Sequoia National Forest and
Giant Sequoia National Monument
Travel Analysis Report

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Background of Travel Analysis Process

The current Forest Service direction for travel analysis is the result of a series of agency decisions over the last decade concerning the management of motorized vehicle use on National Forest System lands. The initial policy included only roads, but evolved over time through additional policy decisions to address all motorized travel: on roads, trails, and in areas designated as open for cross-country motorized travel.

Agency policy requiring a science-based analysis for travel management decisions began in August 1999, when the Washington Office of the USDA Forest Service published Miscellaneous Report FS-643 titled "Roads Analysis: Informing Decisions about Managing the National Forest Transportation System." The objective of the roads analysis was to provide decision-makers with critical information to develop road systems that were safe and responsive to public needs and desires, were affordable and efficiently managed, had minimal negative ecological effects on the land, and were in balance with available funding for needed management actions.

In October 1999, the agency published Interim Directive 7710 authorizing units to use, as appropriate, the road analysis procedure embedded in FS-643 to assist land managers making major road management decisions. In January 2001, the Forest Service issued the final National Forest System Road Management Rule. This Roads Rule revised regulations concerning the management, use, and maintenance of the National Forest Transportation System (NFTS) to make them consistent with changes in public demands and use of National Forest System resources and in response to the need to better manage funds available for road construction, reconstruction, maintenance, and decommissioning. The final Roads Rule removed the emphasis on transportation development and added a requirement for sound science-based transportation analysis. The final Roads Rule was intended to help ensure that additions to the National Forest System road network were those deemed essential for resource management and use; that construction, reconstruction, and maintenance of roads minimized adverse environmental effects; and that unneeded roads were decommissioned and restoration of ecological processes was initiated.

In November 2005, the U.S. Department of Agriculture promulgated the final rule for "Travel Management: Designated Routes and Areas for Motor Vehicle Use," otherwise known as the Travel Management Rule, which is current policy. The Federal Register renamed "Road Analysis" as "Travel Analysis," and streamlined some of its procedural requirements for the purpose of designating roads, trails, and areas for motor vehicle use, and to expand the scope of roads analysis to encompass trails and areas.

The Forest Service revised regulations regarding travel management on National Forest System lands in 2005 to clarify policy related to motor vehicle use, including the use of off-highway vehicles. The travel management rule requires designation of those roads, trails, and areas that are open to motor vehicle use. Designation is made by class of vehicle and, if appropriate, by time of year. The final rule prohibits the use of motor vehicles off the designated system; as well as use of motor vehicles on routes, and in areas that are not consistent with the designations.

The clear identification of roads, trails, and areas for motor vehicle use in each national forest:

- Enhances management of NFS lands;
- Sustains natural resource values through more effective management of motor vehicle use;
- Enhances opportunities for motorized recreation experiences on NFS lands;
- Addresses needs for access to NFS lands; and
- Preserves areas of opportunity in each National Forest for non-motorized travel.

The current designated transportation system open for motor vehicles is shown on the motor vehicle use maps (MVUMs).

Travel Analysis is required to inform decisions related to identification of the minimum road system needed for safe and efficient travel and for administration, utilization, and protection of National Forest System lands (36 CFR 212.5); and to inform decisions related to the designation of roads, trails, and areas for motor vehicle use.

Travel Analysis Process (TAP) is a science-based analysis; it neither produces decisions nor allocates NFS lands for specific purposes. Rather, responsible officials, with public involvement, make future travel management decisions regarding the National Forest Transportation System (NFTS), which is informed by travel analysis to move administrative units towards the minimum road system. The ultimate goal of the TAP is management and sustainability of a road system that minimizes adverse environmental effects by assuring roads are in locations only where they are necessary to meet access needs, and can be maintained within budget constraints.

The TAP is based on the consideration of ecological, social, and economic impacts. The TAP must be documented in a Travel Analysis Report (TAR), which includes:

- Information about the analysis as it relates to the criteria found in 36 CFR 212.5(b)(1).
- Maps displaying opportunities for all system roads that differentiates between those roads which will potentially remain and those that may be removed or changed. The maps will be used to inform future proposed actions subject to National Environmental Policy Act (NEPA) compliance.

The Sequoia National Forest TAP has been conducted as a Forest Level analysis and includes maintenance level (ML) 1 through 5 system roads. This report follows the six-step process recommended in the Pacific Southwest Region TAP guidebook. This report contains information concerning the transportation system, and *does not make road management decisions*. Additional TAPs and subsequent environmental analyses at a more site-specific level would need to be conducted to make road management decisions.

The Travel Analysis Process, Subpart A, Team is:

Forest Program Lead: Maria Ulloa

Core Team:

- Marianne Emmendorfer –Team Leader
- Cherie Klein – Mapping and GIS
- Marcos Rios –Engineering

Extended Team:

- Steven Ray – Forest Engineer
- Karen Miller – Forest Heritage Resources Program Manager
- Linn Gassaway -- North Zone Archaeologist (Cultural Resources Data Steward)
- Fletcher Linton – Forest Botanist

Many other Forest Service personnel on the Sequoia National Forest were instrumental in evaluating and analyzing the road-related information at various steps in the process.

An analysis of the entire designated road system in the Sequoia National Forest was completed in 2003, following the Roads Analysis Process agency direction at that time. The completed RAP is hereby incorporated by reference in this Travel Analysis Report.

Existing Transportation System

Background

The transportation system in the Sequoia National Forest has evolved over time, with many roads and trails beginning as Native American travel trails from prehistoric times with all travel on foot. The introduction of the horse in the 1820s and the automobile in the 1910s greatly impacted the Forest transportation system and provided the foundation for the system today. User-created trails began to appear in numbers during the early 1900s as automobile touring and camping became a national past-time. Most roads in the Sequoia National Forest were built primarily for vegetation management and mining access between the 1950s and 1980s. Roads which were constructed for the sole purpose of vegetation management and mining were considered temporary roads, which would be unneeded after use. As the use of roads expanded and modes of travel changed; higher standard roads were intended and designed for multiple uses, including public access. Vegetation management, particularly for timber management, has declined substantially since the early 1990s when the California Spotted Owl Sierran Province Interim Guidelines (USDA 1993) were implemented, and further since the April 2000 presidential proclamation established the Giant Sequoia National Monument (Clinton 2000), and the January 2001 Sierra Nevada Forest Plan Amendment (SNFPA) (USDA 2001). Public use of forest roads has grown steadily, and driving for pleasure is the single largest recreation use of National Forest System lands. Almost all National Forest visitors travel on forest roads. These roads provide access to more than a million national and international visitors every year. Forest roads provide access for recreation such as camping, fishing, hunting, hiking, backpacking, mountain biking, rock climbing, sightseeing, skiing and snowboarding, snowmobiling, and driving off-highway-vehicles. Forest roads also provide administrative access for fire protection, vegetation management, commercial uses, grazing, research, private property use, and insect and disease control. The local Native American community uses the road system to access places of spiritual importance as well as places where foods, medicines, teas and other resources on the forest are gathered. Additionally, the forest road system provides administrative access to Native American trust lands and public domain allotments.

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 for the use and administration of NFS lands. Although roads are 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 or control traffic to meet specific management direction. The majority of travel on the National Forest Transportation System (NFTS) is linked to resource management and outdoor recreation. These roads

provide access for multiple uses. An appropriate level of maintenance is designated for every road depending on the traffic permitted or required by on-going resource programs (See definitions of maintenance levels in Appendix A: Glossary).

Current Transportation System

The Sequoia National Forest transportation system consists of roads and trails for people to access various destinations across the forest. There are some motorized routes in the Sequoia National Forest and Giant Sequoia National Monument (Monument) that are not part of the NFTS. These routes evolved in different ways: some were built as temporary roads, often for vegetation management, and some are user-created routes from unauthorized use. Since they are not part of the NFTS, these routes are not maintained by the Forest Service and are not shown on Motor Vehicle Use Maps. Any unauthorized routes determined to be needed would be evaluated, and could be added to the NFTS as new construction after appropriate travel analysis and site-specific environmental analysis are completed. There are also State Highways and County Roads that connect Forest Service roads to the rest of the transportation network in the state, but the Forest Service does not have jurisdiction over these other roads. The Sequoia National Forest TAP focuses on the road system over which the Forest Service has jurisdiction.

The Sequoia National Forest currently manages and maintains a NFTS of approximately 1,646 miles of system roads, 370 miles of motorized system trails, and 687 miles of non-motorized system trails. The NFTS is managed and maintained to various road and trail standards depending on management objectives. The roads range from paved roads to roughly graded high clearance roads, depending on the type of access necessary. In some cases, where no access is currently needed, roads are "stored" for future management use by closing them to all motor vehicle traffic (See definitions of maintenance levels in Appendix A).

A road is defined as a motor vehicle travel way more than 50 inches wide that is not designated and managed as a trail. The quality of roads varies by number of lanes, surfacing, by low/medium/high standard, and by functional classification (local, collector, arterial) in a general relation to maintenance levels (ML). Each of these road types requires a different level of maintenance for upkeep. The mileage of each type of road is shown in Table 1. Each road also has a functional designation as a local, collector, or arterial road.

Table 1 – Miles of Roads in the Monument and Non-Monument Forest by Operational ML and Objective ML[a]

Maintenance Level	Operational ML			Objective ML		
	Monument	Non-Monument Forest	Total Miles	Monument	Non-Monument Forest	Total Miles
ML 1	71	109	180	313	184	497
ML 2	515	444	959	255	268	523
ML 3	127	160	287	134	209	343
ML 4	72	67	139	69	118	187
ML 5	37	44	81	51	45	96
Total Miles	**822**	**824**	**1,646**	**822**	**824**	**1,646**

[a] These data were taken from the USDA Forest Service Infrastructure resource information database system (INFRA) in February 2013.

Maintenance levels are defined by the USDA Forest Service Handbook (FSH) as the level of service provided by and maintenance required for a specific road. Maintenance levels must be consistent with road management objectives and maintenance criteria. Roads may be currently maintained at one level and planned to be maintained at a different level at some future date.

The operational maintenance level is the maintenance level currently assigned to a road, considering today's needs, road condition, budget constraints, and environmental concerns. In other words, it defines the level to which the road is currently being maintained.

The objective maintenance level is the maintenance level to be assigned at a future date, considering future road management objectives, traffic needs, budget constraints, and environmental concerns. The objective maintenance level may be the same as, or higher or lower than, the operational maintenance level. The transition from operational maintenance level to objective maintenance level may depend on reconstruction or disinvestment (i.e., conversion to trail or decommissioning).

Table 2 – Miles of Roads in the Monument and Non-Monument Forest by Functional Class[a]

Functional Class	Operational ML			Objective ML		
	Monument	Non-Monument Forest	Total Miles	Monument	Non-Monument Forest	Total Miles
Local	586	553	1,139	568	452	1,020
Collector	127	160	287	134	209	343
Arterial	109	111	220	120	163	283
Total Miles	**822**	**824**	**1,646**	**822**	**824**	**1,646**

[a] These data were taken from the USDA Forest Service Infrastructure resource information database system (INFRA) in February 2013.

Local roads (typically maintenance levels 1-2) are at the ends of collector roads, tend to be low standard, and serve a small land area.

Collector roads (typically maintenance level 3) connect the arterial roads to local roads and balance access needs with construction and maintenance costs.

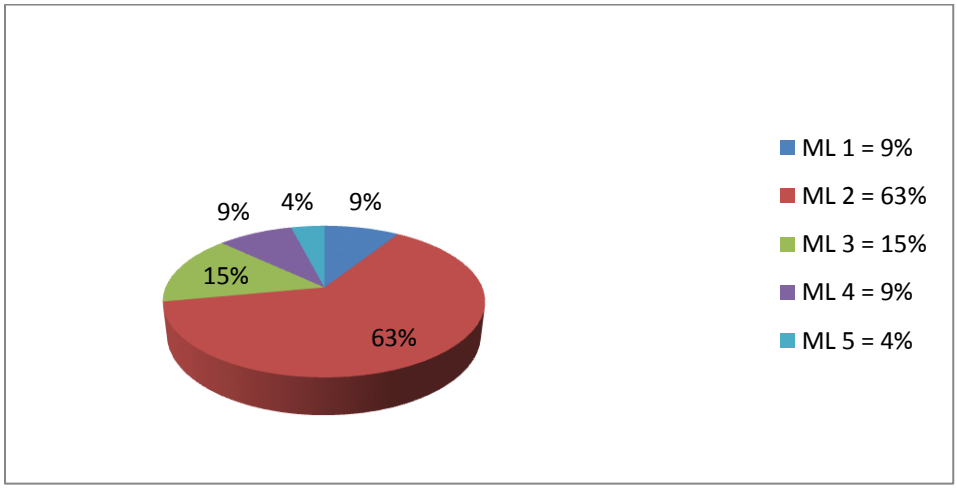
Arterial roads (typically maintenance levels 4-5) are the main roads that traverse the forest and connect to major state highways or county roads. They are paved and designed for higher-speed travel.

Sustainability Including Fiscal Capacity

The current inventory shows 822 miles of roads in the Monument and 824 miles of roads in the rest of the forest totaling 1,646 miles in the Sequoia National Forest.

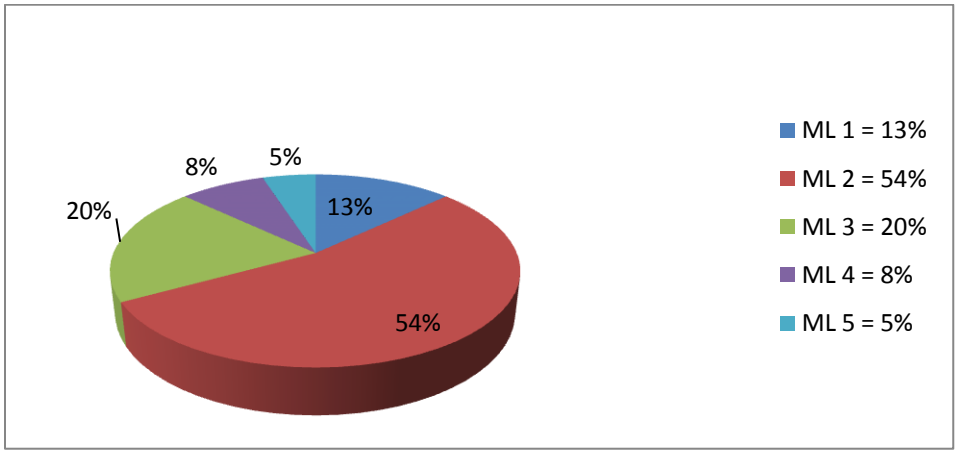
National Forest System roads require administration and maintenance to safely accommodate their intended use, and to avoid problems that can arise when routes fall into disrepair. Included are costs of maintenance that should be performed routinely to maintain the system to its current standard (annual maintenance), and costs of needed maintenance that has not been completed for various reasons (deferred maintenance). Additional costs may be operations, management, enforcement, mitigation of safety or resource issues, decommissioning, and improvements associated with proposed changes to the NFTS. Implementation costs may be for constructing new routes that could be added to the NFTS, for safety improvements, or for increasing maintenance levels. Maintenance costs may differ based on the designated road maintenance level. Figures 1 and 2 show the percent of roads by maintenance level in the Monument and in the non-monument part of the forest.

Figure 1: Percent of Mileage in the Monument by Operational Maintenance Level



Though currently these percentages are very similar, it is expected that the number of ML 1 and 2 roads in the Monument will be reduced in the future.

Figure 2: Percent of Mileage in the Non-Monument Forest by Operational Maintenance Level



Estimates of the annual maintenance costs for the existing road system are included in the following table. Average costs per-mile to maintain each maintenance level were developed and applied to the road system to calculate the estimated total cost. The average unit costs per mile were developed on a regional level (Pacific Southwest Region). Some maintenance activities need to be performed annually; others are performed on a less frequent cycle. The costs shown reflect the annualized costs of performing all needed maintenance activities on their required cycle.

Table 3 – Existing Average Annual Maintenance Needs – Monument and Non-Monument Forest

Maintenance Level	Cost/Mile	Monument Miles	Monument Annual Maintenance	Non-Monument Forest Miles	Non-Monument Forest Annual Maintenance	Total Annual Maintenance
ML 1	$225	71	$15,975	109	$24,525	$40,500
ML 2	$543	515	$279,645	444	$241,092	$520,737
ML 3	$5,148	127	$653,796	160	$823,680	$1,477,476
ML 4	$14,107	72	$1,015,704	67	$945,169	$1,960,873
ML 5	$14,107	37	$521,959	44	$620,708	$1,142,667
					Total:	$5,142,253
Average forest-wide road program budget (includes maintenance and other road related program responsibilities)						$400,000

In past decades, commercial users (typically timber purchasers) maintained a substantial portion of the transportation system in the Sequoia National Forest. With the decrease in vegetation management, fewer roads are being fully maintained.

Each year, the Sequoia National Forest prepares a road maintenance plan, which identifies the road operation and maintenance priorities for the year, as well as maintenance that needs to be done prior to opening for traffic after seasonal closures. Resource protection and public safety are maintenance priorities. Needed maintenance that is not completed increases the deferred maintenance backlog. Maintenance is completed by Forest Service maintenance crews, contractors, volunteers, user groups, cooperators, and other forest resources, as appropriate.

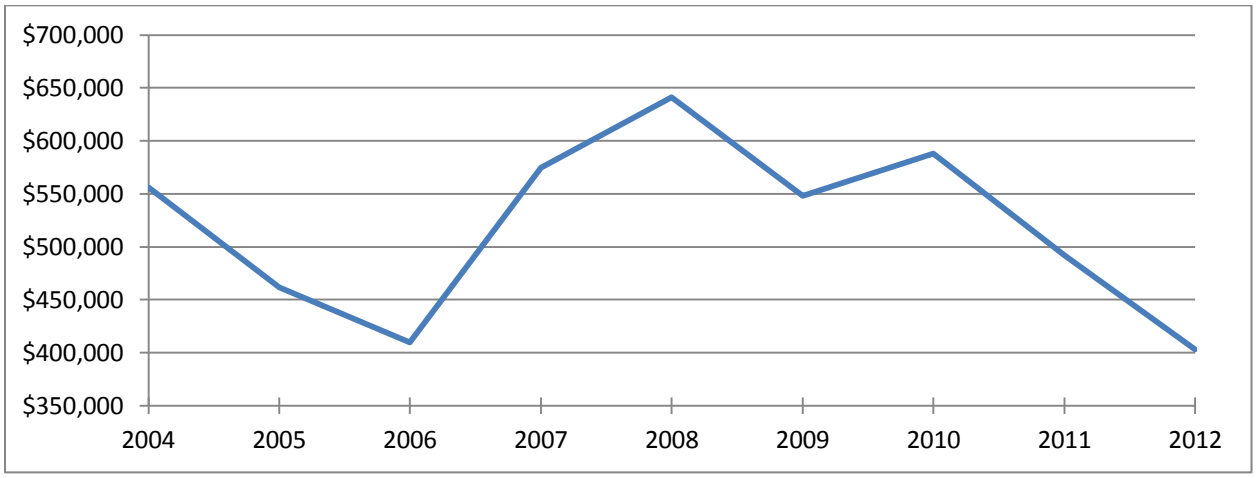
Road funding includes both routine maintenance and other related maintenance activities. Additional maintenance may be accomplished using other funding sources, agreements, partnerships, and other methods. Accomplishments may vary from year to year depending on how the work is accomplished and what gets accomplished. For example, if a mile of road needs blading and vegetation removal, but only vegetation removal is completed, the mile of road is still claimed for maintenance credit. Most of the maintenance to the road system is being done through grants, agreements, and partnerships, and with the priority towards ML 3 to ML 5 roads. The majority of the maintenance done is vegetation clearing and minor surface repair (pothole patching, slough removal), whereas surface blading and asphalt repair get left out due to the high cost. In the following table, miles maintained means at least one maintenance activity was performed, not that every mile reported was fully maintained to standard. The funding shown in the table is the total allocation of CMRD funding to the forest, not the amount spent on road maintenance. Less than 50 percent of the appropriated CMRD is spent on actual road maintenance. The remaining funds pay for other road program-related activities including: road management, INFRA data work, some timber sale support by engineering, engineering management, and work on a variety of road-related projects.

Table 4 - Road System Appropriated Funding and Maintenance[a]

Road Activity	2004	2005	2006	2007	2008	2009	2010	2011	2012
Total CMRD Allocation	$556,000	$462,000	$410,000	$575,000	$641,000	$548,000	$588,000	$492,000	$403,000
Miles Maintained	259	223	154	280	125	212	235	277	289

[a] These data were taken from a variety of Forest Service budget and accomplishment reporting systems.

Figure 3: Road Funding through the CMRD Budget Code



Maintenance of the road system within the Monument is not funded or tracked separately from the rest of the forest. However, the Monument contains about 50 percent of the road system so, on average, about half of the available maintenance funds may be used within the Monument. Annual maintenance needs and deferred maintenance backlog within the Monument would also be about half of the forest totals. Road maintenance budgets have declined over the past decade, and the forest's internal capability to maintain roads has been reduced with loss of maintenance personnel and equipment. Annual road maintenance budgets have not been sufficient to accomplish all needed maintenance activities on the Sequoia National Forest. Additional funds are reserved at the regional or national level for competitive projects throughout the region, and are awarded on a competitive basis. Funded projects typically focus on new construction or reconstruction which may reduce deferred maintenance, but contributes little to annual maintenance. Although this competitive funding may help accomplish limited additional road maintenance on the Sequoia National Forest, funding still falls far short of the amount needed to adequately maintain the roads system.

While maintenance budgets decrease and the maintenance backlog grows larger, safety standards have become more stringent. Existing warning and regulatory signs placed on ML 3-5 are now required to meet new standards for retro-reflectivity set by the Manual on Uniform Traffic Control Devices (MUTCD). In addition to the higher cost of the signs themselves, a monitoring strategy must be in place to ensure signs are still meeting retro-reflectivity requirements, which increases costs. Increased concern over liability requires engineering studies to be performed on roads to be able to enforce posted warning and regulatory signs.

The Giant Sequoia National Monument Management Plan allows motorized vehicle use only on designated roads in the Monument.

In October 2009 the Sequoia National Forest Motorized Travel Management EIS prohibited motorized travel off of the designated road system on the non-monument portion of the forest. Many of the roads and motorized trails that were added to the system were required by the Record of Decision to have mitigations such as waterbar installation, route hardening, or minor rerouting completed prior to designation for public motorized use in order to minimize resource effects. Since the Record of Decision was signed, crews and volunteers have actively been completing mitigations and installing signage on NFS roads and motorized trails, and have been completing closures of unauthorized routes in support of

the prohibition of motorized vehicle travel off of the designated system. Despite the increase in mileage of NFS roads and trails, neither the roads or trails budgets of the forest were increased. In addition to utilizing appropriated funding to support the implementation of Travel Management, the forest has relied on State OHV funds and volunteers to aid in this effort.

The resources needed to maintain the entire National Forest Transportation System are significant. The Forest Service has estimated that, at best, the agency has received approximately 12 percent of the actual funding needed for annual maintenance. The management response has been to defer certain maintenance-related items to a later time and not accomplish some much-needed capital improvements.

The most recent estimate of deferred maintenance needs in the Sequoia National Forest is $56,329,000 for roads as recorded in the USDA Forest Service infrastructure resource information database system (INFRA) for maintenance. (INFRA 2013)

Deferred maintenance is broken up in the following categories:

- Health and Safety (clearing along roadsides, repairing potholes, replacing signs, etc.)
- Resource Protection (installing water bars, rolling dips, and overside drains to prevent or reduce sediment from entering streams; installing larger culverts for aquatic organism passage; closing roads to protect sensitive plant species and to encourage animal migration)
- Forest Service Mission (providing safe access on roads for fire protection, and vegetation management)

In terms of resource protection, most drainage structures (culverts) in the Sequoia National Forest system roads were designed for a 25-year storm event. Culverts in the arterial and collector roads were often designed for a 50-year storm event. Current management direction is to upgrade all culverts to pass a 100-year storm event, as they are replaced. Also, the larger size culverts should improve unimpeded passage of aquatic organisms (USDA 2001, USDA 2012). This culvert replacement direction is part of the deferred maintenance cost estimate.

In recent years, the Forest Service has actively assessed the condition of its road network. The network is in a deteriorating condition due to increased use and the continued deferral of maintenance and capital improvement needs. Roads are becoming unusable through lack of maintenance, are causing resource damage, or are no longer needed, or desired, for administrative or public access. These increasingly unusable roads are candidates for decommissioning after conducting the appropriate site-specific environmental analysis.

External Transportation System Relevant to the Area

In addition to National Forest System Roads, State and County roads cross the Sequoia National Forest, and serve large portions of Federal lands. The NFTS is tributary to the State, County, and Private road system. Several State Highways (SH) and County Roads (CR) are the primary access points connecting the communities to the Sequoia National Forest and the Monument.

