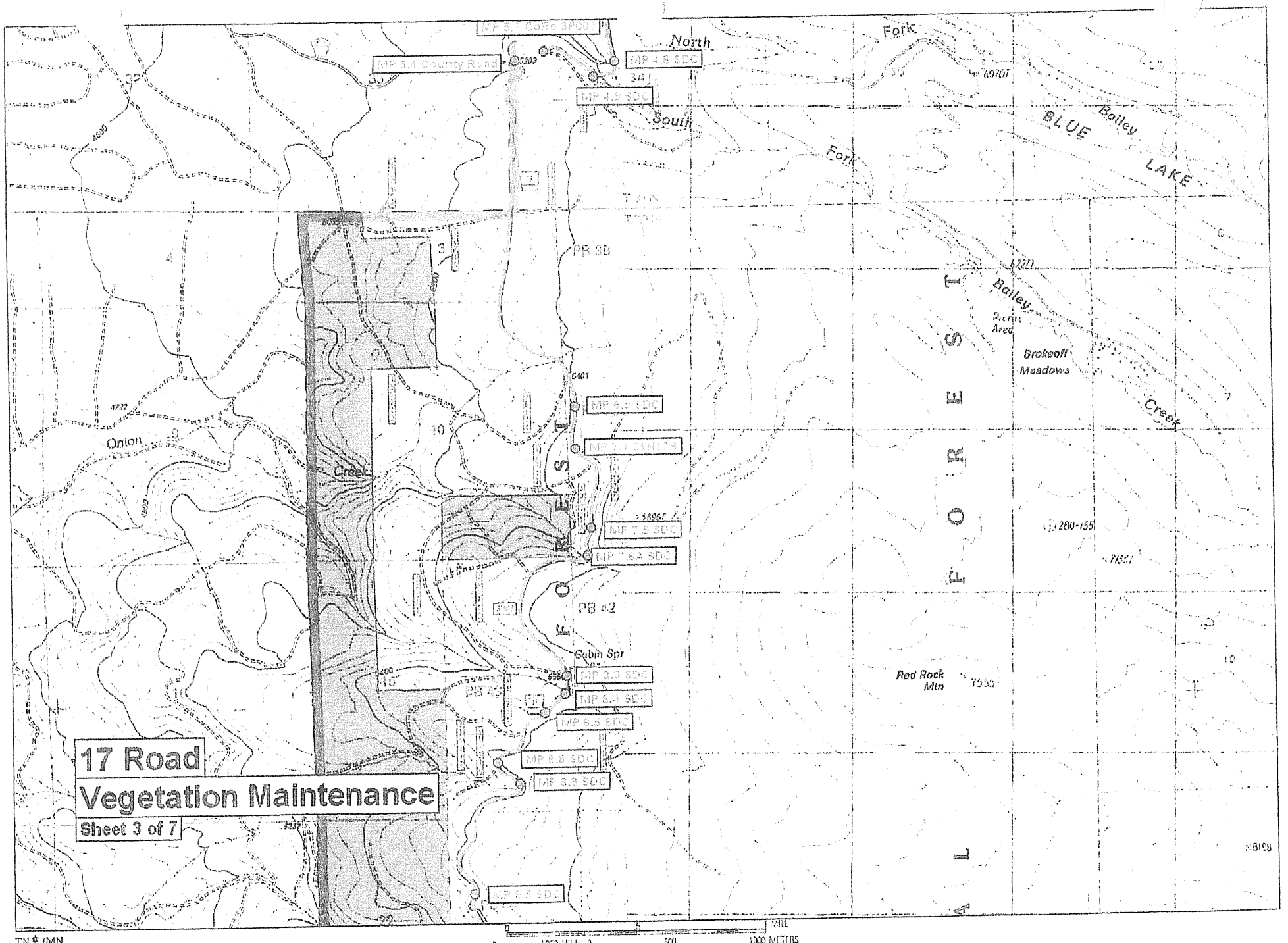
Overall Severity Assessed Ranking Low

Season of Use June - November Surface Aggregate % Street Legal 85 % Non-Street Legal 15

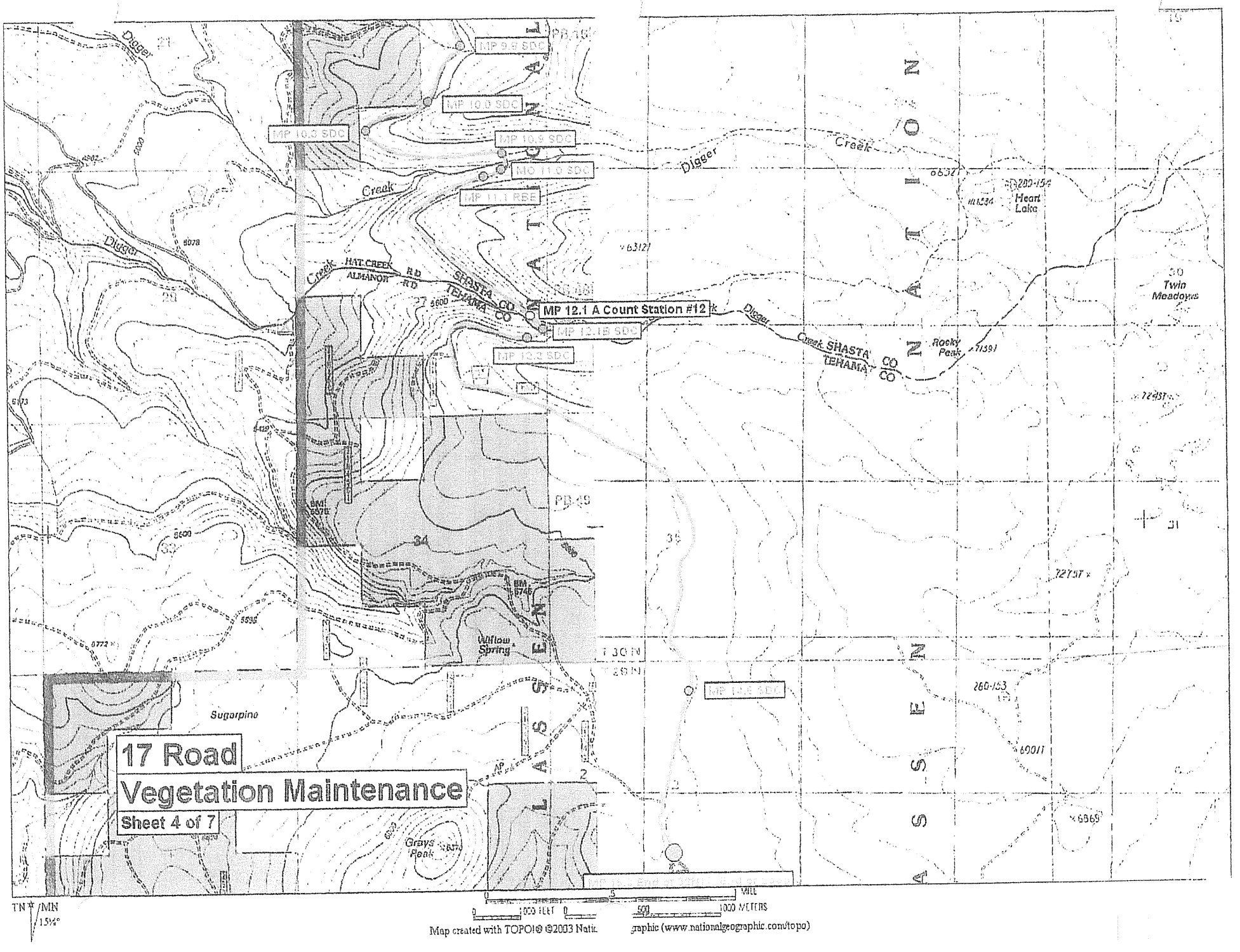
SHARED USE RECOMMENDATION YES
Yes or No

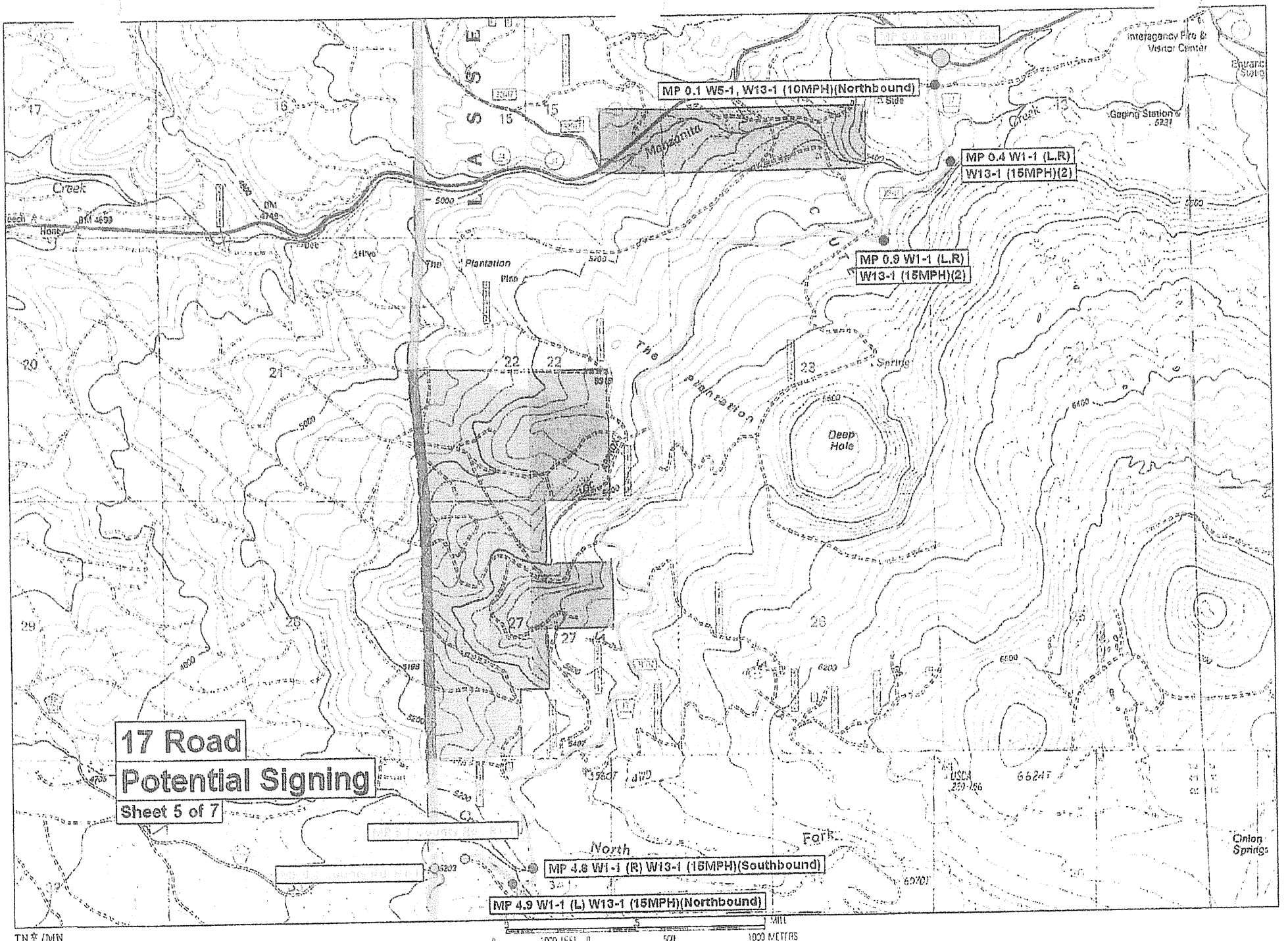
*Mitigation opportunities by milepost, or other pertinent information on following page(s).


17 Road
Vegetation Maintenance
Sheet 2 of 7
MP 0.5 SDC
MP 4.0 SDC
MP 6.1 CoRd 3P001
MP 6.1 Cough Road
MP 4.8 SDC
Interagency Fire & Visitor Center
Gaging Station
Mariposita
Creek
The Plantation
Pine
Hive
Honey
Leech
BM 4749
BM 4690
The Highway
Deep Hole
Spring
North
Fork
Mill
Onion Spring
TN
MN
16°
Map created with TOPO!® ©2003 Nat. Geographic (www.nationalgeographic.com/topo)

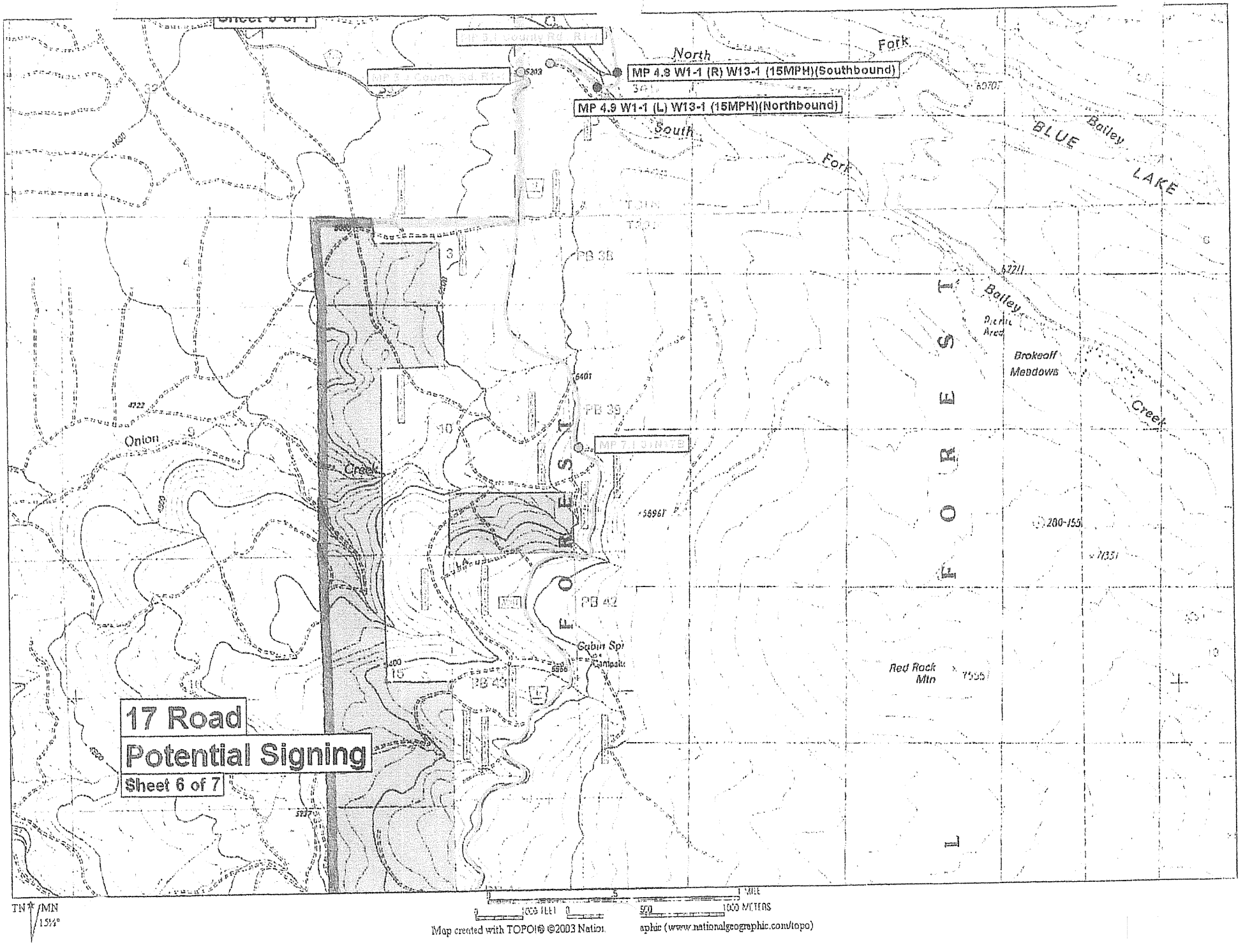


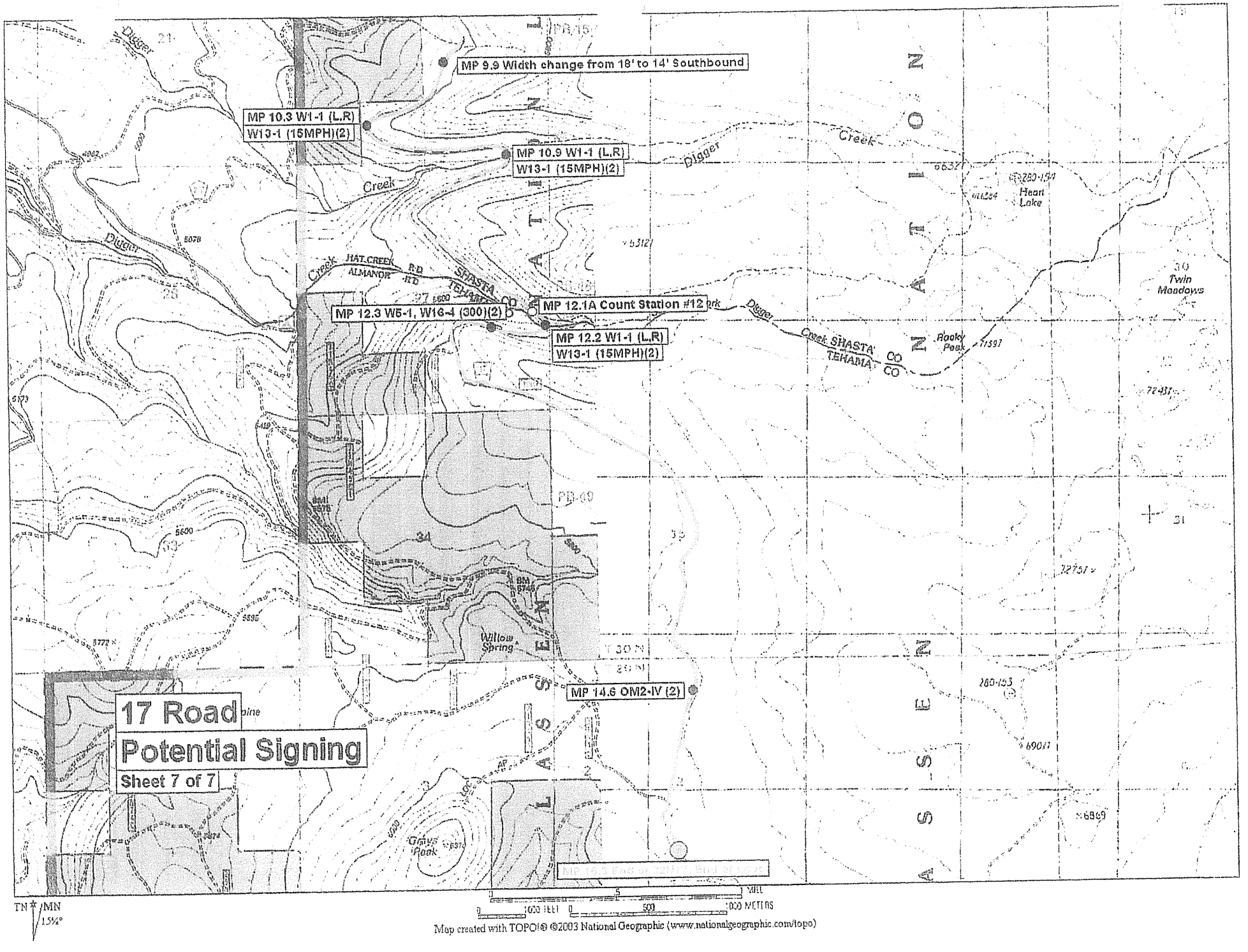
Map created with TOPO!® ©2003 National Geographic (www.nationalgeographic.com/topo)


17 Road
Vegetation Maintenance
Sheet 4 of 7
MP 12.1 A Count Station #12
MP 9.8 SDC
MP 10.0 SDC
MP 10.3 SDC
MP 10.9 SDC
MP 11.0 SDC
MP 11.1 RBE
MP 12.1B SDC
MP 12.3 SDC
MP 14.5 SDC
Digger Creek
HAT CREEK RD
ALMANOR RD
SHASTA CO
TEHAMA CO
Heart Lake
Twin Meadows
Rocky Peak
Willow Spring
Sugarpine
Grays Peak
PLASSEN
TN
MN
15½°
Map created with TOPO!® ©2003 Natic graphic (www.nationalgeographic.com/topo)



Map created with TOPO!® ©2003 National Geographic (www.nationalgeographic.com/topo)


MP 4.8 W1-1 (R) W13-1 (15MPH)(Southbound)
MP 4.9 W1-1 (L) W13-1 (15MPH)(Northbound)
North
Fork
South
Fork
BLUE
LAKE
Bailey
Bailey
Creek
Brokeoff
Meadows
Onion
Creek
Red Rock
Mtn
17 Road
Potential Signing
Sheet 6 of 7
TN
MN
15½°
Map created with TOPO!® ©2003 National Geographic (www.nationalgeographic.com/topo)



Map created with TOPO!® ©2003 National Geographic (www.nationalgeographic.com/topo)

Appendix G

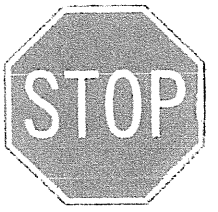
Recommended MUTCD Signing

- Regulatory
- Object Markers (Warning)
- Other Warning
  - Alternative A
  - Alternative B
- Share The Road
- Trail Sign (BCDT-3B Logo)

Appendix F

Examples of Recommended MUTCD Signs

Regulatory



R1-1

Object Markers
(Warning)

OM2-1V

OM-3L

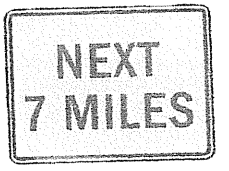
OM-3R

Other Warning

Alternative A

W16-2

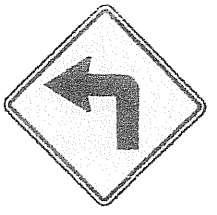
with option?