Table 5 – Primary Access Points to Sequoia National Forest and Monument

State Highways	Out-of-Location	County Roads	Out-of-Location
99 & 180	Fresno	Millwood Rd	Dunlap
198 & 63	Visalia	Dry Creek Rd (J23)	Lemon Cove
245	Woodlake	CR M56 & 50	Hot Springs
190 & 65	Porterville	9 Mile Canyon Rd (J41)	SH 395
155	Delano	Piute Mtn. Rd	Bodfish
178	Bakersfield	Caliente Road (483)	Caliente
		Mtn. 99	Kernville
		Western Divide Hwy (CR 107)	Ponderosa

State and County roads serve as major access routes for Forest users. The Sequoia National Forest and Monument can be access through several points of entry;

- Access to the northern portion is available on a variety of highways and county roads, including State Highways 99 and 63 and County Road J21, Dry Creek Road. These roads eventually focus traffic on State Highway 180 or State Highway 245, both of which enter the Monument. State Highway 180 out of Fresno serves the northern portion of the Monument, where it becomes the Kings Canyon Scenic Byway. Highway 245 through Pinehurst serves the west side of the northern portion of the Monument. State Highway 198 (General's Highway) provides access to the Monument from the south through Sequoia National Park. (see Motor Vehicle Use Maps)
- Access to the central portion is available on a variety of highways and county roads, including State Highways 99, 65, and 190 east of Porterville. County Road 107 (Western Divide Highway), M56 and M50 through California Hot Springs.
- Nine Mile Canyon Rd from U.S. Route 395 also provides access to the central portion of the forest on the Kern Plateau. (see Motor Vehicle Use Maps)
- Access to the southern portion is available on a variety of highways and county roads, including State Highway 99, State Highway 65, State Highway 155, and State Highway 178 out of Bakersfield. Caliente Creek RD/County Road 483 out of Caliente provides access to the Kern River Valley and M99 provides access from Kernville into the Monument. (see Motor Vehicle Use Maps)

The mileages shown below only reflect the primary roads that connect the NFTS with other road systems (state, county, private, etc.) and provide important access to national forest uses. Mileages shown below do not include all county and private roads.

Table 6 – Miles of Roads in the Sequoia National Forest and Monument with other Jurisdiction

Jurisdiction	Approximate Miles
BLM	1.5
State	135
County	310
Private	15
Commercial Users	3.5
Other Forest Service*	2

* There are a few roads designated under the neighboring forests (Sierra and Inyo) that we maintain, because the road location and main access point is through Sequoia National Forest.

Road Locations in terms of Important Physical and Biological Features

The current road system traverses a diversity of physical and biological features in the Sequoia National Forest and the Monument. During the Ordovician and Cretaceous Period, shallow seas occupied the area that now comprises the Sierra Nevada Mountains. In the Triassic and late Cretaceous periods molten granitic rock began to intrude. Most of the sediment eroded away, and the area was uplifted by a series of faults along its east side to form the mountain range. Today, several geologic features from these remnant processes typify the forest. These include granite domes and glacial formations usually located at the highest elevations, generally above 7,500 feet. These areas generally have shallow, granite-based soils. Upland basins and meadow systems occur between 4,500 and 8,000 feet elevation. These contain shallow to fairly deep soils in the meadow-dominated areas. Many steep river canyons exist, which are predominately carved from marble or granite formations. The Kings River gorge is the second deepest canyon known in North America, and contains the 3,500 acre Windy Gulch Geologic Area. The canyon areas are prone to landslides due to the steep terrain and periodic sloughing of rock. The upland areas and creek confluences contribute to the alluvial fans that form in foothill and savannah areas from sea level to 4,000 feet.

Geologic features, historic travel routes, recreation demand, and the need for resource utilization have played a significant role in where roads have been located in the forest. Roads have evolved over time or have been constructed in areas with unstable geologic features including landslides, very steep terrain and faults. Road placement, in some instances, has altered the integrity of aquatic and terrestrial habitats utilized by a variety of species. Some roads, for example, were developed from historic foot or wagon trails into roadways. As a result, some roads are in close proximity to streams. These roads may parallel a stream for one or more miles and cross the stream at multiple locations. These crossings provide a mechanism for large inputs of sediment to enter the stream system that may alter channel morphology and affect aquatic species habitat, especially if the road is poorly maintained.

Some watersheds contain a series of parallel ridges (i.e., Eshom area on Hume Lake District), which have resulted in a high road density per square mile as people have accessed each sub-watershed for various uses. High road density may contribute to illegal game harvest, road related mortality, increased predation due to lack of hiding cover, increased fragmentation of habitat, and altered habitat use. These factors have the potential to lower habitat suitability for wildlife in general, and in some instances, may negatively influence the presence and persistence of rare or sensitive aquatic and terrestrial wildlife species. Roads may also influence rare botanical species or communities in the forest through road maintenance activity, illegal road use, or provide access for illegal plant harvest. The road density, location and condition factors can also contribute to the introduction and spread of noxious weeds.

The Sequoia National Forest is identified as the southern extent of Pacific fisher, American marten and great gray owl in the State. It is also nesting and foraging habitat for California condor, Northern goshawk and California spotted owl. There is also habitat for several aquatic species including foothill yellow-legged frogs, mountain yellow-legged frogs, and Western pond turtles. Historically there have been wolverine, Sierra Nevada red fox and California red-legged frogs, for which habitat may exist.

The Monument encompasses a portion of the largest concentration of giant sequoias in the world. Several of the groves are accessible to the public by roads and some include recreation sites. Road types providing grove access for vehicles range from Maintenance Level 1 to 5. Approximately half of the groves were logged in the mid to late 1800s while under private ownership, and many of the old railroad beds and skidways have become classified as roads.

There are seven botanical areas established within the Sequoia National Forest. The following table lists the botanical areas, their acreage and the Ranger District on which they are located.

Table 7 – Botanical Areas within the Sequoia National Forest

Botanical Area	Acres	Ranger District
Bodfish Piute Cypress	310	Kern River
Inspiration Point	270	Kern River
Ernest C. Twisselmann	860	Kern River
Bald Mountain	440	Kern River
Baker Point	780	Western Divide
Slate Mountain	490	Western Divide
Freeman Creek	4,190	Western Divide

The North Fork Kern and the Kings are designated wild and scenic rivers. Roads follow portions of both of these river corridors, and provide water-related recreational access. The Kings Canyon Scenic Byway parallels a portion of the South Fork of the Kings River as well.

Use Patterns

Historically, the main uses of the road system have been tied to commodities including grazing, timber production, and hunting. The various Native American communities have used the roads to access plant gathering sites, and for cultural or spiritual purposes. There has been an increased desire by people to go to forests and mountains for various social and spiritual pursuits (Cordell, et al. 2013). These include the need for solitude, getting away from the valley heat, fog, seeing snow, exploration, picnicking, camping, driving for pleasure (including 4 wheel driving, using Off Highway Vehicles, and Over Snow Vehicles), hiking and cultural activities including rites at sacred places.

According to the Forest Recreation Officers, forest use patterns have been changing over the past 10 to 20 years. More people are coming on a daily basis to recreate than for the commodity uses. More extended families are visiting designated day use and camp areas, whereas more individuals are visiting backcountry areas. There is more diversity in the desires of the visiting public, which include amenities such as flush toilets and showers at campgrounds, more roads suitable for travel by passenger vehicles (sedans), and the desire for more solitude.

The Sequoia National Forest had an active traffic surveillance-monitoring program collecting data on 80 roads from 1977 to 1982. Kern, Tulare and Fresno counties and the state of California (Caltrans) continue to monitor their traffic yearly. According to Tulare County, traffic has grown an average of three percent per year for the last decade. To make the figures in Table 8 relevant to each other, the 1982 FS data and the 1994 county data was inflated to the year 2001 and 2011 assuming that the use of these roads would increase at the same rate as the county roads. Table 8 displays projected traffic volumes on the state highways, county roads and major Forest Roads entering or passing through the forest and Monument. Additional traffic data on collector and local roads within the Monument and forest is on file at the Forest Headquarters in Porterville. The data on forest and county roads was only collected during the summer months and is hence referred to as SADT (Seasonal Average Daily Traffic). Caltrans data is entitled AADT (Annual Average Daily Traffic), as it is monitored for an entire year.

Table 8 – Traffic Surveillance on Roads Entering the Monument and Rest of the Forest

Entry Point	SADT 1982	Estimated SADT 2001	AADT 2001	AADT 2008	AADT 2009	AADT 2010	Estimated SADT 2011	AADT 2011	AADT 2012
13S09 (Ten Mile) – Hume Lake*	580	754					928		
14S02 (Burton Pass) – Hume Lake*	61	79					98		
14S11 (Horse Corral) – Hume Lake*	461	599					738		
21S50 (North Road) – Western Divide*	135	176					216		
21S94 (Crawford) – Western Divide*	28	36					45		
22S05 (Sherman Pass) – Kern River	113	147					181		
22S82 (Lloyd Meadow) – Western Divide*	284	369					454		
23S05 (Capinero) – Western Divide*	82	107					131		
23S16 (Sugar Loaf) – Western Divide*	172	224					275		
24S15 (Portuguese Meadow) – Western Divide	72	94					115		
27S02 (Piute) – Kern River	38	49					61		
28S06 (Breckenridge) – Kern River	18	23					29		
SH 155 (Greenhorn Summit)			290	340	330	330		330	310
SH 178			3,800	4,200	4,200	4,200		4,200	4,200
SH 180 (Park Boundary)*			2,300	1,150	1,150	3,050		3,050	3,050
SH 190 (Quaking Aspen)*			420	400	400	400		400	400
SH 245 (Junction with SH 180)*			550	200	200	200		200	200
SM 50 (Between Johnsondale and SM 107)*	307 (1994)	399					491		
SM 99 (Johnsondale)*	566 (1994)	736					906		
SM 107 (At south end near SM 50)*	271 (1994)	352					434		

* These Roads Enter the Monument. SH data came from CALTRANS and SM data came from the Counties.

No data was obtained from the counties. The SQF is currently working on collecting traffic data that enters the forest. No data was collected at the time of this report.

State Highway 178 has the highest rate of any route accessing the forest or Monument. It is the main access route between Bakersfield and the Kern Valley. This route is used daily by commuters living in the Kern Valley and working in Bakersfield. It is also a main access route for people living in the southern San Joaquin Valley and Los Angeles basin areas to reach Lake Isabella for recreation. The next highest ADT is for state highway 180 and the SADT for Forest Road 13S09. These roads provide access to Sequoia and Kings Canyon National Parks and Hume Lake Christian Camp (the largest Christian camp in the nation) as well as the northern portion of the Monument. Also, State Highway 180 and Forest Road 13S09 are the recommended routes for all tour bus traffic entering Sequoia and Kings Canyon National Parks, and the Hume Lake Christian Camp.

Based on current trends, future demand for recreation access is expected to continue to grow while access needs for commodity production is expected to be lower than in the past, especially in the Monument. Funds to maintain the current road system using current sources are expected to decrease (Table 4 and Figure 3).

The National Survey on Recreation and the Environment 2000 shows surveyed user priorities for Forest Management in descending order:

Manage for Protection (Avg. 74.0 percent)

- Protect streams and other sources of clean water
- Provide habitat and protection for abundant wildlife and fish
- Protect rare, unique or endangered plant and animal species

Manage for Amenities (Avg. 61.6 percent)

- Maintain national forests for future generations to use and enjoy
- Provide quiet, natural spaces for personal renewal
- Use and manage forest areas in ways that leave them natural in appearance
- Provide information and educational services about forests, their management, and the natural life in them

Manage for Outputs (Avg. 38.1 percent)

- Provide access, facilities and services for outdoor recreation
- Emphasize planting and management of trees for an abundant timber supply
- Provide access to raw materials and products for local industries and communities
- Provide roads, accommodations and services to help local tourism businesses
- Provide permits to ranchers for livestock grazing (i.e., cattle and sheep)

Unroaded Areas

There are several wilderness and inventoried roadless areas within the forest that are currently being managed for the unroaded values they contribute to the landscape. Forest-wide there are approximately 23,800 acres of Monarch Wilderness, the 10,500 acre Jennie Lakes Wilderness, 111,146 acres of Golden Trout Wilderness, 24,410 acres of the South Sierra Wilderness, the 94,695 acre Dome Land Wilderness, and 44,000 acres of the Kiavah Wilderness. Approximately 5,000 acres of the Golden Trout Wilderness and approximately 9,000 acres of Monarch Wilderness are also in the Monument. Inventoried roadless areas that have not been released for other uses (i.e., wilderness, further planning area or other special management area) within Sequoia National Forest are Moses Mountain, Slate Mountain, Black Mountain, Dennison, Lion Ridge, Rincon and Agnew. The majority of these areas are also within the Monument. Approximately half of the Kings River Special Management Area, encompassing 22,450 acres, is also within the Monument. The unroaded areas are generally important socially, both for the visiting public and the segment of public that find inventoried roadless and wilderness areas have passive value. In other words, that these areas are important to maintain even though the people may have no intention of visiting.

Identifying Issues

To adequately identify issues the TAP interdisciplinary team needed to conduct public involvement. Under the 2003 Road Analysis Process (RAP) the RAP interdisciplinary team identified a need to gather information from the public in terms of their lifestyles, attitudes, beliefs and values regarding the forest

road system. The TAP interdisciplinary team developed a similar public involvement package in order to review and update the issues.

RAP Public Involvement

Members of the public who had expressed interest in Monument planning or roads on Sequoia National Forest were sent a package regarding the RAP process within the Monument on January 7, 2002. The package included a summary of the RAP process and how it related to the Monument planning process, a Road Use Data Sheet, evaluation criteria regarding lifestyles, attitudes, beliefs and values, a chart listing the classified roads in the Monument and a map showing the classified roads in the Monument. While the RAP team used the most current spatial and tabular roads data during the RAP analysis, they knew there were some unresolved discrepancies after the initial data clean-up effort. As a result, after linking the two databases, not all of the classified roads showed up in the DRAFT Public/Social Access Factors Chart. This problem was disclosed to the public because not all roads would be listed in the chart. People were asked to review the package and then fill in the Road Use Data Sheet and the DRAFT Public/Social Access Factors Chart and return them to the RAP team leader by February 22, 2002. The packages were sent to over 3,500 addresses and as of June 28, 2002 there were 501 responses. This is a 14 percent response rate. Some of the respondents represented organizations of 265 to 500,000 members.

Special interest groups, other governments and other state and federal agencies were contacted to participate in the RAP. The Tule River Indian Tribe participated in the RAP through two meetings between the RAP interdisciplinary team leader and the tribal liaison. Members of the Dunlap Band of Mono Indians were contacted, specifically those with interest in rancherias inside the boundaries of the Hume Lake Ranger District. The RAP Report stated that no one representing the Dunlap Band or associated with the rancherias responded to the public involvement process, however, current review showed members of the Dunlap Band had responded. The Tule River Tribe; and agencies including Sequoia and Kings Canyon National Park, Mountain Home State Forest, and Caltrans submitted letters with specific items of clarification or correction to add to the public/social access evaluations. These items were incorporated into this report, and the supporting documents to better reflect the needs of these stakeholders in the road system. The California Four Wheel Drive Association requested that the RAP be presented at their annual meeting on February 9, 2002. The interdisciplinary team leader made a presentation at the meeting. A second meeting was held on February 18, 2002 between members of the Cal. 4WD Association; and OHV coordinators for the Hume Lake, Tule River, and Hot Springs Ranger Districts. Forest Service personnel reiterated the same points brought out in the February 9 meeting at this second meeting.

The RAP team planned to repeat the public involvement process during the summer of 2002 for the remainder of the Sequoia National Forest. Unfortunately the early and intense fire season culminating in the 150,000 acre McNally Fire in the Sequoia National Forest prevented implementing this plan. The Forest Management Team agreed to use the data gathered from the Monument public involvement effort compared to the National Survey on Recreation and the Environment findings to extrapolate social issues on the non-monument portion of the forest. Additional information will be gathered from the public during appropriate more site-specific TAP and environmental analyses.

TAP Public Involvement

On August 27, 2013 a press release was sent to inform the interested public that a webinar regarding the Travel Analysis Process, Subpart A, was scheduled for Tuesday September 10. On September 10,

2013 the TAP interdisciplinary team conducted a webinar with approximately ten groups linked in. The team leader presented:

- An overview of the Subpart A, Travel Analysis Process;
- Direction allowing previous analysis including RAP to be used;
- The Sequoia Forest's analysis process to date, including a comparison of what analysis criteria changed between RAP and TAP; and
- How individuals and groups can participate effectively.

The webinar was used to start a 10-day public feedback period. The attendees were given a website to access the downloadable public feedback form, spreadsheets of all the roads with their current ratings, and a fillable spreadsheet to supply their own ratings for the public access evaluation criteria (lifestyle, attitudes, beliefs and values), and the maps displaying composite risk, benefit and opportunities for each road.

A meeting was held on Tuesday, September 17, 2013 with Tule River Tribal council member, Kevin Bonds, and other tribal representatives to initiate tribal consultation. In addition, a presentation was made at the Sequoia Tribal Forum on Wednesday, September 18, and the status updated on December 11, 2013 to several potentially interested tribes and Native American groups.

The TAP public involvement resulted in 66 individual responses, some of which represented tribal interests; or large organizations including Trout Unlimited, Stewards of the Sequoias, the Wilderness Society, Sierra Club, and Access Fund.

In accordance with Forest Service Travel Analysis Process guidebook and with information from FS-643 report (RAP guidebook), the 2003 Sequoia RAP Report, the TAP interdisciplinary team, in conjunction with line offers and information obtained from the public involvement, identified road-related issues in the analysis area and the information needed to address these concerns.

There are six main issues associated with roads on the Sequoia National Forest, both within and outside the Monument:

- Concern that roads will negatively affect the water flow within the watersheds for various reasons including the shallow, erosive soils, areas of steep terrain and proximity of roads to stream courses and aquatic species habitat.
- Concern that adequate road access is maintained for private landowners, recreation and business users, administrative and vegetation management activities, and for fire protection.
- Concern the lifestyles and traditions associated with using roads for commodity production will have to change because the Monument is no longer part of the suitable timber base for the forest (RAP issue).
- Concern the lifestyles and traditions associated with using roads for 4WD/OHV/OSV associated recreation will have to change because many roads are listed for consideration for closure or conversion to trail.
- Concern that roads have negative effects to the human dimension by allowing people to access and damage cultural resource sites, create visually offensive scars on the land, or negatively affect wilderness resources.
- Concern that roads have negative effects to wildlife or sensitive plants by fragmenting habitat leading to species and suitable habitat declines.

Access is the primary public issue related to roads. For some of the public, that means access should be maintained for "their" needs. Many visitors have strong family traditions and ties to certain areas, which have become a belief in the right to continue accessing these areas. Another part of the public wants access to be limited to protect wilderness, IRAs, sequoias and other resources. They are interested in limiting OHV use, timber production, cattle grazing and other uses they deem damaging to the natural resources (2009 Sequoia National Forest Motorized Travel Management FEIS, RAP public involvement, and TAP public involvement (see Appendix E)).

The primary concern for land managers is to provide adequate access for public use; and resource management; including recreation, private land access, and vegetation treatment for fuels reduction, fire protection, and wildlife and aquatic habitat improvement. Within the Monument specifically, the focus is on protecting, restoring, and maintaining the giant sequoia ecosystems and the other objects of interest as defined in the Giant Sequoia National Monument Management Plan (USDA 2012).

The primary legal constraints on roads and roads management, are the requirements to protect cultural resources, requirements to allow reasonable access to private in-holdings, the aquatic management strategy, maintaining wilderness characteristics in designated wilderness and IRAs that have not been released for other uses, and the standards and guidelines in the 2004 Sierra Nevada Forest Plan Amendment (USDA 2004), and Monument Plan. The other constraint at this time is the budgeted road maintenance allocation.

Problems, Risks, and Benefits Assessment

The Travel Analysis Process evaluation criteria were adopted from the RAP and validated using the categories described in the TAP-guidebook. Moreover, information and topics from the FS-643 report were also incorporated. These topics include ecosystem functions and processes; aquatic, riparian zones and water quality; terrestrial wildlife; economics; commodity production in terms of timber, minerals and range management, water production, and special forest products; special use permits; general public transportation; administrative uses (e.g., resource management); protection (e.g., fire or cultural resources); road-related and unroaded recreation; passive use values; social issues; and civil rights and environmental justice.

Some topic areas are best evaluated at the more site-specific scale than at the forest scale. This is because some of the data becomes so diluted at the broad scale that detail is lost that relates to the effects. Where at the more site-specific scale, effects can be seen and evaluated. The Sequoia National Forest TAP has been conducted at a broad, forest scale to identify overall trends (See 2001 SNFPA Appendix T, and FSM 7712.13 for discussion of scales) and to identify priorities for potential future projects. In addition to the forest scale TAP, the Roads Policy, and FSM 7700 recommend conducting watershed or project level TAPs if necessary.

The evaluation criteria developed for the Sequoia National Forest TAP are listed and briefly described below. See Appendices C and D for a full description of each criterion.

A. Aquatic Risk Factors
    1) Geologic Hazard – indicator of the potential for mass wasting or erosion from roads
    2) Stream Crossing Density – measures the relative hazard associated with stream crossings on a road based on crossing frequency
    3) Riparian Zone – Stream Proximity – measures the relative hazard to aquatic habitat and species from a road located adjacent to a stream

B. Terrestrial Risk Factors
   1) Cultural Resources – represents the potential hazard to cultural resources due to both construction and maintenance of a road and the access it provides
   2) Road Density Effects to Wildlife Habitat – represents a variety of effects on wildlife including habitat loss and fragmentation, direct road-related mortality, and other behavioral modifications
   3) Botanical Resources-represents effects on federally-listed or Forest Service sensitive species including habitat loss and fragmentation, and direct road-related mortality
   4) Noxious Weeds and Non-native Invasive-represents effects of roads serving as a vector to introduce and spread these species
   5) Scenic Resources – represents the effects the road segment has on scenic integrity

C. Access Factors
   1) Private/Non-recreation Public Access – measures the importance of a road in providing access to private property, other public lands, and facilities and activities authorized by permit
   2) Public Access (Recreation) – measures the importance of a road in providing public access for camping, hunting, fishing, hiking, and other recreation activities
   3) Administrative Site Access – measures the importance of a road in providing access to administrative sites and facilities
   4) Vegetation Management – represents the importance of a road in providing access for vegetation management activities including fuel reduction, community protection, species regeneration, and ecosystem restoration
   5) Fire Protection – represents the importance of a road in providing access for fire detection and suppression, and for use as fuel breaks

D. Social Factors
   1) Lifestyle, Attitudes, Beliefs & Values – represents the value of roads to people for various social reasons such as spiritual renewal, tradition, employment or hobbies.
   2) Economics – represents the relative investment in the road and the cost to maintain it, based on the operational maintenance level

Aquatic Risk Factors

Geologic Hazard

There are few roads that are on highly unstable geologic features so this risk is generally moderate to low. The majority of the Monument road system is on areas with moderate geo-hazard risk and a few roads are on areas with low geo-hazard risk (Appendix B Spreadsheets). The roads identified on the northern portion of Monument with high geo-hazard risk are generally good potential candidates to decommission because there is little use and recurring resource concerns. The main use of several roads in the northern portion of the Monument is vegetation management. As the vegetation matures and reaches the desired condition as specified under an appropriate land management plan, the administrative need for the road may decrease, which would affect its matrix rating. On the southern portion of the Monument over half of the roads rated as high geo-hazard risk areas are also moderately to highly important for access.

Outside the Monument the geo-hazard is generally moderate to low except in the Erskine Creek drainage. Throughout this drainage the geo-hazard risk is rated high. Several of the roads in Erskine Creek drainage are also highly important for various access needs.

Aquatic, Riparian Zone and Water Quality (Stream Crossing Density and Proximity)

This analysis used watershed boundaries (5th field watershed) to evaluate the aquatic resources, so this portion of the TAP was conducted at the watershed scale instead of the forest scale (FSM 7712.13). The analysis showed that perennial and intermittent stream crossings were not necessarily an issue in comparison to the road's proximity to these streams (Appendix B Spreadsheets). At the Monument and forest scale, the analysis of road stream crossings and road proximity to perennial and intermittent streams gives a good starting point for further analysis at the Landscape level (as defined in the 2001 Sierra Nevada Forest Plan Amendment (SNFPA), Appendix T) (USDA 2001). Perennial and intermittent streams are the primary habitat for fish and other aquatic species rather than ephemeral streams. However, there are a large amount of ephemeral streams on Sequoia National Forest and in the Monument. The addition of ephemerals into the equation could drastically change the analysis results; and show more roads with an elevated risk, both in terms of stream crossings, and stream proximity.

Throughout the Forest and Monument, most roads were rated low risk in terms of stream crossing density. A few roads rated moderate, and even fewer rated high. Those that did rate high were mainly short roads, less than a mile on average, with one or more stream crossings.

In terms of riparian zone proximity; there was a wider and more balanced range of roads that were high, moderate, or low risk. Several of the main administrative and public access routes follow creeks, and provide recreation access directly to these stream courses through developed and dispersed recreation sites.

Prior to developing future road projects, the stream crossing density and stream proximity evaluations will need to be conducted as part of the travel analysis at the landscape scale as described by SNFPA Appendix T.

Terrestrial Risk Factors

Cultural Resources

The analysis of risk to cultural resources shows that almost all the roads (1,638.47 out of the total 1,646 miles) pose a high risk. Only two roads totaling 0.72 miles are rated as low risk, and 20 roads totaling 6.81 miles are rated moderate risk. In some cases, there may be only a short segment of road that poses a high risk. In other cases the road itself may be the cultural resource that needs protection. In these instances, maintaining the road to standard can be the best protective measure. It will be important to reevaluate the roads, or road segments, at a landscape or project level to clarify management opportunities regarding cultural resources.

Road Density Effects to Wildlife Habitat

The analysis showed that along the major travel corridors, there is higher potential of habitat loss. This loss is mainly in the form of fragmentation, such as roads creating breaks in suitable habitat. Overall the Monument road system has a moderate risk to wildlife habitat, and the Non-monument road system has a low to moderate risk to wildlife habitat (Appendix B Spreadsheets). Specific locations that are main recreation destinations tend to be heavily roaded and are therefore moderate to high-risk areas in terms of wildlife habitat loss. Wildlife research has shown ML 3 roads tend to have the highest impacts to wildlife because they are maintained for higher speed use, and are still a narrow corridor that wildlife will regularly cross (Thomas et al. 1979).