W7-3a

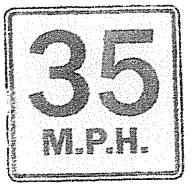
OR

Alternative B

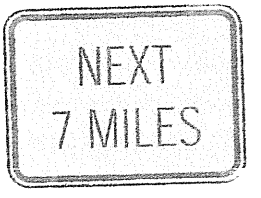


W1-1 L/R

W1-5



W13-1
Advisory Speed Plaque



W7-3a

Alternative B (continued)

W5-1

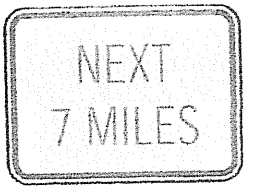
W5-2

W16-4

Allow OHV

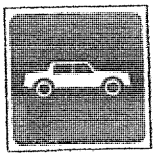
W16-1

With option?



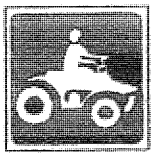
W7-3a

As appropriate



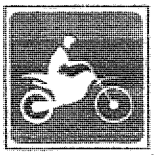
10-128

10-117



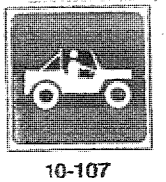
10-111

10-115



10-109

10-121



10-107

10-113

Symbols from Rockart, Inc. catalog

H. R. Tatman, Jr.

BCDT-3B LNF

BCDT-3B Logo

Appendix H

Study Volunteers

The entire BCDT-3B Share-the-Dream Loop traffic study was accomplished by volunteers from the following ten OHV Clubs located in Northern California:

Recreation Outdoor Coalition
Volcano Riders Snowmobile Club
Shasta Rock Rollers
Backcountry 4X4s
Sierra-Cascade Snowmobile Club
Redding Snow Riders
Shasta County Sportsman Club
Redding 4WD Club
Lake Almanor Snowmobile Club
Redding Dirt Riders

The following 60 individuals from these clubs contributed 2,140 hours of labor and 16,714 miles of travel. Their hours include travel time from home as well as observation time at their assigned count station.

*Team Leader Qualifications—H.R. Tatman, Jr.

Professional Experience

Graduate Civil Engineer with post graduate work in Traffic Flow Theory, Fundamentals of Traffic Engineering and Network Analysis.

California Registered Traffic Engineer

34 Years with USFS Engineering

- 1963-1967 Asst. FE–Road Operations & Maintenance
- 1967-1971 PSW RO Engineering
  - 1.5 years assigned to the WO's Transportation Analysis Group (TAG) at UC Berkeley
  - Developed Traffic Surveillance Handbook
- 1971-1975 Asst. FE–Transportation System Planning
- 1975-1982 PSW Staff Engineer for Transportation System Analysis
- 1982-1991 Forest Engineer

Volunteer Experience

April 1999–asked to represent LNF on RIGHTS (a California Parks & Recreation BCDT Northern California) Committee and to propose route on LNF

March 2000–Elected Co-chairman RIGHTS Committee

May 2001 to present–Volunteer PSW Regional BCDT Advisor

December 2001–Presented BCDT Program to Regional Recreation Officers and Forest Engineers

1999-2005–Researched, planned and proposed about 440 miles of BCDT, of which 297 have been approved and the remainder expected to be approved in the fall of 2005.

REGISTERED PROFESSIONAL ENGINEER
H. R. TATMAN, JR.
No. 1013
Exp. 12/31/06
TRAFFIC
STATE OF CALIFORNIA

United States Department of Agriculture | Forest Service | Lassen National Forest

Supervisor's Office
2550 Riverside Drive
Susanville, CA 96130
(530) 257-2151 Voice
(530) 252-6624 TDD
(530) 252-6428 Fax

File Code: 7710-2
Route To:

Date: September 29, 2005

Subject: Lassen NF Mixed Use Engineering Analysis

To: Bob Sutton, R5 Director of Engineering

I have enclosed a copy of our Mixed Use Engineering Analysis for the proposed designation of the "Share the Dream" loop to the Lassen Backcountry Discovery Trail. This 100 mile loop is proposed for "shared or mixed use" by non-street legal off-highway vehicles operated by licensed drivers where it is located on Forest Service roads. A portion of the loop is on FS maintenance level 3 or higher roads. The remainder of the loop is on FS maintenance level 2 roads and State or county roads. State and county roads are not being considered for mixed use. The loop is sponsored by the Recreation Outdoor Coalition whose members initially scouted and identified the proposed route, and have now prepared a draft nomination report for my consideration.

Traffic count data was collected from 7:00 am to 7:00 pm on the first Sunday and third Wednesday from June to Labor Day this past summer by 60 dedicated volunteers under the leadership of retired Lassen National Forest Engineer, Richard Tatman. Mr. Tatman compiled the Analysis and rendered his professional judgment regarding the risk for accidents if mixed use was allowed.

Also enclosed is our proposed "Sign Protocol for the Backcountry Discovery Trail". The proposed "Share the Dream" loop will be an addition to our existing 185 mile Lassen Backcountry Discovery Trail. Route markers are essential to orient the visiting public. We requested the approval for a non-standard Directional and Guide Sign, in my letter dated September 21, 2005.

On October 12, I will be meeting with volunteers and my staff to review the Analysis to determine if mixed use could be permitted on all or a portion of the proposed 100 mile loop. The methodology for the traffic count study was peer reviewed by Sue Kocis, who is one of our Agency's leaders for our National Visitor Use Monitoring effort. The enclosed Analysis generally conforms with the August draft of the "Guidelines for Engineering Analysis of Motorized Mixed Use on National Forest System Roads", led by Ed Gililland of the San Dimas Technology Development Center. We will also discuss the Sign Protocol.

I would appreciate your review and comments on our Analysis and Sign Protocol prior to October12. Rich Farrington, Bill Fodge, and Gary Barnett have indicated they will be attending our meeting that day in Susanville. Their advice and counsel will assist me in reaching a decision regarding mixed use on our maintenance level 3 or higher roads. Thank you.

/s/ Jeff Withroe, for
LAURIE TIPPIN
Forest Supervisor

cc: Ed Gililland
Rich Farrington
Bill Fodge
Gary Barnett
Robert W Andrews
Rhonda Barnhart
Alfred G Vazquez
Jack Walton
Jess J Bengoa
Terrie Veliotes

Enclosure: Lassen National Forest Mixed Use Engineering Analysis, Sign Protocol for the Backcountry Discovery Trail

United States Department of Agriculture
Forest Service
Lassen National Forest

Supervisor's Office
2550 Riverside Drive
Susanville, CA 96130
(530) 257-2151 Voice
(530) 252-6624 TDD
(530) 252-6428 Fax

File Code: 7710
Route To:

Date: September 29, 2005

Subject: Lassen NF Mixed Use Engineering Analysis

To: Vaughn Stokes, WO Director of Engineering

I have enclosed a copy of our Mixed Use Engineering Analysis for the proposed designation of the "Share the Dream" loop to the Lassen Backcountry Discovery Trail. This 100 mile loop is proposed for "shared or mixed use" by non-street legal off-highway vehicles operated by licensed drivers where it is located on Forest Service roads. A portion of the loop is on FS maintenance level 3 or higher roads. The remainder of the loop is on FS maintenance level 2 roads and State or county roads. State and county roads are not being considered for mixed use. The loop is sponsored by the Recreation Outdoor Coalition whose members initially scouted and identified the proposed route, and have now prepared a draft nomination report for my consideration.

Traffic count data was collected from 7:00 am to 7:00 pm on the first Sunday and third Wednesday from June to Labor Day this past summer by 60 dedicated volunteers under the leadership of retired Lassen National Forest Engineer, Richard Tatman. Mr. Tatman compiled the Analysis and rendered his professional judgment regarding the risk for accidents if mixed use was allowed.

On October 12, I will be meeting with volunteers and my staff to review the Analysis to determine if mixed use could be permitted on all or a portion of the proposed 100 mile loop. The methodology for the traffic count study was peer reviewed by Sue Kocis, who is one of our Agency's leaders for our National Visitor Use Monitoring effort. The enclosed Analysis generally conforms with the August draft of the "Guidelines for Engineering Analysis of Motorized Mixed Use on National Forest System Roads", led by Ed Gililland of the San Dimas Technology Development Center.

I thought you might like to see one of the first Engineering Analyses using the Guidelines. We certainly appreciate and will benefit from this national effort.

/s/ Jeff Withroe, for
LAURIE TIPPIN
Forest Supervisor

Ed Gililland/WO/USDAFS
10/27/2005 01:50 PM

To Elizabeth Norton/R5/USDAFS@FSNOTES
cc
bcc
Subject Re: Motorized mixed use study on Lassen NF

Looks ok to me. I did go through it very quickly so I can't say I did a detailed review. A few things have changed in the Guide since this was started, but I don't see that as a big deal. The only issue this really does not cover is the issue of State Law. I'm not sure this report has to, but it would seem to me that it would be prudent to address that in writing somewhere before a final designation is made.

****
Ed Gililland
San Dimas Technology & Development Center
444 E. Bonita
San Dimas, California 91773
(909)599-1267 Ext 237 Fax (909) 592-2309 egililland@fs.fed.us
****

Elizabeth Norton/R5/USDAFS

Elizabeth Norton/R5/USDAFS
10/22/2005 01:04 PM

To Ed Gililland/WO/USDAFS@FSNOTES
cc
Subject Re: Motorized mixed use study on Lassen NF

Hi Ed - have you had a chance to review the engineering report I sent you. What do you think of it? I welcome your opinions/advice. Thanks.

Elizabeth Norton
Lassen National Forest
2550 Riverside Drive
Susanville, CA 96130
Phone: 530-252-6645
FAX: 530-252-6428
e-mail: enorton@fs.fed.us

Ed Gililland/WO/USDAFS

Ed Gililland/WO/USDAFS
09/06/2005 08:56 AM

To Elizabeth Norton/R5/USDAFS@FSNOTES
cc
Subject Re: Motorized mixed use study on Lassen NF

01/07/07

To: Jack Walton, Bob Sutton, Bill Fodge, Liz Norton, Congressmen Doolittle & Herger, BRC, ROC

The following is in response to Region Five's Division of Engineering's August 22, 2006 review comments by email to Lassen NF Forest Engineer Walton, pertaining to the "Share-the-Dream Loop". Shared Use Engineering Report.

The paragraphs in italics are the questions asked by the Region and the vertical statements are my replies.

1. The report was thorough in its presentation of route location, traffic counts, road conditions. The report also included recommendations on measures that could be taken to lower the risk of crashes, including road maintenance and traffic control devices. Additional work that needs to be completed includes:

The Report adheres very closely to the Forest Services' EM-7700-30 Guidance and the need for additional work to satisfy the intent of the EM-7700-30 Guideline is questionable.

2. Describe the type of mixed use traffic that is being proposed for each road:

A few passenger cars, pickups, SUVs, both government and privately owned, ATVs–you know–Quads, dirt bikes and snowmobiles, in the winter if not plowed. Please note–commercial traffic, i.e., logging or chip trucks, are not included as common sense as well as USFS Handbook Guidance says restrict use during commercial haul. However, you do not haul logs or chips on all of the roads all of the time!

And determine if it is legal under California CVC;

Yes, it is legal as these dirt and gravel roads are not Highways! Ask any CHP officer on the beat if they care what type of vehicle is on the dirt or gravel road. Ask the general public their views of use. And, with out bias, read the second paragraph of CHP Deputy Commissioner's April 7, 2005, letter to Regional Forester Blackwell. If it's posted for shared use it's legal. Also, see CVC #38001, which states in part "For purpose of this division, the term "highway" does not include fire trails, logging roads, service roads regardless of surface composition, or other roughly graded trails and roads upon which vehicular travel by the public is permitted."

CVC also has very specific operator licensing requirements that were considered a part of the study. It is assumed that most people obey the laws. We do not believe it prudent to restrict legitimate use for most people to get after a few bad apples.

3. The basis for the risk ratings were not well explained. Update the risk assessments

with the final EM7700-30 and clarify whether risk ratings are based on current conditions or with proposed mitigation measures in place.

The risk ratings are compatible with the published EM7700-30 Washington Office Guidelines. Further, the bench marks for evaluation were selected following review of criteria used by Region 8, Region 6, Region 4 and Region 3 of the USFS. As a matter of fact, the selected ADT thresholds are very conservative or low as compared to the majority of the other Regions. For example, most use up to 100 ADT as low risk, whereas the subject study used 30 ADT.

It is still my considered judgement that the conditions that existed when the study was done are in the low risk for an accident category. As for the mitigation measures proposed, i.e., signs and brushing, I still recommend MUTCD "yellow caution" signs at the entrance to forest roads that say "No Traffic Signs", No. W16-2. And as for brushing, if the road is open to any use by anyone, including USFS, then the brushing should be done.

I noted recently, late 2006, that the snags identified in the October 2005 report are still standing alongside the roads. One of these days.....

4. *Provide a transportation analysis for the Lassen NF road system. The analysis should show how the roads under study fit into the LNF transportation system and validate the current RMO's or propose revisions to reflect actual needs and budget realities.*

This is a Forest responsibility and beyond the role of any outside group that assists by performing a traffic use study. If the interpretation of the on-line FSM is correct, this should have been done by the Forest several years ago and been available to use in evaluating the proposal that the Engineering Report was done for. In the meantime, use sound judgement.

5. *The report focused on the traffic that was observed during the traffic counts. Consider the risks of crashes for the full range of traffic that can be expected on each road over time.*

What time period would you like this evaluation to cover–50 years or 100 years? This question begs a NO ACTION decision or do not consider mixed use. Is this what the Chief of the Forest Service means by Manage OHV use?

With all due respect, the decision to be made should be based upon what is occurring now and in the immediate future–say 1 to 2 years. If commercial hauling (see #2 above) restricts OHV use, then why include that traffic in the risk analysis, especially when none was observed on the randomly selected counting days and no hauling was occurring in the "heavy" use times.
If traffic volume or vehicle types change over time then the risk may need to be evaluated again when the change becomes obvious or if reportable accidents begin to

accumulate in specific places.

According to specific sections of FSM 7700 and FSH 7709, if an unacceptable number of vehicle accidents occur at a specific site on a road, then additional evaluation is triggered and additional mitigation measures considered.

6. Describe proposed mitigation measures and how they will be effective at reducing risk. Address other mitigation measures that will reduce risk for the full range of traffic that may be on the road. Other mitigation can include alternate routes, time restrictions for mixed use when commercial traffic is present, speed limits, etc.

Logical mitigation measures were listed that seem to best fit current conditions and needs.

The Clubs listed in the Report, that did the original traffic study, had agreed at the time to do the required hand labor work required to accomplish the mitigation work identified in the Report. A lot of time has gone by and folks are very discouraged now. Some USFS Engineering/Recreation outreach might get the job done for the Forest.

As stated above in No. 5, why play "what if" games? Use the best available judgement given existing conditions and then monitor results for accidents. No one wants to see anyone hurt, but on the other hand, people have to take some responsibility for their own actions. The desire for OHV experiences is growing rapidly and the proposal and Report have been prepared in good faith to promote safe and managed use of the Forest Roads.

7. Document how the Forest will maintain mitigation measures that are selected as part of the designation for mixed use.

Establish an MOU and/or an Adopt-a-Route package with a responsible private entity such as the Recreation Outdoor Coalition (ROC), non-profit group of motorized and non-motorized recreationists.

8. Document coordination with other public road agencies, local law enforcement agencies, or cooperators that may be affected by the proposed use on NFS roads.

ROC has a lot of existing documentation for the 3B Loop from all of the County Boards of Supervisors surrounding the Forest, Congressmen Herger's and Doolittles's offices, etc. These are the "Bosses" of the road agencies, law enforcement and Federal Agencies. A current CHP officer is president of one of the clubs that belong to ROC and he is very supportive of the 3B Loop plan, including OHV mixed use.

9. The report was thorough in regards to the location of the route, traffic counting strategy and methods, The need for additional traffic counts can not be determined from the report. The Forest will have to determine whether the counts were representative of

actual traffic or if add'l counts are needed. Some indications that add'l counts are needed are: lack of commercial traffic component in the counts, intuitive judgement on traffic volumes, times and vehicle mix that differ from the counts, other traffic data that disagrees with the results of the counts.

The need for additional counts to justify the "published Traffic Study" results must be left to others. The volunteers can count each vehicle that goes past them and make a mark on a piece of paper. We all wanted factual information. The books were not cooked!

Summary–the use that the Share-the-Dream Loop proposal is asking to be supported already exists. The study provided a snapshot of the extent of non-commercial activity on 75 miles of Maintenance Level 3 and 4 roads.

Acknowledge the existing use and set up an accident reporting procedure that is rigorously followed for 5 years to evaluate the adequacy of the traffic study.

This response took a couple of hours to consider and write. Add that to the 2000 hours devoted to the study in 2005.

/s/ Dick Tatman

H. R. (Dick) Tatman, Jr, PE, Study Team Leader
Traffic Engineer TR 1013 through 12/31/08
707-620 Wingfield Rd
Janesville CA 96114
530-253-3054

United States Department of Agriculture
Forest Service
Lassen National Forest

Supervisor's Office
2550 Riverside Drive
Susanville, CA 96130
(530) 257-2151 Voice
(530) 252-6624 TDD
(530) 252-6428 Fax

File Code: 2350
Date: October 14, 2005

Dear Lassen National Forest Traffic Count Volunteers:

In spring 2005, the Recreation Outdoor Coalition (ROC), a non-profit group representing diverse recreational interests in the Lassen area, met with me regarding their proposal to designate a 100 mile addition to the Lassen Backcountry Discovery Trail, called the Share the Dream route. This addition would establish a scenic off-highway vehicle (OHV) route, looping around Lassen Volcanic National Park. The route is located on mostly National Forest System roads. ROC also wanted the route to be designated for mixed use by both street-legal and non-street legal (OHV) vehicles such as quads and dirt bikes.

Because some of the route is on higher standard Forest Service roads, we needed to conduct a traffic study to determine the risk for accidents if mixed use was permitted. Retired Forest Engineer H.R. Tatman and volunteer Sylvia Milligan immediately launched the traffic study and recruited volunteers. Counts were conducted from June 5 through Labor Day.

Traffic count data was collected from nine stations along the proposed loop. The count involved 60 members representing 9 OHV clubs and ROC from all over northern California and Oregon, including yourself. Our volunteers contributed 2,140 hours of labor and provided 16,714 miles of personal vehicle use – all at no cost to the Forest Service. The value of all your volunteer service was $59,300. Mr. Tatman then used this data to prepare an engineering report and road risk assessment. Based on this report, I am proposing to allow mixed use on the entire route. The Forest Service is still gathering additional information. We expect to present our proposal to the public next spring for public review and comment in accordance with our environmental analysis procedures.

Volunteers have sponsored the proposed Share the Dream route from the beginning – starting with an idea while sitting around a lunch table, then scouting out the proposed route, preparing the nomination report and roadway sign plan, and conducting the recent traffic counts. Your efforts have saved the Forest Service considerable time and thousands of dollars. It will result in an unparalleled OHV driving opportunity on the Lassen NF when the route is officially designated.

I know your hard work will not stop with the designation. Volunteers have already expressed their continued commitment to maintaining the route, installing road signs, and patrolling. This level of dedication by so many volunteers is unmatched in our partnership programs.

Thank you for your time, your many hours of service, and your dedication.

Sincerely,

Laurie Tippin

LAURIE TIPPIN
Forest Supervisor

Exhibit 5

Modoc National Forest

Engineering Reports

on Four Proposed Motorized Mixed Use Roads

Final Environmental Impact Statement
for Motorized Travel Management

November 12, 2009

Engineering Report

Modoc National Forest

Warner Mountain Ranger District

Analysis of Road # 40N24

for Motorized Mixed Use Designation

Prepared by:

_____

Forest Engineer

Date: _____

Concurred by:

_____

Forest Supervisor

Date: _____

Forest: **Modoc** District: **Warner Mountains**

Road Number: **40N24** Name: **Cherry Creek (also called Soup Springs Loop)**

Beginning Mile Post: 0.0 Ending Mile Post: 8.3

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: 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: None (does not cross private lands)

Subject to Highway Safety Act? ☒ Yes ☐ No

Non-highway-legal vehicles currently permitted? ☒ Yes ☐ No

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

The California Vehicle Code OHV Provisions [38001(a)] includes a statement that says "For the purposes of this division, the term "highway does not include fire trails, logging roads, service roads regardless of surface composition, or other roughly graded trails and roads upon which vehicular travel by the public is permitted".