There are several roads that have objective and operational maintenance levels recorded in the Forest Transportation Atlas, which are known to exist at a completely different maintenance level on the

ground. As a result, the evaluation criteria weighting on ML 3 roads as the highest risk to wildlife should be reviewed at the landscape or subwatershed, and project levels to ensure that the roads on site are correctly identified in the Forest Transportation Atlas. Prior to starting a watershed-scale TAP, inventories of all authorized and unauthorized roads in that watershed should be conducted, and any previously unmapped roads would be mapped (FSM 7712.14). Condition surveys, especially for ML 3 roads, and correcting the ML and the road management objectives (RMO) in the appropriate databases could be done at that time. The Atlas could also be updated at that time.

Botanical Resources

The analysis shows that, based on current known endangered, threatened, and Forest Service sensitive species populations, the majority of the road system poses a low risk. There are only four roads totaling 3.69 miles that pose a high risk at the scale of this analysis. It must be noted that not all of the road corridors have been surveyed for TES plant species, so review of these ratings at the landscape or project level is important.

Noxious Weeds and Non-native Invasive

The analysis shows that there are a number of "hot spots" where noxious weeds or non-native invasive species (NNIS) populations are known or have a high potential to invade along roads. There is an estimated 100.07 miles of road rated at high risk for NNIS. These roads are in two main categories: major arteries (e.g., Sherman Pass Road), or associated with developed or heavily-used dispersed recreation sites (i.e., locations along the Upper Kern River such as Fairview and Ant Canyon). It must be noted that not all of the road corridors have been surveyed for NNIS, so review of these ratings at the landscape or project level is important.

Scenic Resources

The majority of the road system has a moderate impact on scenic integrity, given the nature of roads. Over 65 roads have a high impact on scenic integrity across the forest. However, they only account for an estimated 270.16 miles overall, and many are associated with facilities such as work centers.

Access Factors

Private/Non-recreation Public Access

A few roads are under special use authorization. These roads tend to be short, adequately maintained, and also tend to be low risk to resources. Some of these roads exist solely to access private property surrounded by National Forest System lands. Other special use roads provide access to resorts, recreation residences, organization camps, communication sites, apiaries, and other authorized uses. Other activities authorized by permit include power generation and transmission, livestock grazing, minerals exploration and removal, and collection of special forest products. Many of the commercial activities authorized under Special Use Permit (SUP) have a requirement that the permittee maintain the roads used for the permitted activity to a specified maintenance level.

The minerals, range, and hydroelectric power generation and transmission programs have generally remained steady in terms of road use and access needs. Special forest products are a small and variable component of commodity production in the forest, and generally have little influence on road use or access needs.

In the Monument, existing activities authorized by permit such as those discussed above may continue. However, new requests for activities authorized by permit must be consistent with the Monument Plan, and no new permits for minerals exploration or removal will be authorized.

Public Access (Recreation)

The current road system provides a fairly wide range of destinations available for various public uses. Many roads are highly important for public access both to the Monument, and Non-monument areas including Lake Isabella and the Kern Plateau. Other roads are rarely or never used for public access. These rarely used roads are often short spurs leading to plantations or other areas with little appeal for recreation or other public uses. In the Monument, approximately 9 percent of the current road system is identified as ML 1, which is defined as closed to all vehicular traffic. However, only an estimated 50 percent of these ML 1 roads are physically closed to vehicle use (e.g., gate, rocks, or earthen barriers). In the non-monument portion of the forest, approximately 13 percent of the current road system is identified as ML 1, and again, only an estimated 50 percent of these ML 1 roads are physically closed to vehicles.

This road system does seem to provide adequate access to the various public destinations, though there are some concerns. First, many of the roads were not built for the type of use they are receiving, and second, most of the roads are currently not getting the planned level of maintenance due to lack of funds.

Administrative Site Access

At this time there is adequate road access to serve the sites and facilities that are used for administrative activities within the Monument and the rest of the forest. Several of the roads used for administrative purposes are also used for dispersed recreation, while others are closed to public vehicle use. However, within the Monument there may be minor changes needed to the road system to more effectively manage the sequoia resources. There is also the administrative issue of roads in use at maintenance levels that are different than the recorded operational or objective maintenance levels in the Forest Transportation Atlas (generally due to deferred maintenance).

Vegetation Management

In general, there are enough existing roads to meet the current and expected needs for vegetation management activities in the Sequoia National Forest at this time, including fuel reduction, community protection, species regeneration, ecosystem restoration, and removal of biomass for power generation, saw timber, and pulpwood. The current road system is adequate to support a much larger timber management program than is expected in the future (Appendix B Spreadsheets) because the Monument is not part of the timber base. The road system is more than adequate to maintain the current plantations, though the quality of these generally low standard roads is deteriorating due to lack of maintenance. The guidelines in the SNFPA, and the Monument management plan, respectively, may affect the need for roads in certain locations and for specific activities. The decline in timber commodity production has led to a decline in funding for road maintenance, and has resulted in a larger backlog of deferred maintenance for the Forest Road System as discussed earlier in this document.

Fire Protection

Within the Monument approximately half of the road system is highly important for fire protection purposes. In the non-monument portion, approximately one third of the road system is highly important for fire protection purposes. These roads are either important strategic locations for stopping wildfires, or provide access to important strategic locations. Throughout the Monument and Forest,

almost one third of the road system was rated as moderately important, and over one fourth of the road system was considered low importance for fire protection. The low importance roads were generally the short spur roads leading to plantations or natural features such as meadows. However, as the focus of fuels management changes from prevention to more active fuels management, the needs for the road system are expected to change. The deteriorating condition of most roads poses another concern. As the roads deteriorate, it becomes more difficult for fire suppression forces, specifically the larger engines, to maneuver on these often steep, narrow roads.

Social Factors

Lifestyle, Attitudes, Beliefs & Values

The RAP public involvement resulted in 501 individual responses, and the TAP public involvement resulted in 66 individual responses, for a total of 567 respondents to several of the same questions in both efforts. Two additional individuals submitted responses after the close of the public feedback period, neither of which provided new and distinctly different responses from those who responded during the feedback period, or previous RAP public involvement. Several groups were represented in both public involvement efforts and offered responses both times. During comment analysis efforts were made to avoid double counting responses between the RAP and TAP where applicable.

Sequoia National Forest personnel have gathered information for several years from various public involvement efforts on recreation use, specifically four-wheel drive and off-highway vehicle use. As described in the Identifying Issues section, the interdisciplinary team gathered information from the public in terms of their lifestyles, attitudes, beliefs and values regarding the road system.

Only 16 percent of the respondents have been using the Monument or forest area for 10 years or less. About 26 percent of the respondents have been using the area for 10 to 30 years. Over 55 percent of the respondents have been using this area for over 30 years, 9 percent of which have been using it for over 70 years. Of the 567 total respondents, 17 percent did not answer this question. The longest use estimate is from the Tule River Tribe with a timeframe between 5,000 and 8,000 years. These responses seem to indicate a high proportion of the respondents are from local areas (i.e., Los Angeles Basin and San Joaquin Valley areas). The 1999-2009 National Survey on Recreation and the Environment Report produced by the USDA Forest Service and the University of Tennessee was used for comparison purposes where applicable.

The length of time people and their descendants have been using or living in or near the non-monument portion of the forest are assumed to be similar to those within the Monument. It has long been known that the Kern Valley is a destination for people living in the southern San Joaquin Valley, the LA Basin and desert areas to the southeast. As with the Monument portion, there are ranch families, descendants of homesteaders, and Native Americans (Dunlap Band of Western Mono, Tubatulabal, etc.) with very deep ties to the area, and long histories of use.

On an annual basis, over 37 percent of the respondents use or live inside the forest or Monument for more than six months out of the year. About 36 percent use the area one to six months out of the year, with the assumption that the bulk of this use is during the summer. Approximately 22 percent of the respondents use the area for a day to a week per year, and less than two percent have never used it or didn't respond to this question.

Several of the respondents (especially during the RAP public involvement) wrote about their families' experiences over the generations using and enjoying this area. There were a few stories from families that homesteaded this area before the Forest Service even existed. Many expressed the need to

maintain their connection with these mountains, and the desire to pass their various traditions of using the forest down to their children and grandchildren (See the Respondent Comment Summary in Appendix E). This sentiment is certainly shared by people about the non-monument portion as well.

Several people commented on the need to maintain access both for resource management, but also to allow the public to see and appreciate the groves. Several people mentioned that the Monument was an unnecessary designation because the resources are already protected. Many of these same individuals were concerned that certain special interest groups will close off the Monument to the people who have lived in and around it for generations. Twenty four percent of the respondents supported the idea of adding roads to groves to increase tourism and management.

Several respondents wanted to ensure the sequoias and other features of the Monument are protected. The most common suggestions were to eliminate roads, specifically logging roads. Many of these individuals also were very concerned about the user-created roads and the use of 4WD, OHV and OSV within the Monument. Sixteen percent of the respondents supported the idea of eliminating all roads possible in groves.

Outside the Monument, there is also the concern about protecting natural and cultural features. There is also a mix of public opinion on whether to eliminate logging and user-created roads as well as 4WD, OHV and OSV use in the forest. It is assumed there may be an increased desire to maintain the existing driving-oriented recreation uses in the non-monument portion because of the reduction of these opportunities in the Monument, specifically the motorized, mechanized use on trails.

In addition, respondents to the RAP public involvement included a request to add bus tour routes (similar to the National Park Service shuttle at Giant Forest) within the Monument. This request was added as one of the options for the RAP public involvement process. Of the 567 respondents to the RAP and TAP, 3 ranked it as their first choice (<1 percent), 15 as second (3 percent), and 34 as third (6 percent) and 11 of the TAP respondents wrote in a "no" category. Several respondents said bus tours would not work for two main reasons. The Monument is physically separated by Sequoia National Park into a northern and southern portion, and the road system is not configured for bus tours. There is no existing road system that is a direct route between the two portions of Monument, and the current road system was not built for tour bus traffic. Several portions of the current road system are too narrow and winding to allow tour buses to travel safely. No data has been gathered on whether there is a desire to create a tour bus route through the non-monument portion of the forest.

Review of the public comments in Appendix E shows that many of the respondents have developed traditions and lifestyles associated with the Monument and Sequoia National Forest. As one can see from Table 9 (See discussion under Roaded Recreation/Public Use) and the categories developed for the National Survey on Recreation and the Environment (NSRE), there is a lot of overlap and therefore similar results in some areas. As the NSRE conclusion states, "These early findings suggest that outdoor recreation is still a basic part of the American lifestyle. As a matter of lifestyle, traditional land, water, snow and ice settings are still very much in demand as places for casual activities such as walking, picnicking, family gatherings, sightseeing and visiting nature centers or nature trails." The current forest and Monument road system is a direct link to, and often an integral part of, these recreations, and other traditional land uses, as shown by the responses to the public involvement process.

Recreation-Unroaded Recreation and Road-Related Recreation

There are no plans to build roads in unroaded areas in the Monument or the rest of the forest. There are several roads rated by Forest Service recreation staff as highly important for recreation access, both

for reaching specific destinations and driving for pleasure. In the northern portion of Monument, roads were generally rated as either high or low importance, whereas in the southern portion of Monument and the non-monument portion, most roads were either of high or moderate importance. The difference between the importance ratings in the northern and southern portions of the Monument may be due to the differing layout of the road systems in conjunction with the locations of privately owned land, recreation destinations, and other non-recreation public access needs.

The current road system provides access from several points to unroaded recreation destinations, particularly designated wilderness areas, and inventoried roadless areas. Though forest personnel have actively closed road access to areas which have become designated wilderness (including several designated under the California Wilderness Act in 1984), there are still a number of roads in close proximity to portions of wilderness areas. In addition, there are landscape features that allow road noise to penetrate the solitude of unroaded recreation destinations.

Roaded Recreation and Public Use

Many people use the road system for a variety of uses. Table 9 lists the public responses regarding the reasons they use roads in the Monument or forest. The primary reason for use is driving for pleasure. Several RAP respondents commented on enjoying the ability to explore different areas of the forest by traveling different roads and following them just to see where they go. The second most common use was access for camping. The third most commonly selected use was to get to hunting and fishing areas. Some of the respondents noted that they hike roads that are gated, and there was a mix of opinion on whether these roads should be open to the driving public. Most respondents to the RAP/TAP public involvement efforts (68 percent) agreed that they want access maintained, as it presently exists.

It must be noted that the intent of the public involvement was to focus on road use and not the overall recreation use of the Monument or forest. In light of this intent, a comparison with the National Recreation Survey (NRS) shows similar results. The top five NRS averages in order from most popular outdoor activity to least are:

- Individual Trail/Street/Road Activities (walking, bicycling, mountain biking, hiking and horse riding/equestrian),
- Traditional Social Activities (family gathering and picnicking),
- Viewing and Photographing Activities (bird watching, viewing other wildlife, viewing wildflowers and natural vegetation and viewing natural scenery),
- Viewing and Learning Activities (visiting nature center/nature trail/zoo, visiting prehistoric/archaeological site, visiting historic site),
- Driving for Pleasure Activities (sightseeing, driving for pleasure through natural scenery, and off road/4-wheel driving/ATV/motorcycle) (Cordell et. al. 2001).

The rest of the reasons for use of the Monument or forest are shown in Table 9 in descending order. As one can see in the RAP public involvement four of the top six most selected reasons to use roads in the Monument are also within the top five NSRE most popular outdoor activities. It is assumed that these percentages would be similar in the non-monument portion of the forest because the majority (75 percent) of the respondents used the forest for at least 10 years prior to designation of the Monument.

Table 9 – Reasons People Use Forest Roads within Monument

Reason to use Forest Roads	RAP Respondents (Percent)	TAP Respondents (Percent)
Driving for pleasure	81	17
Get to a camping area	70	77
Get to hunting and fishing areas	61	12
Get to trail for hiking	58	77
Get to picnic area	57	6
OHV/OSV[a]	48	6
Get to resort/organization camp	45	8
Pass through to other land	40	9
Get to spiritually significant place	38	23
Get to forest product gathering area	30	8
Other	26	14
Get to special use permit site	22	1
Climbing Routes (TAP ONLY)		79

[a]NSRE data shows that 17.5 percent of the population 16 or Older participated in Off Road, 4 Wheel Driving, ATV or Motorcycle use, whereas 52.1 percent participated in Sightseeing and 51.5 percent participated in Driving for Pleasure through Natural Scenery.

Of the respondents who selected "Other," approximately 80 percent of them said they use roads to go to their private land or special use cabin. They did not select the available choices, "Pass through to other land" or "Get to SUP site." Of the remaining "Other" respondents, several mentioned using Forest Roads for fire escape routes, needing roads because age or disabilities have limited their ability to walk very far, mountain biking and cross-country skiing. A few mentioned the need to access their grazing allotments, the Tule River Tribe mentioned resource management, the Park Service mentioned access to Dillonwood Grove, and the California Department of Fire and Forestry mentioned access to Mountain Home State Forest. The RAP public involvement process initiated a dialogue with the Park Service on several roads that cross boundaries between the agencies.

In contrast to the RAP public responses, the TAP public responses were mainly from individuals with strong ties to the climbing community (56 of the 66 respondents), though some of the other respondents may represent large communities as well (e.g., the Wilderness Society, Sierra Club, and Pacific Crest Trail Association). Some of the issues brought up include illegal trespass on the Pacific Crest Trail, focus road decommissioning where they affect aquatic resources (critical aquatic refuges, riparian conservation areas, meadows), or other sensitive areas (inventoried roadless areas, wilderness areas, sequoia groves, and wildlife habitat (e.g., protected activity centers)). Some respondents offered suggestions regarding specific road maintenance needs, or regarding individual roads to consider in future travel analysis (Subpart B or C), or project-level analysis. A few of the roads received comments both to retain and decommission, depending on the individual respondent's point of view.

The TAP public involvement also generated a few comments on the response forms regarding the availability of the information on the internet, and timeframe to provide feedback. Though hard copies had been prepared, no one requested them during the public feedback period.

The various needs mentioned in the RAP and TAP public feedback were used to edit the administrative evaluation of the non-recreation public access criteria and are reflected in the Road Matrix (Appendix B). It is important that the landscape- or project-level analyses capture this kind of information during the public involvement effort, since it has not been captured at the forest scale.

Civil Rights and Environmental Justice

Some of the respondents were concerned that as taxpayers they may be excluded from their public lands. These respondents expressed a general concern that certain special interest groups will close off the Monument and forest to the people who have lived in and around it for generations. This same concern has been raised during site-specific projects.

There is also a concern from several respondents about reduced vehicle access for people who have disabilities that limit their ability to walk to sites. Some of the elderly respondents also mentioned concerns about their road access needs due to physical limitations as they've aged. They want to keep roads accessible by automobile because they now need to drive to areas they could have hiked to in the past.

The NSRE surveyed individuals to determine if different segments of society differ in their values toward the National Forests. For five National Forest values, the researchers broke down responses by individuals' ages, gender, race, income groups and education. One of these values is "Provide access, facilities and services for outdoor recreation." The importance ratings changed across each category evaluated. This forest value became increasingly important for segments of the population in the following categories:

- As people age (especially from age 45+),
- Females,
- Native Americans (much more important),
- Blacks (slightly higher importance),
- Income of $15,000 to $24,000,
- Individuals attaining up to and including an eighth grade education. (Cordell et. al. 2001)

Information of this type was not requested during the Road Analysis public involvement. However, the change in terms of age does coincide with the RAP responses received (See Appendix E). Further study would be necessary to determine if different segments of society differ in their values toward providing road access within the Monument and non-monument forest.

Economics by Road Maintenance Level

As a rating factor, economics represents the relative value invested to construct the road, the relative cost to maintain the road in its current condition, and the overall importance of the access provided by the road. Higher standard roads cost more to build and maintain, but also typically provide access to larger land areas for a wider variety of uses. In this analysis, higher standard roads (ML 4 – 5) were rated as most important, with medium standard roads (ML 3) rated as moderately important, and high clearance or closed roads (ML 2 -1) rated as least important.

Opportunities and Setting Priorities

This portion of the report identifies the management opportunities in terms of risks and benefits, establishes priorities and formulates technical recommendations for the existing and future road system. These opportunities and priorities were developed in response to the issues, benefits, problems and risks identified throughout this report. Economics is a significant influence on opportunities and priorities

Overall Economics

Approximately 67 percent of the road system outside of the Monument, and 71 percent of Monument road system, is in lower maintenance level roads (ML 1-2) with corresponding lower costs of maintenance. The lower the maintenance level number, the less it generally costs to maintain, but the access is less usable by passenger cars. In the Monument, approximately 9 percent are ML 1, and 63 percent are ML 2. Outside of the Monument, approximately 13 percent are ML 1, and 54 percent are ML 2. Approximately 69 percent of the Sequoia National Forest road system has the least cost to maintain (ML 1 and ML 2), and 31 percent have moderate to very high maintenance costs due to their maintenance levels. These are the level 3, 4, and 5 roads that are required by public laws to be maintained to a minimum safe standard, (Highway Safety Act 1996) (see tables 1, 2, and 3).

As shown in Table 3, the current annual road maintenance budget is only sufficient to cover a very small percentage of the road system forest-wide.

Future Transportation Trends

To support the existing road system with current, and projected appropriated maintenance funding (CMRD) and non-appropriated maintenance funding; routine maintenance is being reduced, maintenance cycles are extended, and selective repairs are made to ensure public safety and prevent significant resource damage. Major repairs are funded by special appropriations outside of the annual forest budget. Current and projected funding levels do not cover deferred maintenance, which means that the deferred maintenance backlog grows annually (e.g., roads that are to be maintained once every 5 years may be maintained only once every 10 years). Over time, roads may develop severe public safety or resource damage issues, and may need to be evaluated for closure to public motorized vehicular use.

The lack of maintenance due to limited available funding, particularly on the lower priority roads (ML 1 and 2), is causing deterioration of the roadways. Some roads and trails have become overgrown with brush and trees, and are impassible to vehicular traffic. Other roads are causing resource damage in the form of sedimentation, as culverts and other drainage structures no longer function properly. The highest priority for road maintenance is expected to be on maintenance levels 3 to 5 roads for public and administrative access, and reasonable access to private property. Other roads that provide access to private lands, important fire protection features, administrative sites, special use permitted areas, and recreation areas are also expected to be priorities to maintain. This means that the ML 1 and 2 roads may receive **no** annual maintenance. For example, 13S39 has not received maintenance in the past decade (See Figures 4 and 5).

Figure 4: Forest Road 13S39: annual seasonal closures help maintain this access point to Deer Meadow Trailhead.

Road maintenance in the Sequoia National Forest is essential for managing recreation opportunities. While recreation demand in the future is expected to increase, appropriated dollars have been decreasing over the past several years. Appropriated dollars alone (CMRD) will not be enough to fully fund the operation and maintenance of roads. Partnerships, including volunteers, are expected to be essential for providing high quality recreation opportunities. Consequently, the forest relies more and more heavily on outside funding, partners, and volunteers to maintain the NFTS. As the population grows and urban development expands, the continuous use of NFS roads is expected to increase, as is the demand for a variety of recreation uses in both motorized and non-motorized settings (See Table 8). Maintenance Level 3 to 5 roads that connect to recreation areas will experience the most increases in day use traffic, particularly on weekends. This traffic adds to the maintenance work required, but no additional funding is available to accomplish the work.

As a result of increasing use and decreasing maintenance funding, fewer roads are being fully maintained to standard. Reduced maintenance could lead to erosion and deterioration of roads; closure due to safety concerns and deferred maintenance needs; and subsequent loss of recreation opportunity and quality of experience. Not performing routine annual maintenance on time has increased the amount of deferred maintenance across the forest. Also, not performing routine annual maintenance may increase the amount of resource damage and safety issues caused by the use of the roads. Roads not properly receiving maintenance would inevitably be affected, and access for both public and administrative use is expected to continue to be degraded, and encourage road decommissioning.

Figure 5: Exposed culvert on Forest Road 13S97B

Funding sources to maintain roads are limited. As discussed earlier, the reduction in timber sales has greatly reduced road maintenance funds from timber sale receipts. There are no recreation fees available to supplement the annual maintenance funds, and there is no prospect of recreation fees becoming available in the near future. Gas Tax funds may become available from the Federal Highway Administration to improve and maintain a subset of the passenger vehicles roads (ML 3 – ML 5) in the forest under the Federal Lands Transportation Program (FLTP) established in 2013. This FLTP designated network consists of roads that provide access to high use recreation sites, special places, and economic generators. The designated network must also be reasonable and manageable to optimize the use of limited funding. Since the program was recently established, designation of the network is ongoing. Since FLTP designated roads are ML 3 – 5 roads, they are subject to the Highway Safety Act (some of the roads identified in Table 8 are potential FLTP roads). Two examples of potential FLTP roads are Sherman Pass Road (22S05) and Tenmile Road (13S09). Sherman Pass Road has the third highest east-west passage crossing over the southern Sierra. The Sequoia and Kings Canyon National Park's General Management Plan identifies the preferred route to direct traffic, including all the buses, toward Hume Lake via General's Highway and Tenmile Road to reduce congestion in the Grant Grove area (Highway 180).

Socioeconomics

The Sequoia National Forest and Monument are in portions of Fresno, Tulare, and Kern Counties. These three counties are leaders in the state of California, and the nation, in agricultural products. All three counties may experience some socioeconomic effects from active management of forest vegetation and

from tourism, primarily in levels of employment in the agricultural, manufacturing (woods work, mill), service (hotel/motel), and retail sectors. It is important to understand that in the San Joaquin Valley as a whole, unemployment is consistently higher than the statewide average, which reflects the seasonality of the agricultural economy and the excess growth rate of the labor force over job creation. While all three counties enjoy some measure of tourist-related economic activity, much relating to national forests or parks, this is a relatively small proportion of the service and retail sectors. This activity is somewhat more important than the numbers would suggest because it is activity partially generated from outside these counties rather than inside. Similarly, the woods work and mill jobs, while relatively small in number (about 100 in Tulare County), are more significant economically because they are not related to the needs of local residents as much as to the demand for products elsewhere.

Headwaters Economics conducted research on the economic performance in the surrounding communities since the Giant Sequoia National Monument was established (Headwaters 2011). The study found that the communities in Fresno and Tulare counties neighboring the Monument experienced strong growth between 2000 and 2008. However, though service jobs increased by 23 percent, non-service jobs shrank by 9 percent.

The TAP showed that most roads within the Monument and the rest of the forest are used by both the public and Forest Service for a variety of reasons. The results of the analysis are summarized in Appendix B of this document. Appendix B contains the Road Matrix, and spreadsheets, which show the risk and need equivalents in terms of low, moderate and high ratings for each classified road.

Risk to Ecosystem Sustainability

The questions under this and the following headings are from the FS-643 report and guide the discussion of these topics.

Does the existing system of roads create an unacceptable risk to ecosystem sustainability?

Several roads rated as moderate or low geo-hazard risk have moderate to low access needs and have high risk for other resource risk factors. These matrix ratings make them potential candidates for relocation or removal after site-specific analysis is conducted.

Portions of the existing road system create risks to ecosystem sustainability. The roads that follow perennial and intermittent creeks generally have a higher impact on water flow and quality. There are also densely roaded areas within the Monument and forest that are affecting the quality of wildlife habitat. Aquatic species and their habitat are being affected by the road stream crossings and the proximity of roads to creeks, particularly in the Erskine Creek area. However, the extent of negative effects is not certain at this scale. If the road system is not adequately maintained, the potential risks to the ecosystem are likely to increase in different areas mainly in terms of sediment yield to creeks. It is imperative that road effects to terrestrial and aquatic species habitat be revisited at a more site-specific analysis scale. More site-specific evaluation criteria may need to be developed to better address concerns within specific landscapes as well.

Budget Constraints-Current and Projected

Can the maintenance requirements of the existing system be met with current and projected budgets?

As stated repeatedly in this report, the current and predicted road maintenance budgets do not adequately fund maintenance of the existing road system (See Table 3). The limiting factor in road management for the past decade, and into the foreseeable future is funding. Current budgets are only sufficient to perform a small portion of the required annual maintenance on the higher standard paved

(ML 4-5) roads, without performing any annual maintenance on lower standard native surfaced (ML 1-3) roads or addressing any deferred maintenance needs. This has the potential to significantly affect the risks to the ecosystems and access needs if the road system continues to deteriorate at the current rate. Though there are social and economic factors that could benefit from more roads, or roads at higher maintenance levels (ML 3-5), than currently exist, the economic feasibility does not exist.

Projected Access Needs

Are some existing roads not needed to meet projected access needs?

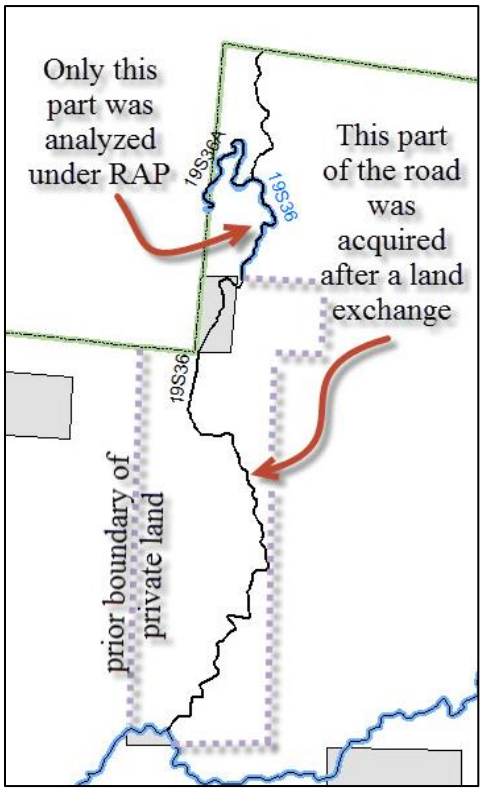
Some existing roads have been rated low in importance for access both by the public and for administrative purposes. Some of these same roads have moderate to high resource risk factors, which make them likely candidates to consider for decommissioning. Several of the roads have been rated high in importance for vegetation management. However, the vegetation management needs should decrease under the SNFPA or Monument Plan, respectively, as plantations reach maturity and no longer need maintenance. However, a number of these areas may transition to become higher priority for ecological restoration and fuels management. This may result in some of the roads becoming available to consider for decommissioning in the next decades.

Benefits and Risks of Proposed New Access

If new access is proposed, what are the expected benefits and risks?

At this time, the addition of new roads in the Monument and the rest of the forest are very limited. Newly constructed roads are typically short, of local designation, and related to a single need such as accessing new recreation opportunities, or serving a private property surrounded by National Forest System land. Other existing roads are sometimes acquired through land acquisitions (purchases or exchanges) (See Figure 6).

Figure 6: Acquired Road Example



Opportunities to Change Existing Road System

What opportunities exist to change the road system to reduce the problems and risks or to be more consistent with forest plan direction and strategic intent of the roads system?

A variety of opportunities exist to change the road system to reduce problems and risks. The Road Matrix showing resource risk and access benefit is a tool to identify the equivalent risk and benefit of each road as illustrated in Table 10 (See Road Matrix in Appendix B). Each road receives an overall resource risk rating of low, moderate, or high based on the combined risk ratings; and an overall access benefit rating of low, moderate, or high based on the combined access benefit ratings. This results in a Risk/Benefit rating pair for each road. There are nine potential rating pairs, displayed in Table 10. The table also displays opportunities for change associated with each rating pair. The roads with Low need or benefit scores are those most likely to be determined as "likely to be Not Needed for future use" after a more thorough project level NEPA analysis is conducted. In contrast, all of the other roads, are likely to have all or a portion of the road determined as "likely to be Needed for future use" after a more thorough project level NEPA analysis is conducted.

Table 10: Sequoia TAP Opportunity Categories Matrix (Listed by Risk/Benefit)

	Access Need or Benefit Equivalent		
Resource Risk Equivalent	Low/Low: Consider for reduced maintenance level, closure, or decommissioning (low priority)	Low/Moderate: Consider for reduced maintenance level.	Low/High: Consider for reduced maintenance level.
	Moderate/Low: Consider for closure or decommissioning (medium priority).	Moderate/Moderate: Consider for road maintenance priority, storm proofing, or reconstruction (medium priority).	Moderate/High: Consider for road maintenance priority, storm proofing, or reconstruction (medium priority).
	High/Low: Consider for closure or decommissioning (high priority).	High/Moderate: Consider for road maintenance priority, storm proofing, reconstruction, or reroute (high priority).	High/High: Consider for road maintenance priority, storm proofing, reconstruction, or reroute (high priority).

Once roads are sorted into these nine rating pair categories, further screening of individual ratings could be done to further refine opportunities and priorities. As shown in Table 11, one factor to consider is the mileage in each category, and the associated costs depending on maintenance levels.

Table 11: Opportunity Category Mileage per Current Rating (Listed by Risk/Benefit)

	Access Need or Benefit Equivalent			
	Total System 1,682* miles (1512 roads)	Low Benefit 418.49 miles (773 roads)	Moderate Benefit 544.60 miles (464 roads)	High Benefit 718.34 miles (275 roads)
Resource Risk Equivalent	Low Risk 284.81 miles (490 roads)	Low/Low 127.06 miles (302 roads)	Low/Moderate 117.16 miles (130 roads)	Low/High 40.59 miles (58 roads)
	Moderate Risk 1,279.19 miles (984 roads)	Moderate/Low 288.66 miles (459 roads)	Moderate/Moderate 417.18 miles (323 roads)	Moderate/High 573.35 miles (202 roads)
	High Risk 117.43 miles (38 roads)	High/Low 2.77 miles (12 roads)	High/Moderate 10.26 miles (11 roads)	High/High 104.4 miles (15 roads)

*These are GIS miles from the master spreadsheet. The official system of record for the Transportation System is INFRA with a mileage total of 1,646 miles. Current direction for GIS miles and INFRA miles is 10% allowable difference between the two systems. The mileage difference in this TAP is 2.2%.

Roads on which to consider changes include:

- Roads rarely used by the public or Forest Service (i.e., low need equivalent), and are high risk equivalent could be considered for decommissioning.
- Roads rarely used by the public or Forest Service (i.e., low need equivalent), and are low resource risk equivalent could be considered for decommissioning or reduced maintenance level.
- Roads which primarily provide access to another jurisdiction (such as county administered lands or a property owners association) with limited benefit to the Forest Service could be considered for transfer to the benefiting jurisdiction.
- Roads which provide access to a private property inholding or special use permit holder (such as an organization camp) where general public access is not needed or desirable could be considered for transfer of maintenance responsibility to the permit holder.
- Roads accessing vegetation that has reached desired condition may be evaluated for decommissioning or reduced maintenance level, unless there is a fire/fuels access need.
- Roads frequently used by the public or Forest Service (i.e., moderate to high need equivalent) with moderate to high resource risk equivalent could be evaluated to for storm-proofing, to relocate portions of the roads away from resource risks, or create alternate access routes with fewer resource risks.
- Two or more roads accessing the same area, where traffic could be directed onto the more stable road and decommission the less stable road(s).
- Create a loop road to eliminate several spurs accessing the same area.

There would be an initial cost outlay to relocate, decommission, or convert roads to trails. The long-term effect would be reduced risk to ecosystems from deteriorating roads, and a smaller and more efficient road system to fund. A reduction in the road system mileage should allow the limited maintenance funds to be used on a larger proportion of the transportation system.

Several action items were identified that need to occur for decision-makers to make better informed road management decisions on the road system:

- Update the current Forest Transportation Atlas (FTA) with the information gathered in the TAP, and maintain the FTA.
- The current operational road maintenance levels need to be verified on the ground and the database needs to be corrected prior to implementation of projects that affect, or are affected by the road system.
- Additional evaluation criteria may need to be developed to fully determine effects at a more site-specific level (e.g., location of PACs in relation to roads). Table 12 lists several questions from which potential evaluation criteria could be developed where appropriate.
- Reevaluate the objective road maintenance levels in light of the change in management objectives within the Monument and the rest of the forest, and the national and local trends in road maintenance funding since these designations were last made (circa 1980).
- During landscape- and project-level analyses capture private use, and public transportation needs information during the public involvement effort, as applicable to update INFRA and the FTA.
- Review and modify road closure orders to help address the fact that only an estimated 50 percent of the ML 1 roads in the SQF are physically closed to vehicular use (e.g., with gates, rocks, or earthen barriers).
- Use dialogue initiated during the public involvement process to begin evaluating and addressing opportunities to work with other agencies and governments regarding roads (See correspondence in Appendix E).
- Recognize that the TAP is a “living document” and an iterative process, so as the forest engineering staff updates the FTA based on watershed, landscape and project level analyses, the site-specific projects need to be based on the most current transportation system information available. FSM 7712 offers additional guidance for when a forest-scale TAP is updated with changes in conditions, such as available funding, inventory and monitoring results, severe emergency events (ERFO), or new regulatory requirements.

Table 12 – Questions to Guide Development of More Site-Specific Evaluation Criteria*

Question to be Answered
Ecosystem Functions and Processes: • To what degree do the presence, type, and location of roads contribute to the control of insects, diseases, and parasites? • What are the adverse effects of noise caused by developing, using, and maintaining roads? • What roads are necessary to maintain in giant sequoia groves for resource management, and public access?
Aquatic, Riparian Zone, and Water Quality: • What downstream beneficial uses of water exist in the area? What changes in uses and demand are expected over time? How are they affected or put at risk by road-derived pollutants? • How does the road system alter physical channel dynamics, including isolation of floodplains; constraints on channel migration; and the movement of large wood, fine organic matter, and sediment? • How does the road system affect shading, litterfall, and riparian plant communities? • How and where does the road system facilitate the introduction of non-native aquatic species? • To what extent does the road system overlap with areas of exceptionally high aquatic diversity or productivity, or areas containing rare or unique aquatic species or species of interest? (CARs, RCAs, etc.)
Terrestrial Wildlife: • How does the road system directly affect unique communities or special features in the area? (PACs, etc.)
Water Production: • How does road development and use affect water quality in municipal watersheds?
Administrative Use: • How does the road system affect investigative or enforcement activities?
Protection: • How does the road system contribute to airborne dust emissions resulting in reduced visibility and human health concerns?
Unroaded Recreation: • What are the adverse effects of noise and other disturbances caused by developing, using, and maintaining roads, on the quantity, quality, and type of unroaded recreation opportunities? (e.g., wilderness, inventoried roadless areas, and the Pacific Crest Trail)
Road-Related Recreation: • What are the adverse effects of noise and other disturbances caused by constructing, using, and maintaining roads on the quantity, quality, or type of roaded recreation opportunities?

* These questions and background information came from the FS-643 report and the public involvement efforts for RAP and TAP.

As stated throughout this document, there are several roads in use, and being maintained at a maintenance level different than the recorded operational or objective maintenance level in the Forest Transportation Atlas (FTA). Correcting maintenance levels in the FTA to reflect existing conditions on the ground would improve the information available to resource specialists, and decision-makers in terms of roads, and their effects on other resources. It should also help make administrative decisions regarding road maintenance level more consistent throughout the Monument and forest.

Given available information, road condition surveys are not available for all the roads. However, most of the current road system has been surveyed between 2010 and 2013 for condition of drainage structures to supplement watershed condition assessments. Due to lack of consistent funding, condition surveys are not conducted regularly. In addition, once the data is gathered, such as the recent drainage structure surveys, reduced staffing results in delays in updating the INFRA database in a timely manner.

In general, the condition reported in the database may be higher than actual conditions, (i.e., roads are recorded as being in better condition than they actually are) due to these delays.

The costs and mileages described in this TAP report reflect conditions as of February 2013. The forest engineering staff has been updating the Forest Transportation Atlas based on both clerical errors found during the TAP analysis, and field surveys conducted along roads since that date.

Appendix A

Glossary

Road Definitions:

- **Forest Road:** Any road wholly or partly within, adjacent to, and serving the National Forest System and which is necessary for the protection, administration, and utilization of the National Forest System and the use and development of its resources (23 USC 101).
- **Public Roads:** Roads that are under the jurisdiction of and maintained by, a public authority that are open to public travel (23 USC 101(a)).
- **National Forest System Roads:** Forest roads under the jurisdiction of the Forest Service (23 USC 101).
- **Forest Transportation Atlas:** An inventory, description, display and other associated information for those roads, trails and airfields that are important to the management and use of National Forest System lands or to the development and use of resources upon which communities within or adjacent to the National Forests depend.
- **Deferred Maintenance:** Maintenance activities that can be delayed without critical loss of facility serviceability until the work can be economically or efficiently performed. (Duck Creek-Swains RAP, version 1, April 2001).
- **Low Standard Roads:** Forest roads constructed and maintained for use by prudent drivers in high clearance vehicles (such as pickup trucks, 4WD vehicles and sport utility vehicles) as opposed to ordinary passenger cars. These roads are low-standard, unsurfaced, single-lane roads with turnouts. They were designed to be driven at five to ten miles per hour.
- **Temporary Roads:** Roads authorized by contract, permit, lease, other written authorization, or emergency operation not intended to be a part of the forest transportation system and not necessary for long-term resource management (36 CFR 212.1).
- **Maintained for Public Use:** A Memorandum of Understanding with the Federal Highway Administration defines national forest system roads open to the public as those roads open to unrestricted use by the general public in standard passenger cars, including those roads on a seasonal basis or for emergencies. (SNFPA, FEIS).
- **Decommissioning:** is defined as activities that result in the stabilization and restoration of unneeded roads to a more natural state (FSM 7703.2(1)). Decommissioning includes applying various treatments, which may include one or more of the following:

  (1) Reestablishing former drainage patterns, stabilizing slopes, and restoring vegetation;
  (2) Blocking the entrance to a road; installing water bars;
  (3) Removing culverts, reestablishing drainage-ways, removing unstable fills, pulling back road shoulders, and scattering slash on the roadbed;
  (4) Completely eliminating the roadbed by restoring natural contours and slopes; or other methods designed to meet the specific conditions associated with the unneeded roads.

- **Maintenance Levels:**
  - **Maintenance Level 5** - Assigned to roads that provide a high degree of user comfort and convenience in a standard passenger car. These roads are normally double lane and paved. Some may be aggregate surface and dust abated. MUTCD standards applied.
  - **Maintenance Level 4** - Assigned to roads that provide a moderate degree of user comfort and convenience in a standard passenger car with moderate travel speeds. Most roads are double lane and aggregate surfaced. Some roads may be paved/ or dust abated. MUTCD standards applied.
  - **Maintenance Level 3** - Assigned to roads open and maintained for travel for standard passenger car, user comfort and convenience are not considered priorities. MUTCD standards applied.
  - **Maintenance Level 2** - Assigned to roads open for use by high clearance vehicles and not suitable for passenger cars. Passenger car traffic, user comfort, and user convenience are not considerations. Warning signs and traffic control devices are not provided with the exception that some signing may be posted at intersections. Motorists should have no expectations of being alerted to potential hazards while driving these roads. Highway vehicles are allowed. Non-highway legal vehicles (such as OHVs) may be allowed after completion of a Motorized Mixed Use Analysis to evaluate the probability and severity of accidents that could occur by allowing Mixed Use, and designation for mixed use by the responsible official.
  - **Maintenance Level 1** - Assigned to roads that have been placed in storage between intermittent uses. The period of storage must exceed 1 year. Basic custodial maintenance is performed to prevent damage to adjacent resources and perpetuate the road for future resource management needs. Emphasis is normally given to maintaining drainage features and runoff patterns. Closed to all motorized traffic but may be available for non-motorized uses.

References

Clinton, William J. 2000. Presidential proclamation establishing the Giant Sequoia National Monument

Cordell, Ken, et al, 1999-2001 National Survey on Recreation and the Environment, USDA Forest Service and the University of Tennessee, Knoxville, Tennessee, pp.1-4.

Cordell, H. Ken, Outdoor Recreation Trends and Futures: A Technical Document Supporting the Forest Service 2010 RPA Assessment, General Technical Report SRS-150. http://www.srs.fs.usda.gov/pubs/gtr/gtr_srs150.pdf downloaded on October 29, 2013.

Headwaters Economics. 2011. Giant Sequoia National Monument: A Summary of Economic Performance in the Surrounding Communities. http://www.headwaterseconomics.org/EPS-HDT, downloaded February 13, 2012.

Thomas, J.W., H. Black Jr., R. J. Scherzinger and R. J. Pedersen. 1979. Deer and Elk, Chapter 8, IN: Wildlife Habitats in Managed Forests the Blue Mountains of Oregon and Washington. Jack Ward Thomas Technical Editor. Agricultural Handbook No. 553. U.S. Department of Agriculture, Forest Service. Sept. 1979

USDA Forest Service. 1993. California Spotted Owl Sierran Province Interim Guidelines

USDA Forest Service. 2001. Sierra Nevada Forest Plan Amendment Final EIS and ROD.

USDA Forest Service. 2004. Sierra Nevada Forest Plan Amendment Supplemental EIS and ROD

USDA Forest Service. 2009. Forest Service Handbook 7709: Road System Operations and Maintenance Handbook. February 5, 2009.

USDA Forest Service. 2012a. Giant Sequoia National Monument Management Plan.

USDA Forest Service. 2012b. Pacific Southwest Region Travel Analysis Process Subpart A Guidebook. November 2012.

Appendix B- Road Spreadsheets

The master spreadsheet containing all the rating factors and the composite score for each road is an attachment to this TAP report.

This appendix contains several sets of spreadsheets for ease of use in applying this data for landscape or project level analysis, which are based on the road rating matrix (Table 13). They are listed in this appendix as follow:

- Overall Road Rating Spreadsheet by road number……..pages 49 – 88
- Roads rated RED (Low, Moderate or High Risk, and Low Benefit)……..pages 89 – 111
- Roads rated ORANGE (High Risk and Moderate or High Benefit)……..pages 112 – 112
- Roads rated LIGHT GREEN (Moderate Risk and Moderate or High Benefit)…… pages 113 – 125
- Roads rated DARK GREEN (Low Risk and Moderate or High Benefit)…… pages 126 – 130

Table 13: Road Rating Matrix

	Access Need or Benefit Equivalent		
Resource Risk Equivalent	Low/Low: Consider for reduced maintenance level, closure, or decommissioning (low priority)	Low/Moderate: Consider for reduced maintenance level.	Low/High: Consider for reduced maintenance level.
	Moderate/Low: Consider for closure or decommissioning (medium priority).	Moderate/Moderate: Consider for road maintenance priority, storm proofing, or reconstruction (medium priority).	Moderate/High: Consider for road maintenance priority, storm proofing, or reconstruction (medium priority).
	High/Low: Consider for closure or decommissioning (high priority).	High/Moderate: Consider for road maintenance priority, storm proofing, reconstruction, or reroute (high priority).	High/High: Consider for road maintenance priority, storm proofing, reconstruction, or reroute (high priority).

Composite Score Summary

A composite rating of low, moderate or high was assigned to each road based on combining the values for the risk or benefit factors. A cumulative score was given from a sum total of all the risk or benefit factors. For both risk and benefit, lower numeric scores are better.

The TAP risk composite adds the three aquatic factors and the five terrestrial factors for a total risk composite range of 8 to 27. As a result, the overall Risk Composite is rated:

Low=8-13,
Moderate=14-20, For RISK, a LOW numeric score is BETTER, meaning less risk to resources.
High=21-27

The TAP benefit composite adds the five access factors and the two Social factors for a total benefit composite range of 7-28. As a result, the overall Benefit Composite is rated:

Low=21-28,
Moderate=14-20, For BENEFIT, a LOW numeric score is BETTER, meaning greater access benefit.
High=7-13

NOTE: The ratings for risk and benefit are flipped numerically and by color. The bottom line for the person who just glances through is: **large numbers (red color) are "high risk or low use" and low numbers (green color) are "low risk or high use".**

Display of "Likely Needed" and "Likely Not Needed" Roads

The results of the TAP analysis are displayed in the road spreadsheets in Appendix B and the attached map packet; which includes the likely needed- and likely not needed-road maps, and the analysis maps showing risks, benefits, and opportunities. The roads with Low need or benefit scores are those most likely to be determined as "likely to be Not Needed for future use" after a more thorough project level environmental analysis is conducted. These are roads color-coded Red in the Risk/Benefit Matrix above, and on the analysis maps. In contrast, all of the other roads, are likely to have all or a portion of the road determined as "likely to be Needed for future use" after a more thorough project level envrionmental analysis is conducted. These are roads color-coded Light Green, Dark Green, or Orange in the Risk/Benefit Matrix above, and on the analysis maps.

After completion of the TAP analysis and the analysis maps described above, but prior to preparation of a map displaying Likely Needed and Likely Not Needed roads, the list of low need roads was reviewed for potential exceptions. This is because roads that only serve a single use received a low overall benefit score and were thus grouped in the "Likely Not Needed" category. However, some roads serve a single use that is significant enough that the road will likely be determined as needed in a more thorough project level analysis. Table 14 displays the roads that were changed from Likely Not Needed to Likely Needed, and the rationale for the change. The map which displays the Likely Needed and Likely Not Needed roads (including the changes below) is included with the map packet as an attachment to this report.

Table 14: Road Rating Change Rationale for Likely Needed/Not Needed Map

FS Road Number	Road Name	Length (Miles)	Reason for Change from "Likely Not Needed" to "Likely Needed"	Opportunity Classes (Risk/Benefit)
11S12Z	BLACKROCK	0.27	Special Use Access	Low / Low
12S01B	CAMP 4 CG	0.05	Developed Recreation Site	Mod / Low
12S01C	MILL FLAT C.G.	0.09	Developed Recreation Site	Mod / Low
12S01F	GREEN CABIN FLAT C.G.	0.10	Developed Recreation Site	Mod / Low
13S03B	CHICAGO STUMP	0.02	Concentrated Use Site	Low / Low
13S04J	BUCK ROCK	0.06	Concentrated Use Site	Low / Low
13S04K	BUCK ROCK	0.16	Developed Recreation Site	Low / Low
13S04L	BUCK ROCK	0.28	Developed Recreation Site	Low / Low
13S09I	TENMILE	0.03	Concentrated Use Site	Mod / Low
13S09N	TENMILE CG	0.13	Developed Recreation Site	Mod / Low
13S09O	TENMILE	0.03	Developed Recreation Site	Mod / Low
13S12E	MT MADDOX	0.03	Concentrated Use Site	Mod / Low
13S23G	LITTLE BOULDER	0.10	Concentrated Use Site	Mod / Low
13S23H	LITTLE BOULDER	0.03	Concentrated Use Site	Mod / Low
13S23I	LITTLE BOULDER	0.05	Concentrated Use Site	Low / Low
13S47	NORTH SUNSET	0.27	Special Use Access	Mod / Low
13S95	YUCCA POINT HELIPORT	0.30	Administrative Site	Mod / Low
13S97E	MILLWOOD	0.08	Developed Recreation Site	Mod / Low
13S97F	MILLWOOD	0.02	Concentrated Use Site	Mod / Low
13S97G	MILLWOOD	0.06	Concentrated Use Site	Mod / Low
14S11B	HORSE CORRAL	0.12	Concentrated Use Site	Low / Low
14S11C	HORSE CORRAL	0.04	Concentrated Use Site	Low / Low
14S11J	HORSE CORRAL	0.08	Concentrated Use Site	Low / Low
14S11L	HORSE CORRAL	0.06	Concentrated Use Site	Low / Low
14S11O	HORSE CORRAL	0.14	Concentrated Use Site	Mod / Low
14S11Q	HORSE CAMP	0.10	Developed Recreation Site	Low / Low
14S17	BIG MEADOW CG	0.12	Developed Recreation Site	Mod / Low
14S17A	BIG MEADOW CG	0.21	Developed Recreation Site	Mod / Low
14S17B	BIG MEADOW CG	0.10	Developed Recreation Site	Mod / Low
14S17C	BIG MEADOW CG	0.22	Developed Recreation Site	Mod / Low
14S17D	BIG MEADOW CG	0.10	Developed Recreation Site	Mod / Low
14S25	BIG MDW TRAILHEAD	0.21	Developed Recreation Site	Low / Low
14S43C	DARK CANYON	0.07	Concentrated Use Site	Mod / Low

FS Road Number	Road Name	Length (Miles)	Reason for Change from "Likely Not Needed" to "Likely Needed"	Opportunity Classes (Risk/Benefit)
21S14	PORTERVILLE AIR ATTACK BASE	0.14	Administrative Site	Low / Low
21S15	SPRINGVILLE W C	0.26	Administrative Site	Low / Low
21S15A	SPRINGVILLE W C	0.09	Administrative Site	Low / Low
21S15B	SPRINGVILLE W C	0.10	Administrative Site	Low / Low
21S16	PORTERVILLE WC	0.58	Administrative Site	Low / Low
22S05F	FISH CREEK OVERFLOW (HOOKER)	0.47	Concentrated Use Site	Mod / Low
22S53B	DRY MDWS	0.15	Private Property Access	Mod / Low
23S20	ROADS END G.S.	0.10	Concentrated Use Site	Mod / Low
23S34	CHAMISE FLAT	0.32	Developed Recreation Site	Mod / Low
23S34A	CHAMISE FLAT	0.03	Developed Recreation Site	Mod / Low
23S42	ROADS END RAFT LAUNCH	0.05	Concentrated Use Site	Mod / Low
23S43	ROADS END DAY USE	0.10	Concentrated Use Site	Mod / Low
23S44	CALKINS FLAT-A	0.12	Concentrated Use Site	Mod / Low
23S45	CALKINS FLAT-B	0.22	Concentrated Use Site	Mod / Low
23S46	SALMON CREEK	0.06	Concentrated Use Site	Mod / Low
24S47	ANT CANYON	0.21	Concentrated Use Site	High / Low
24S47A	ANT CANYON	0.09	Concentrated Use Site	High / Low
24S48-A	OLD GOLDLEDGE (UPPER)	0.04	Concentrated Use Site	High / Low
24S48-B	OLD GOLDLEDGE (LOWER)	0.07	Concentrated Use Site	High / Low
24S51	SPRINGHILL SOUTH	0.19	Concentrated Use Site	Mod / Low
24S51A	SPRINGHILL SOUTH	0.13	Concentrated Use Site	Mod / Low
24S52	HOSPITAL FLAT OVERFLOW	0.12	Concentrated Use Site	Mod / Low
24S53	CHICO FLAT-A	0.09	Developed Recreation Site	Mod / Low
24S54	CHICO FLAT-B	0.12	Developed Recreation Site	Mod / Low
24S54A	CHICO FLAT-B	0.03	Developed Recreation Site	Mod / Low
24S55	THUNDERBIRD	0.07	Concentrated Use Site	High / Low
24S55A	THUNDERBIRD	0.04	Concentrated Use Site	High / Low
24S57	HALFWAY	0.04	Concentrated Use Site	Mod / Low
24S57A	HALFWAY	0.04	Concentrated Use Site	High / Low
24S57B	HALFWAY	0.04	Concentrated Use Site	Mod / Low
25S43	OLD HIGH SCHOOL ROAD	0.26	Administrative Site	Low / Low
26S21A	RAMP AREA 17 (OLD ISABELLA)	0.17	Developed Recreation Site	Low / Low
26S22B	SOUTH FORK	0.16	Developed Recreation Site	Low / Low
26S26-A	PIONEER PT LIFT STATION	0.03	Developed Recreation Site	Low / Low
26S32	KISSACK COVE	0.38	Developed Recreation Site	Low / Low