Local Officials including the Modoc County Sheriff and others do not consider these roads to be highways for this purpose.

In a letter dated February 10, 2009, the Modoc County Board of Supervisors stated "We appreciate the extra effort put forth by the Forest to designate additional miles for mixed use. We recognize there was significant pressure to do otherwise. The vehicle usage on the vast majority of the Forest roads is minimal and allowing passenger vehicles and ATVs to share the roads is appropriate. Additionally there is no history of accidents or injuries to warrant restricting use.

The County supports all efforts to prohibit mixed use where there are valid safety concerns."

Description of road management objectives, existing use, and proposed use: The goal for recreation (including motorized mixed use of vehicles) in the Forest Plan is that the over all management of the Forest results in a full range of recreation opportunities, ranging from primitive to modern recreation settings. Provide and manage a Forest Transportation System (roads and trails) to accomplish resource management objectives (including opportunities) while protecting resource values. This road is currently open to all motor vehicles. The primary use is recreation. Other uses include logging, fuelwood cutting, grazing, hunting and fishing. It is not feasable to reduce the maintenance level of this road, due to the terrain, the existing horizontal and vertical alignments, and the road width and surfacing type. No changes are proposed for the use of this road.

Summary of Findings:

Motorized mixed use currently occurs on all of this road. There is no accident history. Traffic volumes are low. Sight distances are generally long. This road is wide with adequate runout space in the ditches or shoulders. Anticipated average speeds are 35 mph or less. These factors lead to the conclusion that the probability of a crash is low, and the severity of a crash is likely to be moderate

Factors Considered:

1. Operator considerations:

Prudent operators in compliance with the California Vehicle Code and other applicable laws and regulations is assumed.

2. Crash history:

There is no crash history available for 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:
☒ Passenger cars ☒ Commercial vehicles ☒ Recreation vehicles (RV's)

Traffic on the Cherry Creek Road 40N24 comes off from the West Warner Road 42N05. No traffic counts were done on the Cherry Creek Road specifically. However traffic will be less than on the West Warner Road.

Traffic counts were done at the intersection of the West Warner Road 42N05 and the Parker Creek Road 42N31. Almost all of the traffic using the roads in this area enter or leave the area through this intersection. Traffic was also counted on the Deep Creek Road at the Forest Boundary. Traffic was counted during ten separate periods of 1 to 4 hours. The time periods counted included mornings and evenings, and weekdays and weekends. Traffic was counted for a total of 22 hours. 33 vehicles were counted, for an average of less than 1.5 vehicles per hour at the Parker Creek location and less than one vehicle per hour in Deep Creek. Of the 33 vehicles counted there was one motorcycle, 1 bicycle, and the remainder were cars, pickups, or SUV's. See traffic count summary in

Appendix B & details in Appendix C traffic count log.

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

Anticipated average speeds on this roads is 35 mph or less.

5. Road surface type:

This road is surfaced with crushed aggregate.

6. Intersections with other roads and trails:

Numerous intersections along the route. See attached map.

7. Other roadway factors:

This road is relatively wide. It was constructed as single lane roads, and is shown on our inventory as a single lane road. However past maintenance practices have widened this road to approximately 18 to 20 feet. Sight distance is adequate for the anticipated average speed on this road.

8. Roadside conditions:

This road has an inside ditch that can be driven into with most vehicles in an emergency.

9. Risk without mitigation:

Crash probability: ☐ High ☐ Med ☒ Low

Crash severity: ☐ High ☒ Med ☐ Low

Mitigation Measures:

A sign plan will be developed after the travel management decision is made on the Forest. Share the Road signs may be appropriate at entry points to the Forest.

Conclusion:

The Modoc National Forest has the lowest recreation use of any National Forest in the National Forest System. We receive much lower motor vehicle use on our Maintenance Level 3 (ML3) and 2 (ML2) roads than any other Forest in Region 5. This is due primarily to our sparse population (Modoc County has 9000 people in the entire county), long distance to population centers and a long distance to popular interstate road systems.

Both the Modoc County Sheriff and the local California Highway Patrol (CHP) are not aware of any OHV accidents that have occurred on the Forest. The CHP does not patrol on our ML3 roads and only responds if there has been an accident.

OHV use on this Forest has not grown nearly as fast as other locations in California as demonstrated by our survey. Therefore it is reasonable to continue to provide this opportunity.

Currently mixed use is allowed on this road. Nothing found during this analysis indicates that a change to the current use is needed.

Engineering Report

Modoc National Forest

Doublehead Ranger District

Analysis of Road # 44N77

for Motorized Mixed Use Designation

Prepared by:

_____

Forest Engineer

Date: _____

Concurred by:

_____

Forest Supervisor

Date: _____

Forest: **Modoc** District: **Doublehead**

Road Number: **44N77** Name: **Bench**

Beginning Mile Post: 0.0 Ending Mile Post 10.5

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: 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: 0.5 miles on the south end of this route crossed private land without a right of way. This section will not be designated on the Motor Vehicle Use Map.

Subject to Highway Safety Act? ☒ Yes ☐ No

Non-highway-legal vehicles currently permitted? ☒ Yes ☐ No

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

The California Vehicle Code OHV Provisions [38001(a)] includes a statement that says "For the purposes of this division, the term "highway does not include fire trails, logging roads, service roads regardless of surface composition, or other roughly graded trails and roads upon which vehicular travel by the public is permitted".

Local Officials including the Modoc County Sheriff and others do not consider these roads to be highways for this purpose.

In a letter dated February 10, 2009, the Modoc County Board of Supervisors stated "We appreciate the extra effort put forth by the Forest to designate additional miles for mixed use. We recognize there was significant pressure to do otherwise. The vehicle usage on the vast majority of the Forest roads is minimal and allowing passenger vehicles and ATVs to share the roads is appropriate. Additionally there is no history of accidents or injuries to warrant restricting use.

The County supports all efforts to prohibit mixed use where there are valid safety concerns."

Description of road management objectives, existing use, and proposed use: The goal for recreation (including motorized mixed use of vehicles) in the Forest Plan is that the over all management of the Forest results in a full range of recreation opportunities, ranging from primitive to modern recreation settings. Provide and manage a Forest Transportation System (roads and trails) to accomplish resource management objectives (including opportunities) while protecting resource values. This road is currently open to all motor vehicles. The primary use is recreation. Other uses include logging, fuelwood cutting, grazing, hunting and fishing. It is not feasable to reduce the maintenance level of this road, due to the terrain, the existing horizontal and vertical alignments, and the road width and surfacing type. No changes are proposed for the use of this road.

Summary of Findings:

Motorized mixed use currently occurs on all of this road. There is no accident history. Traffic volumes are low. Sight distances are generally long. This road is wide with adequate runout space in the ditches or shoulders. Anticipated average speeds are 35 mph or less. These factors lead to the conclusion that the probability of a crash is low, and the severity of a crash is likely to be moderate

Factors Considered:

1. Operator considerations:

Prudent operators in compliance with the California Vehicle Code and other applicable laws and regulations is assumed.

2. Crash history:

There is no crash history available for 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:
☒ Passenger cars ☒ Commercial vehicles ☒ Recreation vehicles (RV's)

Traffic counts were done at the 5 different locations at the main entry points to the analysis area that includes this road. The time periods counted included mornings and evenings, and weekdays and weekends. Traffic was counted for a total of 85 hours, in 27 different counting periods. 259 vehicles were counted, for an average of less than 3.5 vehicles per hour. Of the 259 vehicles counted there was 7 motorcycles, 6 Truck/Tractors, the remainder were cars, pickups, or SUV's. See traffic count summary in Appendix B & details in Appendix C traffic count log. If traffic on the Medicine Lake road is excluded (it is a paved road not proposed for mixed use) then there were 120 vehicles in 62 hours of counting for average of less than 2 vehicles per hour.

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

Anticipated average speeds on this road is 35 mph or less.

5. Road surface type:

This road is surfaced with crushed aggregate.

6. Intersections with other roads and trails:

Numerous intersections along the route. See attached map.

7. Other roadway factors:

This road is relatively wide. It was constructed as single lane roads, and is shown on our inventory as a single lane road. However past maintenance practices have widened this road to approximately 18 to 20 feet. Sight distance is adequate for the anticipated average speed on this road. See attached Photo.

8. Roadside conditions:

This road has an inside ditch that can be driven into with most vehicles in an emergency.

9. Risk without mitigation:

Crash probability: ☐ High ☐ Med ☒ Low

Crash severity: ☐ High ☒ Med ☐ Low

Mitigation Measures:

A sign plan will be developed after the travel management decision is made on the Forest. Share the Road signs may be appropriate at entry points to the Forest.

Conclusion:

The Modoc National Forest has the lowest recreation use of any National Forest in the National Forest System. We receive much lower motor vehicle use on our Maintenance Level 3 (ML3) and 2 (ML2) roads than any other Forest in Region 5. This is due primarily to our sparse population (Modoc County has 9000 people in the entire county), long distance to population centers and a long distance to popular interstate road systems.

Both the Modoc County Sheriff and the local California Highway Patrol (CHP) are not aware of any OHV accidents that have occurred on the Forest. The CHP does not patrol on our ML3 roads and only responds if there has been an accident.

OHV use on this Forest has not grown nearly as fast as other locations in California as demonstrated by our survey. Therefore it is reasonable to continue to provide this opportunity.

Currently mixed use is allowed on this road. Nothing found during this analysis indicates that a change to the current use is needed.

Engineering Report

Modoc National Forest

Warner Mountain Ranger District

Analysis of Road # 46N06

for Motorized Mixed Use Designation

Prepared by:

_____

Forest Engineer

Date: _____

Concurred by:

_____

Forest Supervisor

Date: _____

Forest: **Modoc** District: **Warner Mountains**

Road Number: **46N06** Name: **Cold Creek**

Beginning Mile Post: 0.0 Ending Mile Post: 12.2

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: 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: Unrestricted Government Use ROW's over private lands that the road crosses.

Subject to Highway Safety Act? ☒ Yes ☐ No

Non-highway-legal vehicles currently permitted? ☒ Yes ☐ No

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

The California Vehicle Code OHV Provisions [38001(a)] includes a statement that says "For the purposes of this division, the term "highway does not include fire trails, logging roads, service roads regardless of surface composition, or other roughly graded trails and roads upon which vehicular travel by the public is permitted".

Local Officials including the Modoc County Sheriff and others do not consider these roads to be highways for this purpose.

In a letter dated February 10, 2009, the Modoc County Board of Supervisors stated "We appreciate the extra effort put forth by the Forest to designate additional miles for mixed use. We recognize there was significant pressure to do otherwise. The vehicle usage on the vast majority of the Forest roads is minimal and allowing passenger vehicles and ATVs to share the roads is appropriate. Additionally there is no history of accidents or injuries to warrant restricting use.

The County supports all efforts to prohibit mixed use where there are valid safety concerns."

Description of road management objectives, existing use, and proposed use: The goal for recreation (including motorized mixed use of vehicles) in the Forest Plan is that the over all management of the Forest results in a full range of recreation opportunities, ranging from primitive to modern recreation settings. Provide and manage a Forest Transportation System (roads and trails) to accomplish resource management objectives (including opportunities) while protecting resource values. This road is currently open to all motor vehicles. The primary use is recreation. Other uses include logging, fuelwood cutting, grazing, hunting and fishing. It is not feasable to reduce the maintenance level of this road, due to the terrain, the existing horizontal and vertical alignments, and the road width and surfacing type. No changes are proposed for the use of this road.

Summary of Findings:

Motorized mixed use currently occurs on all of this road. There is no accident history. Traffic volumes are low. Sight distances are generally long. This road is wide with adequate runout space in the ditches or shoulders. Anticipated average speeds are 35 mph or less. These factors lead to the conclusion that the probability of a crash is low, and the severity of a crash is likely to be moderate

Factors Considered:

1. Operator considerations:

Prudent operators in compliance with the California Vehicle Code and other applicable laws and regulations is assumed.

2. Crash history:

There is no crash history available for 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:
☒ Passenger cars ☒ Commercial vehicles ☒ Recreation vehicles (RV's)

Most of the traffic on the Cold Creek Road enters off from the PlumbValley Road 45N35. Traffic counts were done on the Plumb Valley Road 45N35 and the Dismal Swamp Road 48N21. These are two of the highest use roads within the analysis area. Traffic was counted during eight separate periods of 1 to 4 hours. The time periods counted included mornings and evenings, and weekdays and weekends. Traffic was counted for a total of 27 hours. 43 vehicles were counted, for an average of less than 2 vehicles per hour on the Plumb Valley Road and less than one vehicle per hour at Dismal Swamp. Of the 43 vehicles counted there was one Recreational Vehicle, the remainder were cars, pickups, or SUV's. See traffic count summary in Appendix B & details in Appendix C traffic count log.

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

Anticipated average speeds on this road is 35 mph or less.

5. Road surface type:

This road is surfaced with crushed aggregate.

6. Intersections with other roads and trails:

Numerous intersections along the route. See attached map.

7. Other roadway factors:

This road is relatively wide. It was constructed as single lane roads, and is shown on our inventory as a single lane road. However past maintenance practices have widened this road to approximately 18 to 20 feet. Sight distance is adequate for the anticipated average speed on this road. See attached Photo.

8. Roadside conditions:

This road has an inside ditch that can be driven into with most vehicles in an emergency.

9. Risk without mitigation:

Crash probability: ☐ High ☐ Med ☒ Low

Crash severity: ☐ High ☒ Med ☐ Low

Mitigation Measures:

A sign plan will be developed after the travel management decision is made on the Forest. Share the Road signs may be appropriate at entry points to the Forest.

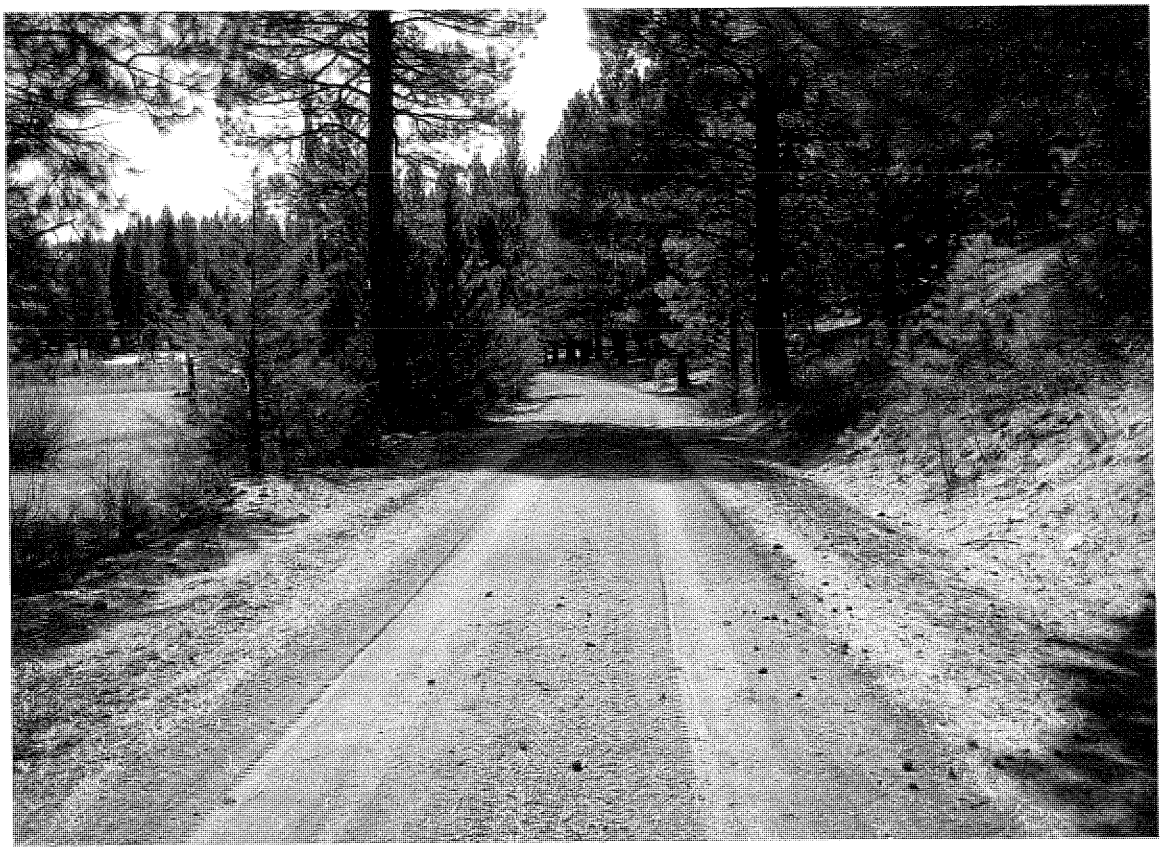
Conclusion:

The Modoc National Forest has the lowest recreation use of any National Forest in the National Forest System. We receive much lower motor vehicle use on our Maintenance Level 3 (ML3) and 2 (ML2) roads than any other Forest in Region 5. This is due primarily to our sparse population (Modoc County has 9000 people in the entire county), long distance to population centers and a long distance to popular interstate road systems.

Both the Modoc County Sheriff and the local California Highway Patrol (CHP) are not aware of any OHV accidents that have occurred on the Forest. The CHP does not patrol on our ML3 roads and only responds if there has been an accident.

OHV use on this Forest has not grown nearly as fast as other locations in California as demonstrated by our survey. Therefore it is reasonable to continue to provide this opportunity.

Currently mixed use is allowed on this road. Nothing found during this analysis indicates that a change to the current use is needed.



Engineering Report

Modoc National Forest

Devils Garden & Doublehead Ranger Districts

Analysis of Road # 46N10

for Motorized Mixed Use Designation

Prepared by:

_____
Forest Engineer

Date: _____

Concurred by:

_____
Forest Supervisor

Date: _____

Forest: **Modoc** District: **Doublehead**

Road Number: **46N10** Name: **Mowitz**

Beginning Mile Post: 0.0 Ending Mile Post: 30.7

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: 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: None (does not cross private property)

Subject to Highway Safety Act? ☒ Yes ☐ No

Non-highway-legal vehicles currently permitted? ☒ Yes ☐ No

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

The California Vehicle Code OHV Provisions [38001(a)] includes a statement that says "For the purposes of this division, the term "highway does not include fire trails, logging roads, service roads regardless of surface composition, or other roughly graded trails and roads upon which vehicular travel by the public is permitted".

Local Officials including the Modoc County Sheriff and others do not consider these roads to be highways for this purpose.

In a letter dated February 10, 2009, the Modoc County Board of Supervisors stated "We appreciate the extra effort put forth by the Forest to designate additional miles for mixed use. We recognize there was significant pressure to do otherwise. The vehicle usage on the vast majority of the Forest roads is minimal and allowing passenger vehicles and ATVs to share the roads is appropriate. Additionally there is no history of accidents or injuries to warrant restricting use.

The County supports all efforts to prohibit mixed use where there are valid safety concerns."

Description of road management objectives, existing use, and proposed use: The goal for recreation (including motorized mixed use of vehicles) in the Forest Plan is that the over all management of the Forest results in a full range of recreation opportunities, ranging from primitive to modern recreation settings. Provide and manage a Forest Transportation System (roads and trails) to accomplish resource management objectives (including opportunities) while protecting resource values. This road is currently open to all motor vehicles. The primary use is recreation. Other uses include logging, fuelwood cutting, grazing, hunting and fishing. It is not feasable to reduce the maintenance level of this road, due to the terrain, the existing horizontal and vertical alignments, and the road width and surfacing type. No changes are proposed for the use of this road.

Summary of Findings:

Motorized mixed use currently occurs on all of this road. There is no accident history. Traffic volumes are low. Sight distances are generally long. This road is wide with adequate runout space in the ditches or shoulders. Anticipated average speeds are 35 mph or less. These factors lead to the conclusion that the probability of a crash is low, and the severity of a crash is likely to be moderate

Factors Considered:

1. Operator considerations:

Prudent operators in compliance with the California Vehicle Code and other applicable laws and regulations is assumed.

2. Crash history:

There is no crash history available for 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:
☒ Passenger cars ☒ Commercial vehicles ☒ Recreation vehicles (RV's)

Traffic counts were done at the 7 different locations at the main entry points to the analysis area, that includes this road. The time periods counted included mornings and evenings, and weekdays and weekends. Traffic was counted for a total of 175 hours, in 53 different counting periods. 223 vehicles were counted, for an average of less than 1.5 vehicles per hour. Of the 213 vehicles counted there were four OHV's, the remainder were cars, pickups, or SUV's. See traffic count summary in Appendix B & details in Appendix C traffic count log.

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

Anticipated average speeds on this road is 35 mph or less.

5. Road surface type:

This road is surfaced with cinders.

6. Intersections with other roads and trails:

Numerous intersections along the route. See attached map.