FS Road Number	Road Name	Length (Miles)	Reason for Change from "Likely Not Needed" to "Likely Needed"	Opportunity Classes (Risk/Benefit)
26S32A	KISSACK COVE	0.34	Developed Recreation Site	Low / Low
26S36	HANNING FLAT	0.34	Developed Recreation Site	Mod / Low
26S36A	HANNING FLAT	4.04	Developed Recreation Site	Mod / Low
26S36A-1	HANNING FLAT	0.32	Developed Recreation Site	Low / Low
26S36B	HANNING FLAT	0.68	Developed Recreation Site	Low / Low
26S36C	HANNING FLAT	0.27	Developed Recreation Site	Mod / Low
26S36C-1	HANNING FLAT	0.21	Developed Recreation Site	Low / Low
26S39	STINE COVE	0.10	Developed Recreation Site	Mod / Low
26S40	MT MESA	0.14	Developed Recreation Site	Mod / Low
26S40A	MT MESA	2.06	Developed Recreation Site	Mod / Low
26S40C	MT MESA	0.08	Developed Recreation Site	Low / Low
26S41-1	CAMP 9	0.31	Developed Recreation Site	Mod / Low
26S42A	CYRUS CANYON	0.10	Concentrated Use Site	Low / Low
26S43A	TILLIE CREEK C G	0.12	Developed Recreation Site	Mod / Low
26S43B	TILLIE CREEK C G	0.29	Developed Recreation Site	Mod / Low
26S43C	TILLIE CREEK C G	0.05	Developed Recreation Site	Mod / Low
26S43D	TILLIE CREEK C G	0.04	Developed Recreation Site	Mod / Low
26S43E	TILLIE CKEEK C G	0.11	Developed Recreation Site	Mod / Low
26S43F	TILLIE CREEK C G	0.05	Developed Recreation Site	Mod / Low
26S43N-1	TILLIE CREEK C G	0.10	Developed Recreation Site	Mod / Low
26S43N-2	TILLIE CREEK C G	0.25	Developed Recreation Site	Mod / Low
26S43N-3	TILLIE CREEK C G	0.09	Developed Recreation Site	Mod / Low
26S43N-4	TILLIE CREEK C G	0.12	Developed Recreation Site	Mod / Low
26S43NA	TILLIE CREEK C G	0.55	Developed Recreation Site	Mod / Low
26S43NB	TILLIE CREEK C G	0.13	Developed Recreation Site	Mod / Low
26S43NC	TILLIE CREEK C G	0.22	Developed Recreation Site	Mod / Low
26S43ND	TILLIE CREEK C G	0.50	Developed Recreation Site	Mod / Low
26S43ND-1	TILLIE CREEK C G	0.10	Developed Recreation Site	Mod / Low
26S43ND-2	TILLIE CREEK C G	0.16	Developed Recreation Site	Mod / Low
26S44	LIVE OAK C G	0.56	Developed Recreation Site	Mod / Low
26S44-A	LIVE OAK C G	0.11	Developed Recreation Site	Mod / Low
26S44-B	LIVE OAK C G	0.07	Developed Recreation Site	Mod / Low
26S44S	LIVE OAK C G - SOUTH	0.47	Developed Recreation Site	Mod / Low
26S44S-A	LIVE OAK C G - SOUTH	0.19	Developed Recreation Site	Mod / Low
26S44S-B	LIVE OAK C G - SOUTH	0.17	Developed Recreation Site	Mod / Low

FS Road Number	Road Name	Length (Miles)	Reason for Change from "Likely Not Needed" to "Likely Needed"	Opportunity Classes (Risk/Benefit)
26S44S-C	LIVE OAK C G - SOUTH	0.06	Developed Recreation Site	Mod / Low
26S44S-D	LIVE OAK C G - SOUTH	0.04	Developed Recreation Site	Mod / Low
26S44S-E	LIVE OAK C G - SOUTH	0.06	Developed Recreation Site	Mod / Low
26S44S-F	LIVE OAK C G - SOUTH	0.04	Developed Recreation Site	Mod / Low
26S45	BOULDER GULCH C.G.	1.13	Developed Recreation Site	Mod / Low
26S45-A	BOULDER GULCH C G	0.22	Developed Recreation Site	Mod / Low
26S45-B	BOULDER GULCH C G	0.37	Developed Recreation Site	Mod / Low
26S45-C	BOULDER GULCH C G	0.21	Developed Recreation Site	Mod / Low
26S45-D	BOULDER GULCH C G	0.04	Developed Recreation Site	Mod / Low
26S45-E	BOULDER GULCH C G	0.13	Developed Recreation Site	Mod / Low
26S45-F	BOULDER GULCH C G	0.16	Developed Recreation Site	Mod / Low
26S45-G	BOULDER GULCH C G	0.67	Developed Recreation Site	Mod / Low
26S45-H	BOULDER GULCH C G	0.20	Developed Recreation Site	Mod / Low
26S45-I	BOULDER GULCH C G	0.07	Developed Recreation Site	Mod / Low
26S45-J	BOULDER GULCH C G	0.26	Developed Recreation Site	Mod / Low
26S45-K	BOULDER GULCH C G	0.33	Developed Recreation Site	Mod / Low
26S45-L	BOULDER GULCH C G	0.15	Developed Recreation Site	Mod / Low
26S45-M	BOULDER GULCH CG	0.41	Developed Recreation Site	Mod / Low
26S46	HUNGRY GULCH C.G.	0.56	Developed Recreation Site	Mod / Low
26S46A	HUNGRY GULCH C G	0.11	Developed Recreation Site	Mod / Low
26S46B	HUNGRY GULCH C G	0.17	Developed Recreation Site	Mod / Low
26S46C	HUNGRY GULCH C G	0.18	Developed Recreation Site	Mod / Low
26S46D	HUNGRY GULCH C G	0.10	Developed Recreation Site	Mod / Low
26S46E	HUNGRY GULCH C G	0.09	Developed Recreation Site	Mod / Low
26S47	FRENCH GULCH REC. AREA	0.40	Developed Recreation Site	Low / Low
26S47A	FRENCH GULCH REC AREA	0.27	Developed Recreation Site	Low / Low
26S47B	FRENCH GULCH REC AREA	0.17	Developed Recreation Site	Low / Low
26S47C	FRENCH GULCH REC AREA	0.07	Developed Recreation Site	Low / Low
26S48	PIONEER C.G.	0.56	Developed Recreation Site	Low / Low
26S48-A	PIONEER C G	0.09	Developed Recreation Site	Low / Low
26S48-B	PIONEER C G	0.15	Developed Recreation Site	Low / Low
26S48-C	PIONEER C G	0.24	Developed Recreation Site	Low / Low
26S48-D	PIONEER C G	0.06	Developed Recreation Site	Low / Low
26S48-E	PIONEER C G	0.07	Developed Recreation Site	Low / Low
26S50	RICH GULCH	1.11	Concentrated Use Site	Mod / Low

FS Road Number	Road Name	Length (Miles)	Reason for Change from "Likely Not Needed" to "Likely Needed"	Opportunity Classes (Risk/Benefit)
26S50A	RICH GULCH	0.17	Concentrated Use Site	Low / Low
26S51	WOFFORD HTS PARK LOOP	0.85	Concentrated Use Site	Mod / Low
W H Park	WOFFORD HEIGHTS PARK	0.22	Concentrated Use Site	Mod / Low

Overall Road Rating Spreadsheet by Road Number

FS Road Number	Road Name	Aquatic Risk Composite	Terrestrial Risk Composite	Resource Risk Composite	Access Composite	Social Composite	Access Needs or Benefit Composite	Opportunity Classes (Risk/Benefit)
11S12	BLACK ROCK	6	9	15	9	2	11	Mod / High
11S12Z	BLACKROCK	5	8	13	16	5	21	Low / Low
12S01	DAVIS	5	13	18	5	3	8	Mod / High
12S01A	CAMP 4-1/2 CG	10	7	17	19	4	23	Mod / Low
12S01B	CAMP 4 CG	8	7	15	19	4	23	Mod / Low
12S01C	MILL FLAT C.G.	10	7	17	19	5	24	Mod / Low
12S01D	DAVIS	5	7	12	20	5	25	Low / Low
12S01E	DAVIS	7	9	16	9	5	14	Mod / Mod
12S01F	GREEN CABIN FLAT C.G.	10	7	17	19	5	24	Mod / Low
12S02	RANCHERIA SITE	5	7	12	12	4	16	Low / Mod
12S02A	RANCHERIA SITE	8	7	15	20	4	24	Mod / Low
12S03	PINE FLAT RD	6	8	14	9	5	14	Mod / Mod
12S04	PINE	6	8	14	9	5	14	Mod / Mod
12S04A	PINE	5	8	13	16	5	21	Low / Low
12S19	DELILAH	5	12	17	5	3	8	Mod / High
12S19A	DELILAH	8	9	17	21	5	26	Mod / Low
12S19B	DELILAH	3	8	11	9	4	13	Low / High
13S01	LOWER LONG MEADOW	7	9	16	17	5	22	Mod / Low
13S01A	LOWER LONG MEADOW	5	9	14	21	5	26	Mod / Low
13S01B	LOWER LONG MEADOW	5	9	14	21	6	27	Mod / Low
13S01Y	BURTON MDW.	7	8	15	21	5	26	Mod / Low
13S02	HUCKLEBERRY	6	10	16	7	2	9	Mod / High
13S02A	HUCKLEBERRY	6	9	15	19	4	23	Mod / Low
13S02B	HUCKLEBERRY	7	9	16	20	4	24	Mod / Low
13S02C	HUCKLEBERRY	5	9	14	20	4	24	Mod / Low
13S02D	HUCKLEBERRY	6	9	15	20	4	24	Mod / Low
13S03	CHICAGO STUMP	6	10	16	10	3	13	Mod / High
13S03A	CHICAGO STUMP	6	9	15	16	5	21	Mod / Low
13S03B	CHICAGO STUMP	5	7	12	19	6	25	Low / Low
13S03C	CHICAGO STUMP	5	8	13	20	5	25	Low / Low
13S03D	CHICAGO STUMP	5	9	14	20	5	25	Mod / Low

13S03E	CHICAGO STUMP	5	9	14	20	5	25	Mod / Low
13S03F	CHICAGO STUMP	5	8	13	21	5	26	Low / Low
13S03G	CHICAGO STUMP	5	8	13	15	5	20	Low / Mod
13S03H	CHICAGO STUMP	5	8	13	19	5	24	Low / Low
13S04	BUCK ROCK	3	10	13	5	3	8	Low / High
13S04A	BUCK ROCK	5	9	14	21	5	26	Mod / Low
13S04B	BUCK ROCK L.O.	3	9	12	8	4	12	Low / High
13S04C	BUCK ROCK	5	10	15	21	5	26	Mod / Low
13S04F	BUCK ROCK	3	8	11	19	5	24	Low / Low
13S04G	BUCK ROCK	3	8	11	19	5	24	Low / Low
13S04I	BUCK ROCK	3	8	11	19	5	24	Low / Low
13S04J	BUCK ROCK	3	9	12	19	5	24	Low / Low
13S04K	BUCK ROCK	5	8	13	19	5	24	Low / Low
13S04L	BUCK ROCK	5	8	13	19	5	24	Low / Low
13S05	CAMP 7	6	11	17	14	4	18	Mod / Mod
13S05A	CAMP 7	5	9	14	20	4	24	Mod / Low
13S05B	CAMP 7	5	11	16	21	5	26	Mod / Low
13S05C	CAMP 7	7	9	16	21	5	26	Mod / Low
13S05D	CAMP 7	3	8	11	19	5	24	Low / Low
13S05Y	HUCKLEBERRY MDW.	7	9	16	19	4	23	Mod / Low
13S05YA	HUCKLEBERRY MDW.	5	9	14	20	5	25	Mod / Low
13S06	SANDY COVE	7	9	16	7	2	9	Mod / High
13S07	CONVERSE	5	9	14	15	4	19	Mod / Mod
13S07B	CONVERSE	5	9	14	20	6	26	Mod / Low
13S08	HORSESHOE K.V. CAMP	7	9	16	14	5	19	Mod / Mod
13S08A	HORSESHOE K.V. CAMP	7	9	16	19	5	24	Mod / Low
13S09	TENMILE	7	11	18	5	2	7	Mod / High
13S09A	TENMILE	6	8	14	9	2	11	Mod / High
13S09C	TENMILE	5	9	14	7	5	12	Mod / High
13S09D	TENMILE	5	7	12	20	5	25	Low / Low
13S09E	TENMILE	7	10	17	20	5	25	Mod / Low
13S09F	TENMILE	7	8	15	19	5	24	Mod / Low
13S09G	TENMILE	5	10	15	19	5	24	Mod / Low
13S09H	TENMILE	7	10	17	18	5	23	Mod / Low
13S09I	TENMILE	5	9	14	19	5	24	Mod / Low
13S09J	TENMILE	5	8	13	19	5	24	Low / Low
13S09K	TENMILE	5	7	12	15	5	20	Low / Mod
13S09L	LOGGER FLAT C.G.	7	7	14	11	3	14	Mod / Mod

13S09M	TENMILE	7	8	15	21	6	27	Mod / Low
13S09N	TENMILE CG	7	9	16	19	5	24	Mod / Low
13S09O	TENMILE	7	9	16	17	4	21	Mod / Low
13S10	BUCK ROCK CR.	7	9	16	16	5	21	Mod / Low
13S11	HORSE CORRAL NORTH	5	8	13	12	5	17	Low / Mod
13S12	MT. MADDOX	6	10	16	7	4	11	Mod / High
13S12A	MT MADDOX	7	10	17	18	5	23	Mod / Low
13S12B	MT. MADDOX	7	9	16	21	5	26	Mod / Low
13S12C	MT. MADDOX	7	9	16	16	5	21	Mod / Low
13S12D	MT. MADDOX	5	10	15	12	5	17	Mod / Mod
13S12E	MT MADDOX	5	9	14	16	5	21	Mod / Low
13S13	LUCKY	5	8	13	16	5	21	Low / Low
13S14	SUNSET MEADOW	7	10	17	9	3	12	Mod / High
13S14A	SUNSET MEADOW	5	9	14	20	5	25	Mod / Low
13S14B	SUNSET MEADOW	5	8	13	19	5	24	Low / Low
13S15	HORSE CORRAL CR.	6	10	16	19	5	24	Mod / Low
13S15A	HORSE CORRAL CR.	5	10	15	18	5	23	Mod / Low
13S16	TORNADO CREEK	7	8	15	14	4	18	Mod / Mod
13S16A	TORNADO CREEK	7	8	15	19	4	23	Mod / Low
13S17	BOUNDARY	7	10	17	16	4	20	Mod / Mod
13S17A	BOUNDARY	7	8	15	18	5	23	Mod / Low
13S18	BEARSKIN	7	9	16	9	4	13	Mod / High
13S18A	BEARSKIN	5	9	14	19	5	24	Mod / Low
13S19	GRANTS	5	9	14	16	5	21	Mod / Low
13S19A	GRANTS	5	9	14	20	5	25	Mod / Low
13S20	LOGGER FLAT WEST	7	9	16	19	4	23	Mod / Low
13S21	CONVERSE MILL	7	11	18	13	4	17	Mod / Mod
13S21A	CONVERSE MILL	7	9	16	15	5	20	Mod / Mod
13S22	BOYDEN CAVE	10	7	17	14	3	17	Mod / Mod
13S22Y	GRIZZLY FALLS	10	7	17	16	3	19	Mod / Mod
13S23	LITTLE BOULDER	7	10	17	12	2	14	Mod / Mod
13S23A	LITTLE BOULDER	5	7	12	21	5	26	Low / Low
13S23B	LITTLE BOULDER	7	7	14	21	5	26	Mod / Low
13S23C	LITTLE BOULDER	5	8	13	19	5	24	Low / Low
13S23D	LITTLE BOULDER	8	9	17	9	5	14	Mod / Mod
13S23E	LITTLE BOULDER	5	8	13	21	5	26	Low / Low
13S23G	LITTLE BOULDER	7	8	15	21	5	26	Mod / Low
13S23H	LITTLE BOULDER	7	8	15	21	4	25	Mod / Low

13S23I	LITTLE BOULDER	5	8	13	21	4	25	Low / Low
13S24	LAKESHORE STA.	5	8	13	8	2	10	Low / High
13S24A	LAKESHORE STA.	5	8	13	16	3	19	Low / Mod
13S24B	LAKESHORE STA.	5	8	13	8	2	10	Low / High
13S24C	LAKESHORE STA	5	8	13	15	3	18	Low / Mod
13S25	KENNEDY GROVE	5	10	15	11	3	14	Mod / Mod
13S25A	KENNEDY GROVE	7	8	15	18	5	23	Mod / Low
13S26	TORNADO	7	10	17	7	3	10	Mod / High
13S26A	TORNADO MEADOW	5	9	14	21	5	26	Mod / Low
13S26B	TORNADO MEADOW	5	9	14	19	5	24	Mod / Low
13S26D	TORNADO MEADOW	7	9	16	19	5	24	Mod / Low
13S26F	TORNADO MEADOW	6	9	15	19	5	24	Mod / Low
13S26G	TORNADO MEADOW	5	9	14	21	5	26	Mod / Low
13S27	TENMILE CREEK	5	9	14	19	5	24	Mod / Low
13S28	LOST MEADOW	5	9	14	21	5	26	Mod / Low
13S28A	LOST MEADOW	7	9	16	21	5	26	Mod / Low
13S29	LITTLE BOULDER GROVE	7	8	15	21	5	26	Mod / Low
13S30	BOOLE TREE	5	10	15	15	5	20	Mod / Mod
13S30A	BOOLE TREE	5	11	16	20	5	25	Mod / Low
13S30B	BOOLE TREE	5	9	14	21	5	26	Mod / Low
13S31	CONVERSE BASIN	5	7	12	18	4	22	Low / Low
13S32	LITTLE BOULDER CREEK	7	10	17	9	4	13	Mod / High
13S33	LAVA-BURTON	6	8	14	13	5	18	Mod / Mod
13S33A	LAVA - BURTON	5	9	14	19	5	24	Mod / Low
13S33B	LAVA - BURTON	7	8	15	19	5	24	Mod / Low
13S33D	LAVA - BURTON	7	8	15	19	5	24	Mod / Low
13S34	LANDSLIDE CR. C.G.	9	7	16	16	3	19	Mod / Mod
13S35	GRANT GROVE	5	10	15	17	5	22	Mod / Low
13S35A	GRANT GROVE	7	10	17	20	5	25	Mod / Low
13S39	SUNSET MDW. NORTH	5	10	15	14	5	19	Mod / Mod
13S40	ASPEN HOLLOW	6	8	14	9	2	11	Mod / High
13S40A	ASPEN HOLLOW	5	8	13	13	4	17	Low / Mod
13S41	TENMILE CREEK ROAD	8	7	15	16	5	21	Mod / Low
13S42	HUME	5	9	14	12	4	16	Mod / Mod
13S42B	HUME	5	9	14	18	4	22	Mod / Low
13S43	HUME LAKE C.G.	5	8	13	14	3	17	Low / Mod
13S44	EVANS GROVE	5	10	15	18	5	23	Mod / Low
13S45	BIG WHISTLE	7	10	17	8	2	10	Mod / High

13S45A	BIG WHISTLE	7	9	16	19	4	23	Mod / Low
13S45B	BIG WHISTLE	7	9	16	20	6	26	Mod / Low
13S45C	BIG WHISTLE	5	9	14	19	6	25	Mod / Low
13S46	CAMP 19	5	9	14	16	5	21	Mod / Low
13S46A	CAMP 19	5	8	13	21	5	26	Low / Low
13S46B	CAMP 19	5	8	13	18	5	23	Low / Low
13S47	NORTH SUNSET	6	8	14	17	5	22	Mod / Low
13S48	INDIAN BASIN	5	9	14	14	4	18	Mod / Mod
13S49	PRINCESS C G	7	9	16	14	3	17	Mod / Mod
13S49-A	PRINCESS C G - MORNING STAR	7	9	16	14	3	17	Mod / Mod
13S49-B	PRINCESS C G - YELLOW MOON	7	9	16	14	3	17	Mod / Mod
13S49-C	PRINCESS C G - SHINING CLOUD	7	9	16	14	3	17	Mod / Mod
13S50	CONVERSE CUTOFF	5	9	14	16	4	20	Mod / Mod
13S51	INDIAN BASIN REC.	5	10	15	14	5	19	Mod / Mod
13S52	PARK RIDGE	6	10	16	15	4	19	Mod / Mod
13S52A	PARK RIDGE	5	9	14	19	5	24	Mod / Low
13S52B	PARK RIDGE	5	7	12	20	5	25	Low / Low
13S52D	PARK RIDGE	5	7	12	20	5	25	Low / Low
13S53	BOULDER GROVE	7	10	17	19	5	24	Mod / Low
13S54	CONVERSE RIDGE	5	11	16	16	5	21	Mod / Low
13S55	CONVERSE MTN	5	11	16	7	3	10	Mod / High
13S55A	CONVERSE MTN.	7	10	17	17	5	22	Mod / Low
13S55B	CONVERSE MTN.	5	10	15	20	6	26	Mod / Low
13S55D	CONVERSE MTN.	5	9	14	18	5	23	Mod / Low
13S56	PARK ROAD	5	9	14	16	5	21	Mod / Low
13S56A	PARK ROAD	5	9	14	19	5	24	Mod / Low
13S57	CHICAGO STUMP LOOP	5	12	17	17	4	21	Mod / Low
13S58	ABBOTT	6	11	17	9	4	13	Mod / High
13S58A	ABBOTT	7	10	17	20	5	25	Mod / Low
13S58B	ABBOTT	7	9	16	17	5	22	Mod / Low
13S58D	ABBOTT	5	9	14	20	6	26	Mod / Low
13S58E	ABBOTT	5	9	14	20	6	26	Mod / Low
13S59	MCKENZIE SOUTH	5	9	14	21	5	26	Mod / Low
13S60	CONVERSE BASIN	5	11	16	16	5	21	Mod / Low
13S60A	CONVERSE BASIN	5	10	15	21	6	27	Mod / Low
13S60B	CONVERSE BASIN	5	11	16	20	6	26	Mod / Low
13S62	MILE	5	9	14	15	5	20	Mod / Mod
13S62A	MILE	5	8	13	20	5	25	Low / Low

13S62B	MILE	5	8	13	19	5	24	Low / Low
13S62C	MILE	6	9	15	20	5	25	Mod / Low
13S63	GRANT LINK	7	10	17	15	4	19	Mod / Mod
13S63A	GRANT LINK	10	9	19	20	5	25	Mod / Low
13S63B	GRANT LINK	7	9	16	20	5	25	Mod / Low
13S64	BEARSKIN MDW	5	10	15	15	4	19	Mod / Mod
13S65	HOIST SADDLE	5	9	14	14	4	18	Mod / Mod
13S66	HOIST RIDGE	5	9	14	12	4	16	Mod / Mod
13S67	BEARSKIN NORTH	5	10	15	14	4	18	Mod / Mod
13S68	MILLWOOD ROAD	9	8	17	19	4	23	Mod / Low
13S69	SAMSON	5	7	12	21	6	27	Low / Low
13S69B	SAMSON	5	7	12	21	6	27	Low / Low
13S70	MILL FLAT CR.	7	10	17	15	4	19	Mod / Mod
13S70A	MILL FLAT CR.	5	8	13	20	5	25	Low / Low
13S70B	MILL FLAT CR.	7	8	15	16	4	20	Mod / Mod
13S70C	MILL FLAT CR.	7	9	16	16	4	20	Mod / Mod
13S70D	MILL FLAT CR	10	11	21	17	5	22	High / Low
13S71	MCKENZIE G.S.	5	9	14	14	4	18	Mod / Mod
13S72	RIDGETOP	8	9	17	11	5	16	Mod / Mod
13S73	MILL FLAT EAST	7	8	15	19	5	24	Mod / Low
13S73A	MILL FLAT EAST	7	8	15	21	5	26	Mod / Low
13S74	MCKENZIE RIDGE	5	10	15	8	5	13	Mod / High
13S75	DELILAH CREST	8	9	17	6	3	9	Mod / High
13S75A	DELILAH L.O.	8	8	16	12	3	15	Mod / Mod
13S75B	DELILAH CREST	8	9	17	17	6	23	Mod / Low
13S75C	DELILAH CREST	8	8	16	20	6	26	Mod / Low
13S76	HORSESHOE BEND GROVE	5	9	14	16	6	22	Mod / Low
13S76A	HORSESHOE BEND GROVE	5	9	14	21	5	26	Mod / Low
13S76B	HORSESHOE BEND GROVE	5	7	12	21	5	26	Low / Low
13S77	CHERRY GAP	5	9	14	9	4	13	Mod / High
13S77A	CHERRY GAP	5	10	15	16	4	20	Mod / Mod
13S77B	CHERRY GAP	5	8	13	17	5	22	Low / Low
13S78	MILL	5	10	15	15	5	20	Mod / Mod
13S78A	MILL	5	10	15	19	5	24	Mod / Low
13S78B	MILL	5	10	15	19	5	24	Mod / Low
13S78C	MILL	6	10	16	16	5	21	Mod / Low
13S79	MCKENZIE NORTH	5	9	14	15	4	19	Mod / Mod
13S81	NORTH SUNSET	3	9	12	19	5	24	Low / Low