7. Other roadway factors:

This road is relatively wide. It was constructed as single lane roads, and is shown on our inventory as a single lane road. However past maintenance practices have widened this road to approximately 18 to 20 feet. Sight distance is adequate for the anticipated average speed on this road. See attached Photo.

8. Roadside conditions:

This road has an inside ditch that can be driven into with most vehicles in an emergency.

9. Risk without mitigation:

Crash probability: ☐ High ☐ Med ☒ Low

Crash severity: ☐ High ☒ Med ☐ Low

Mitigation Measures:

A sign plan will be developed after the travel management decision is made on the Forest. Share the Road signs may be appropriate at entry points to the Forest.

Conclusion:

The Modoc National Forest has the lowest recreation use of any National Forest in the National Forest System. We receive much lower motor vehicle use on our Maintenance Level 3 (ML3) and 2 (ML2) roads than any other Forest in Region 5. This is due primarily to our sparse population (Modoc County has 9000 people in the entire county), long distance to population centers and a long distance to popular interstate road systems.

Both the Modoc County Sheriff and the local California Highway Patrol (CHP) are not aware of any OHV accidents that have occurred on the Forest. The CHP does not patrol on our ML3 roads and only responds if there has been an accident.

OHV use on this Forest has not grown nearly as fast as other locations in California as demonstrated by our survey. Therefore it is reasonable to continue to provide this opportunity.

Currently mixed use is allowed on this road. Nothing found during this analysis indicates that a change to the current use is needed.

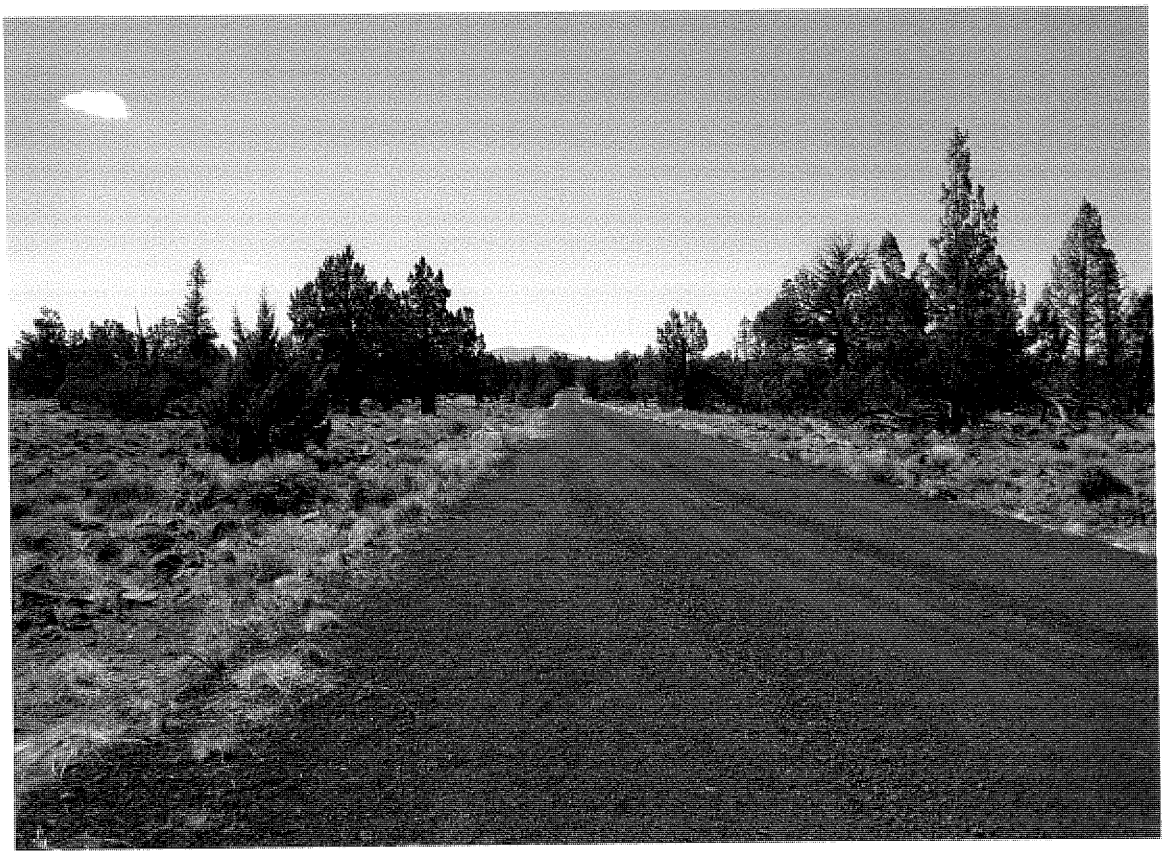


Exhibit 6

California Highway Patrol, Deputy Commissioner J.A. Farrow letter to Regional Forester Randy Moore

State of California—Business, Transportation and Housing Agency ARNOLD SCHWARZENEGGER, Governor

DEPARTMENT OF CALIFORNIA HIGHWAY PATROL
P. O. Box 942898
Sacramento, CA 94298-0001
(916) 657-8048
(800) 735-2929 (TT/TDD)
(800) 735-2922 (Voice)

December 19, 2007

File No.: 001.A9293.07-1662-1.051

Mr. Randy Moore
Regional Forester
USDA Forest Service
Pacific Southwest Region
1323 Club Drive
Vallejo, CA 94592

Dear Mr. Moore:

We are in receipt of your letter dated November 28, 2007, memorializing the August 7, 2007, meeting between your staff and our Planning and Analysis Division staff wherein your process for designating your maintenance level (ML) 3 U.S. Forest Service (USFS) routes as "mixed use" was discussed.

Since the August 2007 meeting, the California Highway Patrol (CHP) has received inquiries from recreational groups and other interested individuals regarding this issue and after reading your letter, I believe clarification of the CHP's position and the April 2005 letter is necessary.

When Mr. Blackwell contacted the CHP in January 2005, he asked specific questions without providing any history/background to the issues. Our response was accurately drafted to answer his specific questions, but it was not intended to apply to all of the national forest system roads; the USFS roadways are too diverse in their composition, especially the ML 3 roadways.

It was never our intent to imply that the USFS could not designate their ML 3 roadways for legal off-highway vehicle (OHV) use. Therefore, with our new knowledge of the history and background of the issues, we will once again answer the 2005 questions.

1. Are your ML 3 roadways considered "highways" under Section 38001 of the California Vehicle Code (VC)?
2. Do the "combined use" regulations (Section 38026 VC) apply to your roadways?

The VC has to be general in nature so it may apply to different situations and interpretations. Section 38001 VC states:

> "For purposes of this division, the term "highway" does not include fire trails, logging roads, service roads regardless of surface composition, or other roughly graded trails and roads upon which vehicular travel by the public is permitted."

We are not familiar with all the ML 3 Forest Service roadways, but if they are gravel or other dirt or unpaved roads that have been operating as mixed use roadways for years, it is our belief these roads would fall under the "roughly graded trails and roads upon which vehicular travel by the public is permitted" portion of Section 38001 VC and would, therefore, be eligible for your mixed-use definition.

Additionally, I think it is important to point out that "mixed use" and "combined use" are two different functions. "Mixed use" is a USFS term and applies to USFS roads and does not require the CHP's approval before designation. Combined use is more restrictive than the USFS mixed use category as it requires OHV riders to be licensed operators as well as to have current vehicle insurance.

"Combined use" is defined in the VC and is intended for roadways that are included in the definition of "highway," but which do not qualify for the Section 38001 VC exception for purposes of allowing registered off-highway vehicle use. These have generally been paved roads that are part of a local or state designated street and highway system.

Combined use segments are up to three-mile portions of a highway (constructed so as to safely permit the use of regular vehicular traffic as well as OHVs) that serve as a connecting link between:

- ✓ Off-highway motor vehicle trail segments, or
- ✓ An off-highway motor vehicle recreational use area and necessary service facilities; or
- ✓ Lodging facilities and an off-highway motor vehicle recreational facility.

These types of proposals do require the CHP's approval and require erection of Department of Transportation-approved signs.

It is unfortunate that our first letter has, at times, been misinterpreted and resulted in unintended consequences. If you have any questions, you may contact Chief Jim McLaughlin of my Planning and Analysis Division at (916) 657-4098.

Sincerely,

J. A. Farrow

J. A. FARROW
Deputy Commissioner

cc: Angeles National Forest
Cleveland National Forest
El Dorado National Forest
Inyo National Forest
Klamath National Forest
Lake Tahoe Basin Management Unit
Lassen National Forest
Los Padres National Forest
Mendocino National Forest
Modoc National Forest
Plumas National Forest
San Bernardino National Forest
Sequoia National Forest
Shasta-Trinity National Forest
Sierra National Forest
Six Rivers National Forest
Stanislaus National Forest
Tahoe National Forest

Exhibit 7

R5 Mixed Use Accidents for the Last 15 Years (1993-2008)

R5 Mixed Use Accidents For the last 15 years
By Safety Year 7/1-6/30

Here if the definition of Mixed-Use as stated directly out of the EM-7700-30 "Guidelines for Engineering Analysis of Motorized Mixed Use on National Forest System Roads".
National Forest System (NFS) roads are designed primarily for use by highway-legal vehicles (motor vehicles that are licensed or certified for general operation on public roads within the State) such as a passenger car or log truck. Some NFS roads also provide recreational access for all-terrain vehicles and other non-highway-legal OHVs. For the purpose of this document, motorized mixed use is defined as designation of a NFS road for use by both highway-legal and non-highway-legal motor vehicles. Designating NFS roads for motorized mixed use involves safety and engineering considerations.

Forest	How Many Accidents?	Comments	Reports
ANGELES	0		
CLEVELAND	0		
ELDORADO	0		
INYO	0		
KLAMATH	0		
LASSEN	0		
LOS PADRES	2	(SY05) 8/19/05 Forest service pick up VS an ATV. both driving 10 MPH on a curved brushy road. ATV had a rifle mounted in a rifle rack on the front end of the ATV and the rifle stock scraped the section of the left side of the Forest Service pick up. (SY97) 9/22/96 Law Enforcement officer had a head on with a Motorcycle on Gold Hill Road Near Old Gold Hill Campground. We have no records. They were destroyed after 10 years. If it was a FS related vehicle accident, possibly Ray would have some old record. There is nothing for us to provide. The convenience of WildCAD, is we would still have those records electronically on file, but WildCAD didn't come on line with LPF until 2000. Linda Lowe/R5/USDAFS	SF-91- 8/19/05 # 956

Forest	Accidents?	Comments	Reports
MENDOCINO	3	1. (SY04) 1/17/04 Vehicle VS. motorcycle head on into pick up truck. Forest road 17N04 Fatality to Motorcycle rider. 2. (Sy 05) 5/14/05 Motorcycle came into middle of the road and hit pick up truck. No Hospitalization required. 3. (Sy05 5/29/05 Tired to miss motorcycle. Right front tire went over the bank, Truck turned and went over. No Hospitalization.	1/17/04- 7374204 5/14/05- 7937074 5/29/05- 7943552
MODOC	0		
SIX RIVERS	0		
PLUMAS	1	(Sy09) 7/18/08 Forest Service employee in Government vehicle had a head on with an ATV.	Claim # 208476002
SAN BERNARDINO	0		
SEQUOIA	0	There hasn't been a recorded MVA meeting the criteria below by Sequoia Fleet Management for the past nine years. The files for Safety year 1998 and the previous years were destroyed by the previous Fleet Manager. All recorded accidents in my files have been Forest Service vs. highway legal vehicles. The SQF Law Enforcement Officers may have records meeting the criteria that was not reported to Fleet Management due to the fact that a SQF vehicle was not involved. John Silva Fleet & Equipment Specialist	
SHASTA-TRINITY	0		
SIERRA	1	(SY09) 10/11/08 Motorcycle broke down, was being towed by another motorcycle with a 12 foot tow strap, was struck by oncoming car. Next to 4S81 near fish Creek Campground. Fatality to Motorcycle rider.	SNF-1620
STANISLAUS	0		

Forest	Accidents?	Comments	Reports
TAHOE	4	1. (SY03) 9/3/02 Meadow lake #86 ATV vs. Vehicle, Non injury. 2. (SY05) 6/24/05 Rd# 07 ATV vs. Vehicle, injury, care flight. 3. (SY06) 7/16/05 Forest Service Road Placer county Sheriff's Deputy hit an ATV head on. 4. (SY 07) 5/31/07 Gaston grade ATV vs. vehicle, Non injury	9/3/02- 7157068 6/24/05- 7083828 7/16/05-7/05-81 5/31/07-?
LAKE TAHOE	0		
REGIONAL OFFICE	0		
OTHER			
TOTAL	11		

Exhibit 8

Lassen National Forest Temporary Forest Order (May 2009)

United States Department of Agriculture
Forest Service

Lassen National Forest

06-09-01 Forest Order Motorized Vehicle Closures

Order No. 06-09-01 USDA Forest Service Lassen National Forest MOTORIZED VEHICLE RESTRICTIONS

Pursuant to 36 CFR 261.50(a) and (b), and to protect natural resources, the following act is prohibited within the Lassen National Forest. This order is effective from July 13, 2009 through July 12, 2010. Possessing or using a motorized wheeled vehicle off National Forest System roads, except for the routes, open areas, and National Forest System trails shown on Exhibit A. For purposes of this order, a wheelchair is not considered to be a motorized wheeled vehicle. 36 CFR 261.56.

Pursuant to 36 CFR 261.50(e), the following persons are exempt from this order:

1. Any Federal, State, or local officer or member of an organized rescue or fire-fighting force in the performance of an official duty.
2. Persons with a permit from the Forest Service specifically authorizing the otherwise prohibited act or omission.

This prohibition is in addition to the general prohibitions in 36 CFR Part 261, Subpart A.

Executed in Susanville, California, this 27th day of May 2009.
/s/Kathleen S. Morse_____
KATHLEEN S. MORSE

Forest Supervisor Lassen National Forest A violation of this prohibition is punishable by a fine of not more than $5,000 for an individual or $10,000 for an organization, or imprisonment for not more than 6 months, or both. 16 USC 551 and 18 USC 3559, 3571, and 3581.

Maps

Westwood
Soldier Mountain
Jonesville
Burney Mountain
Antelope Mountain
Frontcountry

Exhibit 9

California Highway Patrol, Chief of Planning and Analysis Division, J.E. McLaughlin, letter to Marlene Finley

State of California—Business, Transportation and Housing Agency ARNOLD SCHWARZENEGGER, Governor

DEPARTMENT OF CALIFORNIA HIGHWAY PATROL
P. O. Box 942898
Sacramento, CA 94298-0001
(916) 657-4098
(800) 735-2929 (TT/TDD)
(800) 735-2922 (Voice)

February 3, 2009

File No.: 050.A9293.09-0057.051

Ms. Marlene Finley
Regional Director
Recreation, Lands, Wilderness and Heritage Resources
USDA Forest Service
Pacific Southwest Region
1323 Club Drive
Vallejo, CA 94592

Dear Ms. Finley:

Thank you for initiating the January 9, 2009, meeting between your agency and the California Highway Patrol (CHP) to discuss your roadway designation process.

It is understood that you have now determined that your Maintenance Level (ML) 3 roadways are considered "highways" for the purposes of the California Vehicle Code (VC) which would require that any off-highway vehicle access on these ML 3 roads would require a combined-use designation pursuant to Section 38026 VC. We appreciate you inquiring about our policy and guidelines relating to the approval of combined-use roadway designations and agree the information should be provided to your regional foresters to assist them during the process.

As mentioned at the meeting, when one of the foresters determine a 3-mile or less segment of highway in the forest would meet the criteria for a combined-use designation, a proposal should be prepared, and submitted to the local CHP Area office, which includes:

(1) Purpose. The purpose of the combined-use highway. For example: to link off-highway motor vehicle trail segments.

(2) Description. A description of the highway segment, including but not limited to:
- Width;
- Length (cannot exceed three miles);
- Location;
- Type of surface;
- Type of shoulder;
- Number of lanes;

- Speed limit.
- Diagrams and photographs would be beneficial.

(3) Highway Traffic Data. The average daily travel and collision rate (the number of collisions per million vehicle miles traveled).

(4) Land Use. Land use within 100 yards of the proposed combined use highway.

(5) Rules and Regulations. A copy of the rules and regulations required to be adopted for combined-use designation pursuant to Section 38026(a) VC.

(6) Justification. The benefits of the combined-use designation, such as public service(s) performed or problem(s) resolved.

(7) Costs. An estimate of the costs associated with developing, implementing, operating, and maintaining the proposed combined-use highway.

(8) Signing. A description of the California Department of Transportation approved signs to be posted and the location where they will be erected.

As a proposal goes through the CHP's review process, the following factors will be considered:

- Motorist and public safety;
- Traffic volume;
- Types of vehicles using the roadway;
- Property use of adjacent property owners;
- Physical characteristics of the roadway.

Thank you for your efforts to keep us informed of your roadway designation process. If you have further questions, please do not hesitate to contact me at (916) 657-4098, or Captain Paul Congi of Research and Planning Section at (916) 657-7237.

Sincerely,

J. E. McLAUGHLIN, Chief
Planning and Analysis Division

USDA United States Department of Agriculture | Forest Service | Washington Office | 1400 Independence Avenue, SW Washington, DC 20250

File Code: 1300/2350-5/7700
Date: JUL 0 7 2010

Ms. Sylvia Milligan
Recreation Outdoors Coalition
4000 Beacon Drive
Anderson, CA 96007

Dear Ms. Milligan:

This letter is in response to your April 7, 2010, Request for Reconsideration of the Forest Service's response to your February 1, 2010, Data Challenge of the engineering reports included in the Lassen National Forest Final Environmental Impact Statement for Motor Vehicle Travel Management Plan.

The panel selected to complete this Request for Reconsideration reviewed the March 31, 2010, Forest Service response and your documentation. The panel concluded that the original review addressed the primary challenge and appropriately arrived at the conclusion the engineering reports meet the requirements of the Data Quality Act. The panel did not identify any major concerns; however, they did identify a few items that the Forest Supervisor should be made aware of so that she can consider how these items may affect her decision or management of the forest. The panel also addressed statements from your letter as described in the following paragraphs.

1. In your February 1, 2010, and April 7, 2010, letters, you assert that the Lassen National Forest engineering reports should have considered and been consistent with other reports and decisions, including those of the County, the Modoc National Forest and the 2005 Engineering Report prepared by Recreation Outdoors Coalition (ROC). As explained in the Forest Service, March 31, 2010, letter responding to your Data Challenge, the Qualified Engineer, who was designated by the Regional Engineer, was responsible for preparing the engineering reports. The Qualified Engineer has the responsibility to determine the data to be considered, the methodology and the level of detail in the analysis.

2. The statement that the ROC engineering report was prepared by a retired Forest Service engineer, who is licensed in the State of California, does not automatically require the Lassen National Forest engineer to consider the report. The panel did not find any documentation that the Lassen National Forest or the Regional Office approved the 2005 report for use as an engineering report.

3. The fact that engineers on another forest collected data differently than the Lassen National Forest engineer or that ROC used different methods to gather data, does not constitute an error in the data, nor does it constitute a bias. The management of roads under the jurisdiction of another entity, such as the County or adjacent National Forest may be considered in a mixed use analysis, but does not obligate the Forest Supervisor to make similar decisions for the Lassen National Forest.

4. You also expressed concern about the California State Vehicle Code (CVC) and how it pertains to road management on the Lassen National Forest. The panel found that the CVC was recognized, documented and considered in the Lassen National Forest reports. The analysis correctly complied with the interpretation of the California Vehicle Code made by the Regional Forester for Region 5, where the Lassen National Forest is located. Concerns with the Regional Forester's direction are beyond the scope of this review.

5. The panel reviewed Exhibit 1 submitted by ROC. Many of the items identified in Exhibit 1 did not constitute a data challenge, as there was no data to consider. Instead, the statements were expressions of the opinions or recommendations of the Recreation Outdoors Coalition.

   The panel noted that some reports were not signed or dated; however, this does not necessarily imply that the data is flawed. The panel also noted that the description of some agreements in the Forest database did not match those listed on the report. The panel reviewed a random sample of roads and identified some differences between the road characteristic data in the Lassen National Forest engineering reports and the data currently in the INFRA database. The previous INFRA database information was not reviewed, so it is unknown what INFRA database information was available or considered by the engineer during preparation of the report. It is also unknown why the differences exist and what affect this had on the engineering reports and the Forest Supervisor's decision.

   The Qualified Engineer is responsible for preparing the engineering report and the Forest Supervisor is responsible for making the decision about motorized mixed use. Issues or disagreements with the Forest Supervisor's decision are more appropriately addressed through the administrative appeals process. This response will be forwarded to the Forest Supervisor for her information and consideration.

In conclusion, the information you provided was carefully considered and I have concluded there were no major data challenge issues. This completes the correction of information options available under the USDA IQ Guidelines.

If you should have any additional questions on the administrative steps of this process, please contact George Vargas, Forest Service Quality of Information Officer, at (202) 205-0444, or send an e-mail to gvargas@fs.fed.us.

Sincerely,

Thomas A. Peterson

for JOEL D. HOLTROP
Deputy Chief, National Forest System

cc: Nora Rasure