13S82	FOX SPRINGS C.G.	5	8	13	11	4	15	Low / Mod
13S83	FOX	5	9	14	12	4	16	Mod / Mod
13S84	MCKENZIE WEST	8	10	18	17	5	22	Mod / Low
13S85	MCKENZIE	5	11	16	17	5	22	Mod / Low
13S85A	MCKENZIE	5	8	13	20	5	25	Low / Low
13S85B	MCKENZIE	6	9	15	15	6	21	Mod / Low
13S86	CLOVER MEADOW	5	8	13	15	5	20	Low / Mod
13S87	SUMMIT MEADOW	5	9	14	14	5	19	Mod / Mod
13S87A	SUMMIT MEADOW	5	8	13	15	4	19	Low / Mod
13S88	SAMPSON VIEW	8	8	16	15	5	20	Mod / Mod
13S90	MILL RD.	5	10	15	20	5	25	Mod / Low
13S91	LEFEVER	7	9	16	11	5	16	Mod / Mod
13S92	MILL FLAT	7	11	18	12	4	16	Mod / Mod
13S92A	MILL FLAT	5	8	13	21	5	26	Low / Low
13S94	WHITE DEER	8	8	16	12	5	17	Mod / Mod
13S94A	WHITE DEER	3	8	11	15	5	20	Low / Mod
13S95	YUCCA POINT HELIPORT	5	9	14	16	5	21	Mod / Low
13S96	CONVICT FLAT	8	10	18	14	2	16	Mod / Mod
13S97	MILLWOOD	10	12	22	5	2	7	High / High
13S97B	MILLWOOD	11	10	21	20	6	26	High / Low
13S97C	MILLWOOD	10	7	17	20	6	26	Mod / Low
13S97D	MILLWOOD	8	10	18	20	6	26	Mod / Low
13S97E	MILLWOOD	10	8	18	19	6	25	Mod / Low
13S97F	MILLWOOD	8	8	16	20	6	26	Mod / Low
13S97G	MILLWOOD	10	8	18	20	6	26	Mod / Low
13S98	BEARSKIN CR	7	10	17	11	5	16	Mod / Mod
13S98A	BEARSKIN CR.	5	9	14	14	4	18	Mod / Mod
13S99	BASIN	6	11	17	13	4	17	Mod / Mod
13S99A	BASIN	7	10	17	20	5	25	Mod / Low
13S99B	BASIN	5	10	15	20	5	25	Mod / Low
13S99C	BASIN	7	9	16	20	5	25	Mod / Low
13S99D	BASIN	7	9	16	21	5	26	Mod / Low
13S99F	BASIN	5	10	15	20	5	25	Mod / Low
14S01	NORTH BIG MDW	3	10	13	12	4	16	Low / Mod
14S01A	NORTH BIG MDW.	3	9	12	13	4	17	Low / Mod
14S01B	NORTH BIG MDW.	3	9	12	16	4	20	Low / Mod
14S01C	NORTH BIG MDW.	3	8	11	20	4	24	Low / Low
14S01D	NORTH BIG MDW.	3	8	11	20	6	26	Low / Low

14S02	BURTON	6	12	18	5	2	7	Mod / High
14S02A	BURTON	5	9	14	10	2	12	Mod / High
14S02B	BURTON	7	9	16	14	5	19	Mod / Mod
14S02C	BURTON	5	10	15	19	5	24	Mod / Low
14S02D	HEART MDW.	5	9	14	9	4	13	Mod / High
14S02E	BURTON	5	9	14	14	5	19	Mod / Mod
14S02G	BURTON	5	9	14	16	5	21	Mod / Low
14S02K	BURTON	3	9	12	19	5	24	Low / Low
14S02M	BURTON	5	9	14	19	6	25	Mod / Low
14S03	SHELL MTN	4	9	13	16	4	20	Low / Mod
14S03A	SHELL MTN.	3	7	10	21	5	26	Low / Low
14S03B	SHELL MTN.	5	8	13	21	5	26	Low / Low
14S04	TENMILE GROVE	7	10	17	16	5	21	Mod / Low
14S05	MEADOW FLAT	5	8	13	19	6	25	Low / Low
14S06	BACON	7	9	16	20	5	25	Mod / Low
14S06A	BACON	5	9	14	20	6	26	Mod / Low
14S07	BOULDER FLAT	7	10	17	19	6	25	Mod / Low
14S08	BOULDER RIDGE	6	10	16	19	5	24	Mod / Low
14S09	BOULDER CREEK	7	10	17	18	5	23	Mod / Low
14S10A	KINGS	5	9	14	14	4	18	Mod / Mod
14S11	HORSE CORRAL	7	11	18	5	2	7	Mod / High
14S11A	BIG MDW. G.S.	3	8	11	8	3	11	Low / High
14S11B	HORSE CORRAL	3	9	12	19	5	24	Low / Low
14S11C	HORSE CORRAL	3	9	12	20	5	25	Low / Low
14S11D	HORSE CORRAL	4	8	12	20	5	25	Low / Low
14S11F	HORSE CORRAL	5	8	13	19	6	25	Low / Low
14S11G	HORSE CORRAL	3	9	12	19	6	25	Low / Low
14S11H	BIG MEADOW	3	8	11	10	3	13	Low / High
14S11I	BIG MEADOW	3	8	11	11	3	14	Low / Mod
14S11J	HORSE CORRAL	3	7	10	20	6	26	Low / Low
14S11K	HORSE CORRAL	3	7	10	11	4	15	Low / Mod
14S11L	HORSE CORRAL	5	8	13	20	6	26	Low / Low
14S11O	HORSE CORRAL	5	9	14	19	6	25	Mod / Low
14S11Q	HORSE CAMP	3	8	11	19	5	24	Low / Low
14S12	WEAVER CREEK	5	10	15	19	4	23	Mod / Low
14S13	WOODCOCK MEADOW	4	10	14	12	4	16	Mod / Mod
14S13A	WOODCOCK MEADOW	5	9	14	18	5	23	Mod / Low
14S13B	WOODCOCK MEADOW	3	9	12	18	5	23	Low / Low

14S14	BIG MEADOW CREEK	3	11	14	14	4	18	Mod / Mod
14S14A	BIG MEADOW CREEK	3	9	12	19	5	24	Low / Low
14S14B	BIG MEADOW CREEK	3	7	10	21	5	26	Low / Low
14S14C	BIG MEADOW CREEK	3	8	11	21	5	26	Low / Low
14S15	FOX MEADOW	5	10	15	14	5	19	Mod / Mod
14S15A	FOX MEADOW	5	9	14	21	5	26	Mod / Low
14S15B	FOX MEADOW	3	9	12	21	6	27	Low / Low
14S16	MEADOWS	7	10	17	13	5	18	Mod / Mod
14S16A	MEADOWS	5	9	14	19	6	25	Mod / Low
14S16B	MEADOWS	5	9	14	20	6	26	Mod / Low
14S17	BIG MEADOW CG	7	9	16	18	4	22	Mod / Low
14S17A	BIG MEADOW CG	5	9	14	19	5	24	Mod / Low
14S17B	BIG MEADOW CG	5	9	14	19	5	24	Mod / Low
14S17C	BIG MEADOW CG	5	9	14	19	5	24	Mod / Low
14S17D	BIG MEADOW CG	5	9	14	19	5	24	Mod / Low
14S18	WOODWARD-STONY	5	10	15	12	4	16	Mod / Mod
14S18A	WOODWARD - STONY	3	9	12	17	4	21	Low / Low
14S18B	WOODWARD - STONY	5	10	15	19	4	23	Mod / Low
14S18C	WOODWARD - STONY	3	9	12	19	6	25	Low / Low
14S18F	WOODWARD - STONY	3	9	12	21	6	27	Low / Low
14S18H	WOOWARD - STONY	5	9	14	21	6	27	Mod / Low
14S19	BEARTRAP STONY	3	8	11	19	6	25	Low / Low
14S20	STONY CREEK CG	5	8	13	17	3	20	Low / Mod
14S21	STONY CREEK PICNIC	5	8	13	14	4	18	Low / Mod
14S21A	STONY CREEK PICNIC	5	8	13	17	5	22	Low / Low
14S21B	STONY CREEK PICNIC	5	8	13	14	4	18	Low / Mod
14S22	STONY CREEK	5	8	13	19	6	25	Low / Low
14S23	BRTP. MDW. ORG.	5	9	14	9	4	13	Mod / High
14S24	STONY SOUTH	3	8	11	15	5	20	Low / Mod
14S24A	STONY SOUTH	3	8	11	19	6	25	Low / Low
14S25	BIG MDW TRAILHEAD	3	9	12	18	3	21	Low / Low
14S26	NORTH STONY	3	8	11	20	6	26	Low / Low
14S27	COVE CG	5	8	13	15	3	18	Low / Mod
14S28	FIR CG	3	9	12	15	3	18	Low / Mod
14S29	CHIMNEY ROCK	7	10	17	7	3	10	Mod / High
14S29A	CHIMNEY ROCK	5	9	14	19	6	25	Mod / Low
14S29B	CHIMNEY ROCK	5	9	14	19	5	24	Mod / Low
14S29C	CHIMNEY ROCK	5	9	14	20	6	26	Mod / Low

14S29G	CHIMNEY ROCK	3	9	12	21	6	27	Low / Low
14S29H	CHIMNEY ROCK	5	10	15	20	6	26	Mod / Low
14S30	RABBIT MEADOW	4	9	13	11	4	15	Low / Mod
14S31	SHELL MTN WEST	5	10	15	18	5	23	Mod / Low
14S31A	SHELL MTN. WEST	3	9	12	21	5	26	Low / Low
14S31B	SHELL MTN.WEST	3	9	12	21	6	27	Low / Low
14S31C	SHELL MTN. WEST	3	9	12	21	6	27	Low / Low
14S32	BEARTRAP MEADOW	5	10	15	16	5	21	Mod / Low
14S32A	BEARTRAP MEADOW	5	10	15	20	6	26	Mod / Low
14S33	BIG BALDY	7	10	17	9	5	14	Mod / Mod
14S33A	BIG BALDY	7	10	17	20	5	25	Mod / Low
14S33B	BIG BALDY	5	7	12	15	5	20	Low / Mod
14S34	WORTMAN MILL	5	11	16	15	4	19	Mod / Mod
14S35	REDWOOD	5	9	14	17	6	23	Mod / Low
14S36	LOG CORRAL MDW	7	8	15	8	4	12	Mod / High
14S36A	LOG CORRAL MDW.	6	9	15	16	6	22	Mod / Low
14S36B	LOG CORRAL MDW.	5	8	13	8	4	12	Low / High
14S37	LOG CORRAL	7	9	16	11	5	16	Mod / Mod
14S37A	LOG CORRAL	7	9	16	19	5	24	Mod / Low
14S38	REDWOOD MTN	5	11	16	16	5	21	Mod / Low
14S39	ESHOM CREEK CG	7	9	16	16	3	19	Mod / Mod
14S40	REDSTONE	7	9	16	11	5	16	Mod / Mod
14S41A	PIERCE VALLEY	5	9	14	20	5	25	Mod / Low
14S41B	PIERCE VALLEY	7	9	16	20	5	25	Mod / Low
14S41C	PIERCE VALLEY	7	9	16	20	5	25	Mod / Low
14S41D	PIERCE VALLEY	5	10	15	13	5	18	Mod / Mod
14S41North	PIERCE VALLEY	5	10	15	9	5	14	Mod / Mod
14S41South	PIERCE VALLEY	5	10	15	9	5	14	Mod / Mod
14S42	ESHOM CREEK WEST	7	9	16	15	5	20	Mod / Mod
14S43	DARK CANYON	7	12	19	7	3	10	Mod / High
14S43A	DARK CANYON	5	9	14	20	4	24	Mod / Low
14S43B	DARK CANYON	7	10	17	20	5	25	Mod / Low
14S43C	DARK CANYON	7	8	15	19	5	24	Mod / Low
14S43D	DARK CANYON	5	10	15	20	5	25	Mod / Low
14S43F	DARK CANYON	5	9	14	20	5	25	Mod / Low
14S44	ESHOM FUEL BREAK	5	10	15	17	5	22	Mod / Low
14S44A	ESHOM FUEL BREAK	3	9	12	20	5	25	Low / Low
14S44B	ESHOM FUEL BREAK	3	8	11	20	5	25	Low / Low

14S44C	ESHOM FUEL BREAK	3	7	10	20	5	25	Low / Low
14S45	FUEL BREAK	3	9	12	20	5	25	Low / Low
14S46	LOGGER POINT	6	10	16	10	3	13	Mod / High
14S46A	LOGGER POINT	5	10	15	19	4	23	Mod / Low
14S46B	LOGGER POINT	5	9	14	17	5	22	Mod / Low
14S46C	LOGGER POINT	5	10	15	13	5	18	Mod / Mod
14S47	NORTH HEART MDW	3	9	12	12	4	16	Low / Mod
14S48	PETERS RANCH	7	12	19	11	5	16	Mod / Mod
14S49	BEARTRAP CR	3	9	12	14	5	19	Low / Mod
14S49A	BEARTRAP CR.	3	9	12	19	5	24	Low / Low
14S50	PINEHURST R.S.	5	10	15	17	3	20	Mod / Mod
14S51	CHIMNEY	7	9	16	19	5	24	Mod / Low
14S52	BLACK OAK	7	9	16	20	5	25	Mod / Low
14S53	ESHOM	5	10	15	10	5	15	Mod / Mod
14S54	UPPER DRY CREEK	5	10	15	19	5	24	Mod / Low
14S54A	UPPER DRY CREEK	7	9	16	20	5	25	Mod / Low
14S55	MONTECITO	5	11	16	9	5	14	Mod / Mod
14S55A	MONTECITO	5	10	15	14	5	19	Mod / Mod
14S55B	MONTECITO	5	10	15	9	5	14	Mod / Mod
14S55C	MONTECITO	3	9	12	12	4	16	Low / Mod
14S56	WOODWARD CREEK	5	11	16	9	2	11	Mod / High
14S56A	WOODWARD CREEK	3	9	12	12	3	15	Low / Mod
14S56B	WOODWARD CREEK	4	9	13	21	6	27	Low / Low
14S56C	WOODWARD CREEK	3	8	11	21	5	26	Low / Low
14S56D	WOODWARD CREEK	3	8	11	19	5	24	Low / Low
14S57	MONTECITO CAMP S.U.	5	11	16	9	4	13	Mod / High
14S57A	MONTECITO CAMP S.U.	3	7	10	13	4	17	Low / Mod
14S57B	MONTECITO CAMP S.U.	3	9	12	12	5	17	Low / Mod
14S57C	MONTECITO CAMP S.U.	5	9	14	12	5	17	Mod / Mod
14S58	PINEHURST BARRACKS ROAD	5	12	17	16	3	19	Mod / Mod
14S58-A	PINEHURST BARRACKS ROAD	5	12	17	16	3	19	Mod / Mod
14S59	OLD SAWMILL	5	9	14	17	5	22	Mod / Low
14S59A	OLD SAWMILL	5	8	13	20	5	25	Low / Low
14S61	PINE ROAD	6	12	18	16	5	21	Mod / Low
14S62	BUCK ROCK SOUTH	3	7	10	17	5	22	Low / Low
14S63	BUCK	5	7	12	16	4	20	Low / Mod
14S64	3/4 MILE TURNOUT	5	9	14	10	5	15	Mod / Mod
14S65	MILL CREEK RD	7	9	16	19	5	24	Mod / Low

14S70	ESHOM CR WEST	5	9	14	20	5	25	Mod / Low
14S71	DRY CR.	5	8	13	15	4	19	Low / Mod
14S72	HARTLAND	5	9	14	14	4	18	Mod / Mod
14S74	CREEK ROAD	7	9	16	20	5	25	Mod / Low
14S75	DRY CREEK EAST	8	9	17	12	5	17	Mod / Mod
14S76	HITCHCOCK MDW.	8	7	15	15	5	20	Mod / Mod
14S76A	HITCHCOCK MDW.	8	7	15	15	5	20	Mod / Mod
14S78	REDWOOD RIDGE	5	10	15	19	4	23	Mod / Low
14S78A	REDWOOD RIDGE	5	10	15	20	4	24	Mod / Low
14S81	BOULDER	5	8	13	20	5	25	Low / Low
14S81A	BOULDER	5	7	12	20	5	25	Low / Low
14S85	DRY	7	9	16	20	5	25	Mod / Low
14S86	CANYON	7	12	19	11	5	16	Mod / Mod
14S86A	CANYON	5	12	17	20	5	25	Mod / Low
14S87	RANCH RD.	5	9	14	12	5	17	Mod / Mod
14S87A	RANCH RD.	5	12	17	20	5	25	Mod / Low
14S90	BACON MDW.	5	10	15	15	5	20	Mod / Mod
15S01	CHERRY FLAT	5	9	14	8	4	12	Mod / High
15S01A	CHERRY FLAT	5	8	13	9	4	13	Low / High
15S02	ESHOM CREEK	5	10	15	14	4	18	Mod / Mod
15S02A	ESHOM CREEK	5	9	14	19	5	24	Mod / Low
15S02B	ESHOM CREEK	5	9	14	20	5	25	Mod / Low
15S03	STONE CHIMNEY	3	8	11	19	5	24	Low / Low
15S04	WORDEN	7	9	16	14	5	19	Mod / Mod
15S04A	WORDEN	7	8	15	17	5	22	Mod / Low
15S04C	WORDEN	5	7	12	17	5	22	Low / Low
15S05	REDWOOD MTN. WEST	5	9	14	14	5	19	Mod / Mod
15S07	PIERCE CREEK	5	9	14	17	5	22	Mod / Low
15S09	CHERRY RD	7	9	16	11	4	15	Mod / Mod
15S09A	CHERRY RD.	5	8	13	20	4	24	Low / Low
15S09B	CHERRY RD.	5	7	12	20	4	24	Low / Low
15S11	PIERCE VALLEY NORTH	5	10	15	13	5	18	Mod / Mod
15S12	HARTLAND SOUTH	5	8	13	16	5	21	Low / Low
15S12A	HARTLAND SOUTH	5	9	14	19	5	24	Mod / Low
19S02	BACKBONE CREEK	5	9	14	12	5	17	Mod / Mod
19S03	KRAMER CREEK	7	9	16	12	5	17	Mod / Mod
19S04	UPPER GROUSE VALLEY	5	9	14	16	5	21	Mod / Low
19S05	DENNISON PEAK	5	7	12	19	5	24	Low / Low

19S09	DILLON	10	8	18	7	5	12	Mod / High
19S09A	JACK FLAT	8	8	16	16	6	22	Mod / Low
19S10	FIREBREAK	8	11	19	10	5	15	Mod / Mod
19S12	RANCHERIA CR.	7	7	14	14	5	19	Mod / Mod
19S14	RANCHERIA CR. NORTH	5	8	13	10	5	15	Low / Mod
19S17	JACK'S CABIN	7	8	15	14	5	19	Mod / Mod
19S18	BACE MILL	7	8	15	13	5	18	Mod / Mod
19S20	BROWNIE MEADOW	5	8	13	10	5	15	Low / Mod
19S20A	BROWNIE MEADOW	5	8	13	17	5	22	Low / Low
19S29	COPPER MINE	10	8	18	14	5	19	Mod / Mod
19S36	GROUSE VALLEY	5	7	12	10	5	15	Low / Mod
19S36A	GROUSE VALLEY	5	7	12	10	5	15	Low / Mod
20S02	MCINTYRE	5	9	14	14	5	19	Mod / Mod
20S03	FOX FARM	10	9	19	5	4	9	Mod / High
20S03B	WISHON CG	5	8	13	7	2	9	Low / High
20S04	HOSSACK	7	10	17	11	5	16	Mod / Mod
20S04A	HOSSACK	5	9	14	12	4	16	Mod / Mod
20S05	BELKNAP C.G.	10	8	18	7	2	9	Mod / High
20S06	JACKASS MDW	3	11	14	19	6	25	Mod / Low
20S06A	JACKASS MDW.	3	11	14	21	6	27	Mod / Low
20S07	COFFEE CAMP-UPPER PARKING	10	10	20	13	2	15	Mod / Mod
20S08	CREST	9	10	19	8	5	13	Mod / High
20S08A	CREST	10	9	19	14	5	19	Mod / Mod
20S08B	CREST	5	8	13	17	5	22	Low / Low
20S11	NELSON CR.	10	10	20	12	4	16	Mod / Mod
20S11A	NELSON CR.	8	9	17	13	4	17	Mod / Mod
20S11B	NELSON CR.	8	9	17	19	5	24	Mod / Low
20S12	BELNAP CR.	8	10	18	15	5	20	Mod / Mod
20S16	COFFEE CAMP-LOWER PARKING	12	7	19	13	2	15	Mod / Mod
20S18	NORTH POWELL	5	10	15	15	5	20	Mod / Mod
20S18A	NORTH POWELL	5	7	12	21	6	27	Low / Low
20S19	WHITE MDW NORTH	5	9	14	14	5	19	Mod / Mod
20S20	BOULDER CREEK NORTH	7	10	17	10	5	15	Mod / Mod
20S21	NELSON CREEK EAST	5	8	13	10	5	15	Low / Mod
20S22	POWELL	3	10	13	12	4	16	Low / Mod
20S22A	POWELL	3	9	12	19	6	25	Low / Low
20S22B	POWELL	3	9	12	19	6	25	Low / Low
20S23	MOOREHOUSE CR.	7	9	16	11	5	16	Mod / Mod

20S24	POWELL MDW CREEK	3	10	13	11	5	16	Low / Mod
20S24A	POWELL MDW. CREEK	3	9	12	21	6	27	Low / Low
20S24B	POWELL MDW. CREEK	3	8	11	18	6	24	Low / Low
20S25	EAST BEACH CREEK	4	12	16	5	3	8	Mod / High
20S25A	EAST BEACH CREEK	5	11	16	21	6	27	Mod / Low
20S25B	EAST BEACH CREEK	3	8	11	21	6	27	Low / Low
20S26	EAST OSA	5	10	15	11	4	15	Mod / Mod
20S26A	EAST OSA	5	10	15	18	5	23	Mod / Low
20S26B	EAST OSA	3	9	12	21	6	27	Low / Low
20S26C	EAST OSA	3	9	12	19	5	24	Low / Low
20S26D	EAST OSA	3	9	12	21	6	27	Low / Low
20S27	OSA	3	10	13	17	5	22	Low / Low
20S27A	OSA	3	10	13	21	6	27	Low / Low
20S28	RIDGE	3	10	13	11	5	16	Low / Mod
20S28A	RIDGE	3	9	12	21	6	27	Low / Low
20S28B	RIDGE	3	8	11	21	6	27	Low / Low
20S29	LION	3	10	13	20	5	25	Low / Low
20S29A	LION	3	9	12	21	6	27	Low / Low
20S30	DEAD DOE	3	9	12	18	5	23	Low / Low
20S30A	DEAD DOE	3	8	11	21	6	27	Low / Low
20S31	BLACKROCK MTN	5	10	15	12	4	16	Mod / Mod
20S31A	BLACKROCK MTN.	7	10	17	21	6	27	Mod / Low
20S39	SMITH MEADOW	4	11	15	12	5	17	Mod / Mod
20S39A	SMITH MEADOW	3	9	12	21	6	27	Low / Low
20S39B	SMITH MEADOW	3	9	12	21	6	27	Low / Low
20S40	CASTLE RD	5	9	14	16	5	21	Mod / Low
20S40A	CASTLE RD.	5	8	13	16	5	21	Low / Low
20S41	SABLE RD.	7	10	17	20	5	25	Mod / Low
20S41A	SABLE RD.	5	7	12	20	5	25	Low / Low
20S42	STICKY FINGER	10	8	18	9	5	14	Mod / Mod
20S44	COFFEE MILL MDW	3	9	12	19	5	24	Low / Low
20S46	CEDAR SLOPE	6	10	16	8	4	12	Mod / High
20S53	LOGGY MEADOW	7	8	15	12	4	16	Mod / Mod
20S54	TRANSFER STATION	6	9	15	14	5	19	Mod / Mod
20S55	LLOYD MDW CR	7	8	15	20	4	24	Mod / Low
20S56	VIEW	5	9	14	20	5	25	Mod / Low
20S56A	VIEW	5	9	14	20	5	25	Mod / Low
20S57	MCINTYRE CREEK	7	9	16	18	5	23	Mod / Low

20S60	LLOYD MEADOW NORTH	7	8	15	21	5	26	Mod / Low
20S62	UPPER LLOYD MDW	5	8	13	18	5	23	Low / Low
20S62A	UPPER LLOYD MDW.	5	8	13	18	5	23	Low / Low
20S63	FISHER	6	8	14	18	5	23	Mod / Low
20S64	CLICKS CR.	5	9	14	15	5	20	Mod / Mod
20S64A	CLICKS CR.	5	8	13	20	5	25	Low / Low
20S64B	CLICKS CR.	5	8	13	15	5	20	Low / Mod
20S66	FREEMAN CREEK	5	9	14	19	5	24	Mod / Low
20S67	LLOYD FLAT	6	10	16	12	3	15	Mod / Mod
20S67A	LLOYD FLAT	5	8	13	18	5	23	Low / Low
20S67B	LLOYD FLAT	5	9	14	19	5	24	Mod / Low
20S67C	LLOYD FLAT	5	8	13	20	5	25	Low / Low
20S67D	LLOYD FLAT	5	8	13	20	5	25	Low / Low
20S68	WHITE MDW	5	9	14	17	5	22	Mod / Low
20S68A	WHITE MDW.	5	8	13	21	5	26	Low / Low
20S70	COBURN CR.	7	7	14	13	4	17	Mod / Mod
20S71	JORDAN PK L.O.	5	9	14	5	3	8	Mod / High
20S71A	JORDAN PK. L.O.	5	8	13	15	5	20	Low / Mod
20S73	SMITH-FAILING MEADOW	5	9	14	17	5	22	Mod / Low
20S74	GARLAND	3	8	11	9	5	14	Low / Mod
20S74A	GARLAND	3	8	11	14	5	19	Low / Mod
20S75	DEEP MEADOW	5	11	16	9	5	14	Mod / Mod
20S75A	DEEP MEADOW	3	8	11	15	4	19	Low / Mod
20S75B	DEEP MEADOW	5	9	14	14	5	19	Mod / Mod
20S75C	DEEP MEADOW	3	9	12	20	5	25	Low / Low
20S75D	DEEP MEADOW	5	8	13	19	5	24	Low / Low
20S75E	DEEP MDW.	3	9	12	19	5	24	Low / Low
20S76	MOUNTAIN GROVE	5	8	13	9	5	14	Low / Mod
20S77	PYLES CAMP	7	8	15	8	4	12	Mod / High
20S78	FREEMAN CR. GROVE	5	9	14	13	4	17	Mod / Mod
20S78A	FREEMAN CR. GROVE	5	9	14	19	5	24	Mod / Low
20S79	FISH CREEK	7	12	19	5	3	8	Mod / High
20S79A	FISH CREEK	5	8	13	15	5	20	Low / Mod
20S79B	FISH CREEK	6	8	14	17	5	22	Mod / Low
20S79C	FISH CREEK	5	8	13	20	5	25	Low / Low
20S79D	FISH CREEK	4	7	11	21	5	26	Low / Low
20S80	FIRE'S FOLLY	8	8	16	16	5	21	Mod / Low
20S81	LOG CABIN	7	9	16	13	5	18	Mod / Mod

20S81A	LOG CABIN	5	9	14	20	5	25	Mod / Low
20S81B	LOG CABIN	5	9	14	14	5	19	Mod / Mod
20S85	WHEEL	3	8	11	13	5	18	Low / Mod
20S86	CASTLE	4	9	13	19	5	24	Low / Low
20S87	MTN. HOME NORTH	5	8	13	11	5	16	Low / Mod
20S88	HOSSACK MDW	9	9	18	14	4	18	Mod / Mod
20S88A	HOSSACK MDW.	8	8	16	14	4	18	Mod / Mod
20S89	MT. HOME	7	8	15	8	4	12	Mod / High
20S89A	MT. HOME	5	7	12	10	5	15	Low / Mod
20S90	TRAIL	3	9	12	20	5	25	Low / Low
20S91	LOOP	5	9	14	14	4	18	Mod / Mod
20S92	BACE RANCH	7	9	16	13	5	18	Mod / Mod
20S93	HOME	6	9	15	13	5	18	Mod / Mod
20S96	BEACH CREEK	3	10	13	14	5	19	Low / Mod
20S96B	BEACH CREEK	7	9	16	21	6	27	Mod / Low
20S96C	BEACH CREEK	3	10	13	21	6	27	Low / Low
20S97	OAK OPENING	10	10	20	8	5	13	Mod / High
20S98	SEQUOIA SSTARS	3	9	12	15	5	20	Low / Mod
21S01	ALBANITA	7	10	17	12	4	16	Mod / Mod
21S02	BEACH	5	11	16	7	2	9	Mod / High
21S02A	BEACH	8	8	16	19	5	24	Mod / Low
21S02B	BEACH	3	10	13	10	4	14	Low / Mod
21S02D	BEACH	3	10	13	19	5	24	Low / Low
21S02E	BEACH	5	10	15	10	5	15	Mod / Mod
21S02F	BEACH	3	9	12	18	5	23	Low / Low
21S03	BLACKROCK	3	11	14	5	2	7	Mod / High
21S03A	BLACKROCK TRAILHEAD	3	8	11	9	2	11	Low / High
21S03B	BLACKROCK	4	8	12	20	5	25	Low / Low
21S03C	BLACKROCK	3	8	11	21	6	27	Low / Low
21S03D	BLACKROCK	3	8	11	21	6	27	Low / Low
21S03E	BLACKROCK	3	8	11	21	6	27	Low / Low
21S03F	LITTLE HORSE	3	8	11	21	6	27	Low / Low
21S03G	BLACKROCK	3	9	12	9	4	13	Low / High
21S03H	BLACKROCK	3	8	11	16	4	20	Low / Mod
21S03J	BLACKROCK	3	9	12	21	6	27	Low / Low
21S03K	BLACKROCK	3	10	13	14	4	18	Low / Mod
21S03P	BLACKROCK	3	9	12	21	6	27	Low / Low
21S04	KENNEDY MEADOWS CG	5	8	13	11	2	13	Low / High

21S05	NEEDLES L.O.	5	9	14	7	4	11	Mod / High
21S05B	NEEDLES L.O.	4	9	13	10	5	15	Low / Mod
21S06	NEEDLEROCK CR.	5	9	14	9	4	13	Mod / High
21S06A	NEEDLEROCK CR.	5	8	13	17	5	22	Low / Low
21S06B	NEEDLEROCK CR.	7	8	15	19	5	24	Mod / Low
21S06C	NEEDLEROCK CR.	7	8	15	18	5	23	Mod / Low
21S06D	NEEDLEROCK CR.	5	8	13	19	5	24	Low / Low
21S06E	NEEDLEROCK CR.	5	9	14	20	5	25	Mod / Low
21S07	S. FORK PEPPERMINT	5	8	13	8	3	11	Low / High
21S07A	S. FORK PEPPERMINT	7	8	15	8	3	11	Mod / High
21S07B	S. FORK PEPPERMINT	5	8	13	11	4	15	Low / Mod
21S07C	S. FORK PEPPERMINT	5	7	12	18	5	23	Low / Low
21S07D	S. FORK PEPPERMINT	5	7	12	15	5	20	Low / Mod
21S08	KENNEDY MEADOW	5	8	13	11	2	13	Low / High
21S09	HOLBY	5	8	13	8	5	13	Low / High
21S09A	HOLBY	5	8	13	14	4	18	Low / Mod
21S09B	HOLBY	3	8	11	19	4	23	Low / Low
21S10	TROY MEADOW CG	5	10	15	12	2	14	Mod / Mod
21S10-A	TROY MEADOW CG	5	10	15	12	2	14	Mod / Mod
21S10-B	TROY MEADOW CG	5	10	15	12	2	14	Mod / Mod
21S10-C	TROY MEADOW CG	5	11	16	12	2	14	Mod / Mod
21S11	RATTLESNAKE NORTH	3	9	12	21	6	27	Low / Low
21S12	SOLO	6	10	16	8	4	12	Mod / High
21S12B	SOLO	6	8	14	11	6	17	Mod / Mod
21S13	MAHOGANY CR	3	9	12	21	5	26	Low / Low
21S14	PORTERVILLE AIR ATTACK BASE	3	5	8	19	4	23	Low / Low
21S15	SPRINGVILLE W C	3	8	11	19	4	23	Low / Low
21S15A	SPRINGVILLE W C	3	8	11	19	4	23	Low / Low
21S15B	SPRINGVILLE W C	3	8	11	19	5	24	Low / Low
21S16	PORTERVILLE WC	3	5	8	19	4	23	Low / Low
21S17	RATTLESNAKE CREEK	3	9	12	16	5	21	Low / Low
21S17A	RATTLESNAKE CREEK	5	9	14	17	5	22	Mod / Low
21S18	BEACH RIDGE	3	10	13	20	4	24	Low / Low
21S18A	BEACH RIDGE	3	7	10	20	5	25	Low / Low
21S19	BEARTRAP NORTH	4	11	15	8	4	12	Mod / High
21S19A	BEACH G.S.	3	10	13	21	6	27	Low / Low
21S19B	BEARTRAP NORTH	3	9	12	19	6	25	Low / Low
21S19C	BEARTRAP NORTH	8	9	17	18	5	23	Mod / Low

21S20	CANNELL OSA	3	10	13	5	3	8	Low / High
21S20A	CANNELL OSA	5	10	15	7	4	11	Mod / High
21S20B	CANNELL OSA	3	9	12	21	5	26	Low / Low
21S20C	CANNELL OSA	3	9	12	21	6	27	Low / Low
21S20D	CANNELL OSA	3	9	12	21	6	27	Low / Low
21S20E	CANNELL OSA	3	8	11	21	6	27	Low / Low
21S21	PEPPERMINT WORKCENTER	5	9	14	12	2	14	Mod / Mod
21S21A	PEPPERMINT WORKCENTER	5	9	14	12	2	14	Mod / Mod
21S23	LOWER SLATE	7	8	15	16	4	20	Mod / Mod
21S23A	LOWER SLATE	7	8	15	17	5	22	Mod / Low
21S25	LONG CANYON	6	10	16	14	5	19	Mod / Mod
21S25A	LONG CANYON	5	9	14	14	5	19	Mod / Mod
21S25B	LONG CANYON	5	8	13	15	5	20	Low / Mod
21S25C	LONG CANYON	5	9	14	15	5	20	Mod / Mod
21S25D	LONG CANYON	9	9	18	15	6	21	Mod / Low
21S26	EAST DANNER MEADOW	5	10	15	16	5	21	Mod / Low
21S26A	EAST DANNER MEADOW	3	9	12	20	6	26	Low / Low
21S26B	EAST DANNER MEADOW	5	9	14	21	6	27	Mod / Low
21S27	PEPPERMINT CREEK	6	8	14	14	5	19	Mod / Mod
21S27A	PEPPERMINT CREEK	5	8	13	13	5	18	Low / Mod
21S28	BONITA WEST	5	10	15	15	5	20	Mod / Mod
21S29	JACKASS CREEK	7	10	17	10	4	14	Mod / Mod
21S32	MAHOGANY	7	10	17	13	5	18	Mod / Mod
21S32A	MAHOGANY	7	9	16	15	6	21	Mod / Low
21S32C	MAHOGANY	5	7	12	15	6	21	Low / Low
21S32D	MAHOGANY	5	8	13	17	6	23	Low / Low
21S33	FISH CR. C.G.	7	10	17	13	2	15	Mod / Mod
21S34	STATION	3	10	13	12	3	15	Low / Mod
21S34A	STATION	3	10	13	20	4	24	Low / Low
21S34B	STATION	3	10	13	21	5	26	Low / Low
21S34C	STATION	5	10	15	21	5	26	Mod / Low
21S34D	STATION	3	10	13	21	5	26	Low / Low
21S35	SALVAGE	4	9	13	20	5	25	Low / Low
21S35A	SALVAGE	3	9	12	21	5	26	Low / Low
21S36	SMITH	4	13	17	7	4	11	Mod / High
21S36A	SMITH	3	9	12	12	5	17	Low / Mod
21S36B	SMITH	5	11	16	20	6	26	Mod / Low
21S36E	SMITH	3	10	13	14	5	19	Low / Mod

21S36F	SMITH	3	10	13	12	4	16	Low / Mod
21S37	SMITH MTN.	3	10	13	13	5	18	Low / Mod
21S37A	SMITH MTN.	3	9	12	20	6	26	Low / Low
21S38	EAST LITTLE HORSESHOE	3	10	13	17	5	22	Low / Low
21S38A	EAST LITTLE HORESHOE	3	10	13	21	6	27	Low / Low
21S38B	EAST LITTLE HORSHOE	3	8	11	21	6	27	Low / Low
21S39	NORTH LION	3	10	13	20	5	25	Low / Low
21S39A	NORTH LION	3	10	13	21	6	27	Low / Low
21S40	BLACKROCK W.C.	3	11	14	6	3	9	Mod / High
21S41	BLACK PK. EAST	3	10	13	16	5	21	Low / Low
21S42	LITTLE HORSE MEADOW	5	10	15	12	4	16	Mod / Mod
21S42A	LITTLE HORSE MEADOW	3	9	12	20	6	26	Low / Low
21S42B	LITTLE HORSE MEADOW	3	9	12	21	6	27	Low / Low
21S43	BLACK SMITH SO.	3	9	12	21	5	26	Low / Low
21S43A	BLACK SMITH SO.	3	9	12	20	6	26	Low / Low
21S44	BLACKROCK ROAD	3	10	13	19	5	24	Low / Low
21S44A	BLACKROCK ROAD	3	8	11	21	6	27	Low / Low
21S45	DOME	5	8	13	20	5	25	Low / Low
21S46	DANNER MEADOW	6	9	15	16	6	22	Mod / Low
21S49	IZZY	5	9	14	15	5	20	Mod / Mod
21S49A	IZZY	5	9	14	18	5	23	Mod / Low
21S50	NORTH ROAD	5	12	17	5	2	7	Mod / High
21S50A	NORTH ROAD	3	10	13	16	5	21	Low / Low
21S50B	NORTH ROAD	3	9	12	13	5	18	Low / Mod
21S50C	NORTH ROAD	7	9	16	16	5	21	Mod / Low
21S50D	NORTH ROAD	5	10	15	13	5	18	Mod / Mod
21S50E	NORTH ROAD	5	9	14	17	5	22	Mod / Low
21S51	LLOYD ROAD W	5	8	13	19	5	24	Low / Low
21S52	SODA SPRING	5	8	13	20	5	25	Low / Low
21S53	BELL	5	8	13	19	5	24	Low / Low
21S54	PONDEROSA	7	8	15	8	5	13	Mod / High
21S54A	PONDEROSA	5	8	13	18	5	23	Low / Low
21S54B	PONDEROSA	5	8	13	19	5	24	Low / Low
21S54C	PONDEROSA	5	8	13	17	5	22	Low / Low
21S57	DANNER CREEK	5	9	14	19	5	24	Mod / Low
21S58	BATEMAN RIDGE	9	9	18	13	5	18	Mod / Mod
21S60	LION MEADOWS	7	9	16	16	4	20	Mod / Mod
21S60D	LION MEADOWS	3	8	11	18	5	23	Low / Low

21S61	QUAKING ASPEN	5	8	13	6	2	8	Low / High
21S61A	QUAKING ASPEN	5	8	13	13	5	18	Low / Mod
21S63	SAND HILL	7	9	16	14	5	19	Mod / Mod
21S63A	SAND HILL	5	8	13	16	5	21	Low / Low
21S63B	SAND HILL	5	9	14	16	5	21	Mod / Low
21S64	BLACKROCK WEST	3	8	11	20	6	26	Low / Low
21S65	MAHOGANY CREEK	5	10	15	11	5	16	Mod / Mod
21S65A	MAHOGANY CREEK	5	8	13	20	6	26	Low / Low
21S66	LITTLE BEACH	3	8	11	20	6	26	Low / Low
21S67	SOUTH FISH	5	10	15	21	6	27	Mod / Low
21S68	SO. DEAD DOE	3	8	11	19	6	25	Low / Low
21S69	DOME ROCK	5	10	15	13	3	16	Mod / Mod
21S70	DOME CREEK	7	9	16	13	5	18	Mod / Mod
21S70A	DOME CREEK	7	9	16	13	5	18	Mod / Mod
21S71	TROY MDW.	5	9	14	14	6	20	Mod / Mod
21S73	TROY	3	10	13	14	5	19	Low / Mod
21S74	HOWIE	5	8	13	15	5	20	Low / Mod
21S75	DOME ROCK CREEK	7	9	16	16	5	21	Mod / Low
21S76	WEST MAHOGANY	3	9	12	19	5	24	Low / Low
21S76A	WEST MAHOGANY	3	8	11	21	5	26	Low / Low
21S78	QUAKER O.C.	4	8	12	11	3	14	Low / Mod
21S79	INDIAN ROCK	3	8	11	9	5	14	Low / Mod
21S79A	INDIAN ROCK	3	8	11	11	5	16	Low / Mod
21S80	PEYRONE	10	11	21	8	5	13	High / High
21S84	URSA	3	9	12	13	5	18	Low / Mod
21S84A	URSA	3	9	12	20	6	26	Low / Low
21S84B	URSA	3	9	12	21	6	27	Low / Low
21S84C	URSA	3	8	11	21	6	27	Low / Low
21S88	COY FLAT C.G.	8	7	15	5	3	8	Mod / High
21S90	SLATE	10	10	20	10	5	15	Mod / Mod
21S94	CRAWFORD	9	11	20	5	3	8	Mod / High
21S94A	CRAWFORD	6	9	15	16	5	21	Mod / Low
21S94B	CRAWFORD	7	9	16	14	5	19	Mod / Mod
21S95	RED HILL	8	9	17	10	5	15	Mod / Mod
21S97	SAM LEWIS	5	10	15	11	4	15	Mod / Mod
21S97A	SAM LEWIS	3	9	12	20	6	26	Low / Low
21S97B	SAM LEWIS	5	8	13	21	6	27	Low / Low
21S99	WOODY'S	5	9	14	17	5	22	Mod / Low

21S99A	WOODY'S	3	8	11	18	5	23	Low / Low
21S99B	WOODY'S	5	8	13	19	4	23	Low / Low
21S99C	WOODY'S	3	8	11	19	5	24	Low / Low
22S01	TROUT CREEK	3	10	13	20	6	26	Low / Low
22S01A	TROUT CREEK	3	10	13	21	6	27	Low / Low
22S02	LAST CHANCE	9	12	21	7	3	10	High / High
22S02A	LAST CHANCE	5	8	13	17	5	22	Low / Low
22S03	MULE PEAK	6	10	16	11	3	14	Mod / Mod
22S03B	MULE PEAK	5	9	14	13	5	18	Mod / Mod
22S03C	MULE PEAK	5	8	13	12	5	17	Low / Mod
22S03D	MULE PEAK	3	8	11	14	4	18	Low / Mod
22S03H	MULE PEAK	5	9	14	20	4	24	Mod / Low
22S03J	MULE PEAK	5	7	12	16	5	21	Low / Low
22S04	HORSE MEADOW CREEK	7	9	16	9	5	14	Mod / Mod
22S04A	HORSE MEADOW CREEK	3	8	11	10	4	14	Low / Mod
22S04D	HORSE MDW CRK	4	9	13	17	5	22	Low / Low
22S05	SHERMAN PASS	7	14	21	5	2	7	High / High
22S05A	SHERMAN PASS	5	7	12	13	3	16	Low / Mod
22S05B	SHERMAN PASS	3	9	12	19	6	25	Low / Low
22S05F	FISH CREEK OVERFLOW (HOOKER)	7	10	17	16	5	21	Mod / Low
22S05G	SHERMAN PASS VISTA POINT	5	9	14	10	2	12	Mod / High
22S05H	SHERMAN PASS	3	10	13	21	6	27	Low / Low
22S05J	SHERMAN PASS	3	10	13	21	6	27	Low / Low
22S05K	SHERMAN PASS	3	8	11	21	6	27	Low / Low
22S05L	SHERMAN PASS	5	9	14	16	5	21	Mod / Low
22S06	SENTINEL	5	9	14	19	4	23	Mod / Low
22S06A	SENTINEL	6	8	14	19	3	22	Mod / Low
22S07	MACHINE CREEK	5	8	13	14	6	20	Low / Mod
22S07A	MACHINE CREEK	3	7	10	21	6	27	Low / Low
22S08	LONG MEADOW	5	10	15	8	3	11	Mod / High
22S08A	LONG MEADOW C.G.	5	8	13	8	4	12	Low / High
22S08B	LONG MEADOW	5	8	13	11	4	15	Low / Mod
22S08C	LONG MEADOW	5	8	13	18	4	22	Low / Low
22S09	REDWOOD MEADOW	5	8	13	15	2	17	Low / Mod
22S10	SOUTH CREEK	7	9	16	5	2	7	Mod / High
22S10A	JOHNSONDALE W.C.	7	7	14	14	3	17	Mod / Mod
22S10B	SOUTH CREEK	5	8	13	17	5	22	Low / Low
22S11	NOBE YOUNG CREEK	10	7	17	19	5	24	Mod / Low

22S12	CHERRY HILL	7	11	18	5	2	7	Mod / High
22S12A	CHERRY HILL	7	9	16	21	5	26	Mod / Low
22S12B	CHERRY HILL	7	9	16	16	5	21	Mod / Low
22S12C	CHERRY HILL	5	9	14	21	6	27	Mod / Low
22S12D	CHERRY HILL	9	9	18	21	6	27	Mod / Low
22S12E	CHERRY HILL	5	9	14	21	6	27	Mod / Low
22S12F	CHERRY HILL	5	9	14	21	6	27	Mod / Low
22S12G	CHERRY HILL	5	9	14	21	6	27	Mod / Low
22S13	REDWOOD MEADOW	5	9	14	9	5	14	Mod / Mod
22S13A	REDWOOD MEADOW	5	8	13	14	5	19	Low / Mod
22S14	TROUT	5	10	15	18	5	23	Mod / Low
22S15	MEADOW GROVE	5	10	15	12	5	17	Mod / Mod
22S15A	MEADOW GROVE	5	9	14	14	5	19	Mod / Mod
22S16	RATTLESNAKE EAST	5	9	14	17	6	23	Mod / Low
22S16A	RATTLESNAKE EAST	5	9	14	21	6	27	Mod / Low
22S18	MAHOGANY WEST	3	8	11	21	6	27	Low / Low
22S19	MOSQUITO MEADOW	5	10	15	10	4	14	Mod / Mod
22S20	BOONE MEADOW	3	9	12	10	4	14	Low / Mod
22S20A	BOONE MEADOW	3	9	12	21	6	27	Low / Low
22S20B	BOONE MEADOW	3	9	12	21	6	27	Low / Low
22S20C	BOONE MEADOW	5	9	14	21	6	27	Mod / Low
22S20D	BOONE MEADOW	3	9	12	21	6	27	Low / Low
22S20E	BOONE MEADOW	5	9	14	21	6	27	Mod / Low
22S21	SIRRETTA MEADOW	3	10	13	14	2	16	Low / Mod
22S21A	SIRRETTA MEADOW	3	8	11	21	6	27	Low / Low
22S21B	SIRRETTA MEADOW	3	8	11	19	6	25	Low / Low
22S21C	SIRRETTA MEADOW	3	8	11	21	6	27	Low / Low
22S21D	SIRRETTA MEADOW	3	8	11	21	6	27	Low / Low
22S22	BONE MEADOWS	5	8	13	14	5	19	Low / Mod
22S24	WEST RD.	5	9	14	12	4	16	Mod / Mod
22S24A	WEST RD.	3	10	13	21	6	27	Low / Low
22S24B	WEST RD.	5	9	14	21	6	27	Mod / Low
22S25	BONE CREEK	7	9	16	16	5	21	Mod / Low
22S26	CORRAL MEADOW	3	10	13	14	3	17	Low / Mod
22S26A	CORRAL MEADOW	3	8	11	21	6	27	Low / Low
22S26C	CORRAL MEADOW	3	9	12	21	6	27	Low / Low
22S27	BONE	7	9	16	19	5	24	Mod / Low
22S27A	BONE	5	8	13	20	5	25	Low / Low

22S28	SOUTH BOONE	3	7	10	19	5	24	Low / Low
22S28A	SOUTH BOONE	3	7	10	21	5	26	Low / Low
22S29	BEARTRAP SOUTH	5	10	15	21	5	26	Mod / Low
22S30	BONITA MEADOWS	6	9	15	19	6	25	Mod / Low
22S30A	BONITA MEADOWS	5	9	14	21	6	27	Mod / Low
22S31	KERN RIVER ACCESS	10	9	19	18	2	20	Mod / Mod
22S33	BONITA	3	11	14	13	5	18	Mod / Mod
22S33A	BONITA	3	9	12	21	6	27	Low / Low
22S34	NORTHERLY	3	9	12	21	6	27	Low / Low
22S34A	NORTHERLY	3	9	12	21	6	27	Low / Low
22S35	PEAK	3	11	14	15	5	20	Mod / Mod
22S35A	PEAK	3	8	11	21	6	27	Low / Low
22S38	SOUTH PALOMA	3	10	13	19	6	25	Low / Low
22S38A	SOUTH PALOMA	3	9	12	21	6	27	Low / Low
22S38B	SOUTH PALOMA	3	8	11	21	6	27	Low / Low
22S40	EAST PALOMA	5	11	16	12	5	17	Mod / Mod
22S40A	EAST PALOMA	3	10	13	21	5	26	Low / Low
22S40C	EAST PALOMA	5	8	13	15	5	20	Low / Mod
22S41	LOOKOUT MTN.	7	10	17	5	2	7	Mod / High
22S41G	LOOKOUT MTN.	5	10	15	20	5	25	Mod / Low
22S44	SOUTH TABLE MTN.	5	9	14	17	5	22	Mod / Low
22S44A	SOUTH TABLE MTN.	5	9	14	17	5	22	Mod / Low
22S45	PARENT CAMP ROAD	7	8	15	11	4	15	Mod / Mod
22S47	PARKER CREEK DISP	7	8	15	15	5	20	Mod / Mod
22S48	LONG MEADOW GROVE	5	9	14	13	5	18	Mod / Mod
22S49	CAPITAL ROCK	5	7	12	14	5	19	Low / Mod
22S50	UPPER LONG MEADOW	5	9	14	20	5	25	Mod / Low
22S51	RINCON	10	8	18	16	4	20	Mod / Mod
22S53	DRY MEADOW	5	9	14	5	3	8	Mod / High
22S53A	DRY MDWS	7	7	14	13	4	17	Mod / Mod
22S53B	DRY MDWS	7	7	14	17	4	21	Mod / Low
22S53C	DRY MDWS	7	8	15	20	5	25	Mod / Low
22S53D	DRY MDWS	6	8	14	20	5	25	Mod / Low
22S53E	DRY MDWS	7	8	15	20	5	25	Mod / Low
22S53F	DRY MDWS	7	8	15	20	5	25	Mod / Low
22S53G	DRY MDW.	7	8	15	20	5	25	Mod / Low
22S56	ELEPHANT CAMP	7	7	14	19	5	24	Mod / Low
22S57	CORRAL MDW. EAST	7	10	17	18	5	23	Mod / Low

22S58	DANNER MDW. SOUTH	7	9	16	18	5	23	Mod / Low
22S59	BONE CR.	7	9	16	13	4	17	Mod / Mod
22S63	NOBE YOUNG MDW.	5	8	13	15	5	20	Low / Mod
22S63A	NOBE YOUNG MDW.	5	9	14	17	5	22	Mod / Low
22S64	REDWOOD MDW. PARKING	5	10	15	10	3	13	Mod / High
22S68	CURLISS MDW.	5	10	15	19	5	24	Mod / Low
22S68A	CURLISS MDW.	3	10	13	20	5	25	Low / Low
22S68B	CURLISS MDW.	3	10	13	20	5	25	Low / Low
22S69	CAMP 2 AREA	7	9	16	18	5	23	Mod / Low
22S70	CAMP 3 AREA	7	8	15	19	5	24	Mod / Low
22S71	SOUTH CRK CAMP	8	7	15	13	5	18	Mod / Mod
22S72	NOBE	7	10	17	12	5	17	Mod / Mod
22S72A	NOBE	5	10	15	15	5	20	Mod / Mod
22S72B	NOBE	5	8	13	18	5	23	Low / Low
22S73	CRANE MEADOW	5	8	13	11	5	16	Low / Mod
22S73A	CRANE MEADOW	5	8	13	19	5	24	Low / Low
22S74	MULE MEADOW	5	8	13	14	5	19	Low / Mod
22S74A	MULE MEADOW	5	8	13	18	5	23	Low / Low
22S74B	MULE MEADOW	5	8	13	18	5	23	Low / Low
22S74C	MULE MEADOW	3	8	11	17	5	22	Low / Low
22S74D	MULE MEADOW	3	8	11	18	5	23	Low / Low
22S75	DOG	7	9	16	12	5	17	Mod / Mod
22S75A	DOG	5	9	14	14	5	19	Mod / Mod
22S77	BALD MTN. L.O.	3	10	13	5	2	7	Low / High
22S77A	BALD MTN. L.O.	3	9	12	19	5	24	Low / Low
22S81	UPPER PARKER MEADOW	5	8	13	10	5	15	Low / Mod
22S81A	UPPER PARKER MEADOW	8	8	16	11	5	16	Mod / Mod
22S82	LLOYD MEADOW	6	11	17	5	2	7	Mod / High
22S82A	LLOYD MEADOW	5	9	14	10	5	15	Mod / Mod
22S82B	JERKY TRAILHEAD	5	9	14	8	2	10	Mod / High
22S82E	SNAKE FLAT	7	8	15	18	5	23	Mod / Low
22S82F	PEPPERMINT FALLS	7	8	15	17	4	21	Mod / Low
22S82G	LOWER PEPPERMINT C.G.	7	10	17	18	2	20	Mod / Mod
22S82H	SOUTH PEPPERMINT	7	7	14	17	4	21	Mod / Low
22S82I	PEPPERMINT MEADOWS	5	9	14	16	4	20	Mod / Mod
22S83	ALDER CREEK SLIDES	7	10	17	13	5	18	Mod / Mod
22S83A	ALDER CREEK SLIDES	7	9	16	14	5	19	Mod / Mod
22S89	SAND HILL RIDGE	7	7	14	14	5	19	Mod / Mod

22S90	ALDER	5	9	14	17	5	22	Mod / Low
22S91	ROUND MEADOW	9	10	19	19	5	24	Mod / Low
22S99	PEYRONE GROVE	10	11	21	14	4	18	High / Mod
23S01	UHL R.S.	7	11	18	5	2	7	Mod / High
23S01-A	UHL R.S.	7	11	18	5	2	7	Mod / High
23S01-B	UHL R.S.	7	11	18	5	2	7	Mod / High
23S02	PACKSADDLE	5	8	13	12	5	17	Low / Mod
23S02A	PACKSADDLE	5	9	14	12	5	17	Mod / Mod
23S03	POWDERHORN RIDGE	5	10	15	16	5	21	Mod / Low
23S04	DEER CREEK MILL	5	9	14	7	3	10	Mod / High
23S04A	DEER CREEK MILL	5	8	13	15	5	20	Low / Mod
23S05	CAPINERO	7	11	18	5	3	8	Mod / High
23S05A	CAPINERO	9	8	17	10	4	14	Mod / Mod
23S05C	BONY WITT	7	10	17	11	5	16	Mod / Mod
23S05D	CAPINERO	5	10	15	16	5	21	Mod / Low
23S06	HOLEY MDW. C.G.	5	10	15	13	2	15	Mod / Mod
23S07	BIG MEADOW	7	10	17	8	3	11	Mod / High
23S07A	BIG MEADOW	5	9	14	10	4	14	Mod / Mod
23S07B	BIG MEADOW	5	7	12	15	5	20	Low / Mod
23S08	SALMON CREEK	7	10	17	6	4	10	Mod / High
23S08A	SALMON CREEK	5	9	14	20	6	26	Mod / Low
23S08B	SALMON CREEK	5	8	13	19	6	25	Low / Low
23S09	DEADWOOD	7	10	17	15	4	19	Mod / Mod
23S10	HORSE MEADOW	5	10	15	5	2	7	Mod / High
23S10A	HORSE MEADOW	5	10	15	19	5	24	Mod / Low
23S10B	HORSE MEADOW C.G.	7	10	17	9	2	11	Mod / High
23S11	POWDERHORN GROVE	7	9	16	14	5	19	Mod / Mod
23S11A	POWDERHORN GROVE	5	9	14	19	5	24	Mod / Low
23S12	POISON MDW. CREEK	7	8	15	21	6	27	Mod / Low
23S12A	POISON MDW. CREEK	9	8	17	21	6	27	Mod / Low
23S13	SALMON GROUP CAMP	6	10	16	11	3	14	Mod / Mod
23S13A	HORSE MDW. K.V. CAMP	5	9	14	15	3	18	Mod / Mod
23S13B	K.V. CAMP CUTOFF	5	9	14	21	5	26	Mod / Low
23S13C	SALMON GROUP CAMP	3	9	12	20	6	26	Low / Low
23S13D	SALMON GROUP CAMP	3	9	12	21	6	27	Low / Low
23S14	POISON MEADOW	7	11	18	12	4	16	Mod / Mod
23S14A	POISON MEADOW	5	10	15	20	4	24	Mod / Low
23S14B	POISON MEADOW	5	8	13	16	5	21	Low / Low

23S14C	POISON MEADOW	7	9	16	21	6	27	Mod / Low
23S14D	POISON MEADOW	7	11	18	21	6	27	Mod / Low
23S14E	POISON MEADOW	7	10	17	21	6	27	Mod / Low
23S15	POWDERHORN	6	11	17	12	4	16	Mod / Mod
23S15.01	POWDERHORN	5	10	15	12	5	17	Mod / Mod
23S15A	POWDERHORN	5	8	13	12	5	17	Low / Mod
23S16	SUGARLOAF	5	11	16	5	2	7	Mod / High
23S16A	SUGARLOAF	7	10	17	10	5	15	Mod / Mod
23S16B	SUGARLOAF	5	8	13	17	5	22	Low / Low
23S16C	SUGARLOAF	7	7	14	19	5	24	Mod / Low
23S16D	SUGARLOAF	7	8	15	19	5	24	Mod / Low
23S17	DOUBLEBUNK MDW.	5	9	14	15	5	20	Mod / Mod
23S17A	DOUBLEBUNK MDW.	5	9	14	19	5	24	Mod / Low
23S18	PARKER FORKS	7	8	15	9	5	14	Mod / Mod
23S18A	PARKER FORKS	5	8	13	21	5	26	Low / Low
23S19	LIMESTONE C.G.	10	9	19	16	2	18	Mod / Mod
23S20	ROADS END G.S.	10	10	20	16	6	22	Mod / Low
23S21	FAIRVIEW C G	10	11	21	16	2	18	High / Mod
23S21A	FAIRVIEW C G	10	11	21	16	2	18	High / Mod
23S21B	FAIRVIEW C G	10	11	21	16	2	18	High / Mod
23S22	LION RIDGE	5	8	13	9	5	14	Low / Mod
23S23	MOSQUITO	5	8	13	19	5	24	Low / Low
23S23A	MOSQUITO	5	8	13	19	5	24	Low / Low
23S25	MULE SADDLE	5	10	15	14	5	19	Mod / Mod
23S26	PARKER MDW. CREEK	7	10	17	15	5	20	Mod / Mod
23S27	BLUFFS	7	9	16	15	5	20	Mod / Mod
23S28	SHORT CUT	5	10	15	9	5	14	Mod / Mod
23S29	COLD SADDLE	5	10	15	14	5	19	Mod / Mod
23S30	HOLEY MEADOW	3	9	12	9	5	14	Low / Mod
23S31	MERRY CAMP	8	8	16	11	5	16	Mod / Mod
23S32	S.D. CANYON	5	10	15	11	5	16	Mod / Mod
23S32A	S.D. CANYON	5	9	14	21	5	26	Mod / Low
23S33	SPEAS RIDGE	5	8	13	13	5	18	Low / Mod
23S34	CHAMISE FLAT	10	9	19	19	4	23	Mod / Low
23S34A	CHAMISE FLAT	10	9	19	19	4	23	Mod / Low
23S36	PACKSADDLE CANYON	7	11	18	20	5	25	Mod / Low
23S41	POISON CREEK	6	9	15	20	6	26	Mod / Low
23S41A	POISON CREEK	5	7	12	21	6	27	Low / Low

23S41B	POISON CREEK	5	7	12	21	6	27	Low / Low
23S41D	POISON CREEK	5	7	12	21	6	27	Low / Low
23S42	ROADS END RAFT LAUNCH	10	8	18	19	4	23	Mod / Low
23S43	ROADS END DAY USE	10	10	20	19	4	23	Mod / Low
23S44	CALKINS FLAT-A	10	9	19	19	4	23	Mod / Low
23S45	CALKINS FLAT-B	10	9	19	19	4	23	Mod / Low
23S46	SALMON CREEK	10	10	20	19	4	23	Mod / Low
23S50	HACHET	9	9	18	14	5	19	Mod / Mod
23S51	COLD SPRINGS PEAK	5	9	14	10	5	15	Mod / Mod
23S52	CHUTE	8	8	16	15	5	20	Mod / Mod
23S53	DAVIS CANYON	7	11	18	11	5	16	Mod / Mod
23S53A	DAVIS CANYON	3	10	13	20	6	26	Low / Low
23S57	FRENCH JOE MDW.	5	8	13	9	5	14	Low / Mod
23S57A	FRENCH JOE MDW.	5	8	13	13	5	18	Low / Mod
23S62	FORKS	5	9	14	17	5	22	Mod / Low
23S63	SOLDIER MEADOW	7	9	16	9	5	14	Mod / Mod
23S64	COLD SPRINGS	7	11	18	12	3	15	Mod / Mod
23S64A	COLD SPRINGS	7	10	17	18	5	23	Mod / Low
23S64B	COLD SPRINGS	7	8	15	20	5	25	Mod / Low
23S64C	COLD SPRINGS	5	8	13	18	5	23	Low / Low
23S64E	COLD SPRINGS	5	8	13	20	5	25	Low / Low
23S64F	COLD SPRINGS	7	10	17	20	5	25	Mod / Low
23S64G	COLD SPRINGS	7	9	16	17	5	22	Mod / Low
23S65	STARVATION CREEK	5	9	14	10	5	15	Mod / Mod
23S65A	STARVATION CREEK	5	7	12	16	5	21	Low / Low
23S65B	STARVATION CREEK	7	9	16	17	5	22	Mod / Low
23S66	HATCHET PEAK	5	9	14	11	5	16	Mod / Mod
23S66A	HATCHET PEAK	5	9	14	16	5	21	Mod / Low
23S66B	HATCHET PEAK	5	9	14	16	5	21	Mod / Low
23S66D	HATCHET PEAK	4	9	13	16	5	21	Low / Low
23S68	CHUTE SPRINGS	7	11	18	9	5	14	Mod / Mod
23S68A	CHUTE SPRINGS	5	9	14	15	5	20	Mod / Mod
23S68B	CHUTE SPRINGS	5	10	15	15	5	20	Mod / Mod
23S69	HOT SPRINGS W.C.	9	8	17	12	4	16	Mod / Mod
23S70	LEAVIS FLAT C.G.	7	8	15	10	3	13	Mod / High
23S73	GREENHORN (PUP MDW)	6	8	14	9	5	14	Mod / Mod
23S73A	SPEAS MEADOW	7	7	14	14	5	19	Mod / Mod
23S73B	GREENHORN	7	7	14	16	5	21	Mod / Low

23S73C	GREENHORN	7	8	15	11	5	16	Mod / Mod
24S01	UHL POCKET	5	8	13	9	5	14	Low / Mod
24S02	BAKER POINT	5	11	16	8	2	10	Mod / High
24S03	SCHULTZ	7	9	16	13	5	18	Mod / Mod
24S04	POSO	7	9	16	7	4	11	Mod / High
24S05	JACK RANCH	5	11	16	8	3	11	Mod / High
24S07	SANDY CREEK	7	10	17	7	4	11	Mod / High
24S07A	SANDY CREEK	5	8	13	21	5	26	Low / Low
24S07B	SANDY CREEK	5	7	12	21	6	27	Low / Low
24S08	TOBIAS PEAK L.O.	5	8	13	6	4	10	Low / High
24S09	PANORAMA	5	7	12	13	4	17	Low / Mod
24S10	PORTUGUESE MDW.	5	11	16	8	4	12	Mod / High
24S11	COUNTY LINE	5	9	14	21	5	26	Mod / Low
24S12	CANNELL	5	10	15	6	3	9	Mod / High
24S12A	CANNELL	5	9	14	21	6	27	Mod / Low
24S12B	CANNELL	5	9	14	21	6	27	Mod / Low
24S12C	CANNELL	7	9	16	16	4	20	Mod / Mod
24S12D	CANNELL	8	9	17	21	6	27	Mod / Low
24S12E	CANNELL	7	9	16	19	4	23	Mod / Low
24S13	TAYLOR	7	10	17	12	4	16	Mod / Mod
24S13A	TAYLOR	5	9	14	21	6	27	Mod / Low
24S13D	TAYLOR	3	9	12	21	6	27	Low / Low
24S14	BARTOLAS	5	9	14	10	5	15	Mod / Mod
24S14A	BARTOLAS	5	8	13	18	6	24	Low / Low
24S14B	BARTOLAS	3	8	11	18	6	24	Low / Low
24S14C	BARTOLAS	3	8	11	18	6	24	Low / Low
24S14D	BARTOLAS	5	8	13	18	6	24	Low / Low
24S14E	BARTOLAS	7	8	15	18	6	24	Mod / Low
24S14F	BARTOLAS	3	8	11	18	6	24	Low / Low
24S15	PORTUGUESE MEADOW	5	11	16	6	3	9	Mod / High
24S15A	PORTUGUESE MEADOW	5	10	15	15	5	20	Mod / Mod
24S15B	PORTUGUESE MEADOW	5	9	14	16	5	21	Mod / Low
24S16	GOLD LEDGE C.G.	10	10	20	15	2	17	Mod / Mod
24S18	CORRAL CREEK C.G.	10	9	19	15	2	17	Mod / Mod
24S19	HOSPITAL C.G.	10	11	21	15	2	17	High / Mod
24S20	CAMP 3 C.G.	10	10	20	14	2	16	Mod / Mod
24S21	HEADQUARTERS C.G.	10	11	21	14	2	16	High / Mod
24S22	FIR CAMP	5	9	14	10	5	15	Mod / Mod

24S23	EAST LION	3	9	12	9	5	14	Low / Mod
24S23A	EAST LION	3	8	11	15	5	20	Low / Mod
24S24	TOBIAS MEADOW	5	11	16	7	4	11	Mod / High
24S24B	TOBIAS MEADOW	5	10	15	21	6	27	Mod / Low
24S25	MC SWINEY BLVD	5	10	15	12	5	17	Mod / Mod
24S25B	MC SWINEY BLVD	5	8	13	14	5	19	Low / Mod
24S26	WHITE RIVER C.G.	7	10	17	8	3	11	Mod / High
24S27	SPEAR CREEK	3	8	11	7	5	12	Low / High
24S28	SUNDAY PEAK	5	10	15	10	4	14	Mod / Mod
24S29	GUERNSEY	3	9	12	10	5	15	Low / Mod
24S30	DRY LAKE	5	9	14	16	5	21	Mod / Low
24S30A	DRY LAKE	5	8	13	19	6	25	Low / Low
24S31	EAST HORSE MDW.	5	9	14	9	5	14	Mod / Mod
24S32	CHURCH	7	9	16	10	5	15	Mod / Mod
24S32D	CHURCH	5	8	13	21	6	27	Low / Low
24S33	NORTH RATTLESNAKE	5	10	15	18	5	23	Mod / Low
24S33A	NORTH RATTLESNAKE	3	10	13	21	5	26	Low / Low
24S34	TYLER MEADOW	5	8	13	13	5	18	Low / Mod
24S34A	TYLER MEADOW	5	9	14	21	6	27	Mod / Low
24S35	SHULTZ CREEK	7	11	18	15	5	20	Mod / Mod
24S35A	SHULTZ CREEK	5	11	16	19	6	25	Mod / Low
24S35C	SHULTZ CREEK	5	9	14	16	5	21	Mod / Low
24S37	SOUTH DRY MDW.	5	11	16	19	6	25	Mod / Low
24S38	WEST ROAD	7	10	17	19	6	25	Mod / Low
24S39	CANE MEADOW	7	10	17	15	5	20	Mod / Mod
24S39A	CANE MEADOW	5	10	15	20	6	26	Mod / Low
24S39B	CANE MEADOW	5	10	15	20	6	26	Mod / Low
24S39C	CANE MEADOW	5	10	15	21	6	27	Mod / Low
24S39D	CANE MEADOW	6	8	14	20	6	26	Mod / Low
24S40	RATTLESNAKE WEST	7	9	16	19	6	25	Mod / Low
24S41	RATTLESNAKE MDW.	5	9	14	19	6	25	Mod / Low
24S41A	RATTLESNAKE MDW.	5	9	14	19	6	25	Mod / Low
24S41B	RATTLESNAKE MDW.	5	9	14	21	6	27	Mod / Low
24S42	SOUTH CHURCH-DOME	5	8	13	21	6	27	Low / Low
24S43	TAYLOR CR.	3	10	13	21	5	26	Low / Low
24S43D	TAYLOR CR.	3	10	13	21	5	26	Low / Low
24S45	STORMY CANYON	7	10	17	20	6	26	Mod / Low
24S46	DEEP CREEK	5	9	14	8	4	12	Mod / High

24S46A	DEEP CREEK	5	9	14	19	6	25	Mod / Low
24S47	ANT CANYON	10	12	22	19	4	23	High / Low
24S47A	ANT CANYON	10	12	22	19	4	23	High / Low
24S48-A	OLD GOLDLEDGE (UPPER)	10	12	22	19	4	23	High / Low
24S48-B	OLD GOLDLEDGE (LOWER)	10	12	22	19	4	23	High / Low
24S49	SPRINGHILL NORTH	10	9	19	19	4	23	Mod / Low
24S50	GREENHORN MTN.	6	8	14	5	3	8	Mod / High
24S50A	GREENHORN MTN.	6	7	13	19	5	24	Low / Low
24S50B	GREENHORN MTN.	5	8	13	17	5	22	Low / Low
24S50C	GREENHORN MTN.	5	9	14	21	6	27	Mod / Low
24S51	SPRINGHILL SOUTH	10	9	19	19	4	23	Mod / Low
24S51A	SPRINGHILL SOUTH	10	9	19	19	4	23	Mod / Low
24S52	HOSPITAL FLAT OVERFLOW	8	11	19	19	4	23	Mod / Low
24S53	CHICO FLAT-A	8	11	19	19	4	23	Mod / Low
24S54	CHICO FLAT-B	8	11	19	19	4	23	Mod / Low
24S54A	CHICO FLAT-B	8	11	19	19	4	23	Mod / Low
24S55	THUNDERBIRD	10	11	21	19	4	23	High / Low
24S55A	THUNDERBIRD	10	11	21	19	4	23	High / Low
24S56	CANNELL MEADOW	6	9	15	5	4	9	Mod / High
24S56A	CANNELL MEADOW	5	8	13	11	4	15	Low / Mod
24S56B	CANNELL MEADOW	7	8	15	17	5	22	Mod / Low
24S56C	CANNELL MEADOW	3	8	11	16	5	21	Low / Low
24S57	HALFWAY	8	11	19	19	4	23	Mod / Low
24S57A	HALFWAY	10	11	21	19	4	23	High / Low
24S57B	HALFWAY	8	11	19	19	4	23	Mod / Low
24S60	GUERNSEY MILL	3	8	11	7	5	12	Low / High
24S60A	GUERNSEY MILL	3	8	11	12	5	17	Low / Mod
24S77	EAST HORSE	5	7	12	11	4	15	Low / Mod
24S77A	EAST HORSE	5	9	14	21	6	27	Mod / Low
24S80	LOWER DRY MEADOW	5	11	16	16	5	21	Mod / Low
24S80A	LOWER DRY MEADOW	5	8	13	17	5	22	Low / Low
24S80B	LOWER DRY MEADOW	5	10	15	16	5	21	Mod / Low
24S80C	LOWER DRY MEADOW	5	10	15	17	5	22	Mod / Low
24S82	DEAD HORSE	5	8	13	9	3	12	Low / High
24S82A	DEAD HORSE	4	8	12	20	5	25	Low / Low
24S83	UPPER DRY MEADOW	7	11	18	16	5	21	Mod / Low
24S83A	UPPER DRY MEADOW	7	10	17	16	5	21	Mod / Low
24S86	FROG MEADOW	5	8	13	11	3	14	Low / Mod

24S87	SUGARLOAF C.G.	3	8	11	13	5	18	Low / Mod
24S88	VINCENT MEADOW	5	10	15	8	5	13	Mod / High
24S89	RINCON	10	13	23	10	5	15	High / Mod
24S93	PEEL PEAK	5	9	14	7	5	12	Mod / High
24S93A	PEEL PEAK	3	8	11	16	5	21	Low / Low
24S93B	PEEL PEAK	6	8	14	15	5	20	Mod / Mod
24S94	SPEAR	5	8	13	12	5	17	Low / Mod
24S94A	SPEAR	3	8	11	15	5	20	Low / Mod
25S01	FULTON CREEK	6	8	14	10	4	14	Mod / Mod
25S02	WAGY FLAT	8	10	18	13	5	18	Mod / Mod
25S03	BARTOLAS WEST	7	9	16	17	5	22	Mod / Low
25S03A	BARTOLAS WEST	7	8	15	20	5	25	Mod / Low
25S04	ALDER CREEK	10	12	22	6	2	8	High / High
25S04A	ALDER CREEK	10	11	21	13	5	18	High / Mod
25S05	BARTOLAS CREEK	9	7	16	18	6	24	Mod / Low
25S05A	BARTOLAS CREEK	7	7	14	18	6	24	Mod / Low
25S06	TIGER FLAT C. G.	5	8	13	17	5	22	Low / Low
25S07	CEDAR CREEK C.G.	7	8	15	11	2	13	Mod / High
25S08	FULTON W.C.	5	7	12	15	3	18	Low / Mod
25S09	KERNVILLE W C	3	11	14	14	2	16	Mod / Mod
25S09A	KERNVILLE W C	3	11	14	14	2	16	Mod / Mod
25S09B	KERNVILLE W C	3	11	14	14	2	16	Mod / Mod
25S10	FAY CR.	7	10	17	17	5	22	Mod / Low
25S11	GREENHORN EAST	5	10	15	10	5	15	Mod / Mod
25S11A	GREENHORN EAST	5	9	14	21	6	27	Mod / Low
25S12	ALDER CREEK C.G.	7	9	16	16	4	20	Mod / Mod
25S13	BARTOLAS EAST	5	9	14	19	5	24	Mod / Low
25S13A	BARTOLAS EAST	6	9	15	21	5	26	Mod / Low
25S13B	BARTOLAS EAST	5	8	13	21	6	27	Low / Low
25S14	CEDAR CREEK	7	7	14	7	4	11	Mod / High
25S15	RANCHERIA	10	12	22	5	2	7	High / High
25S15B	RANCHERIA	8	8	16	20	5	25	Mod / Low
25S15C	RANCHERIA	5	11	16	18	4	22	Mod / Low
25S15D	RANCHERIA	8	9	17	20	5	25	Mod / Low
25S15E	GREENHORN SUMMIT STA.	5	10	15	9	3	12	Mod / High
25S16	CALF CREEK	5	12	17	10	4	14	Mod / Mod
25S17	WINDY GAP	8	11	19	12	4	16	Mod / Mod
25S18	CANE	8	10	18	18	5	23	Mod / Low

25S18A	CANE	5	10	15	21	5	26	Mod / Low
25S19	COW CREEK	7	9	16	12	4	16	Mod / Mod
25S20	BLACK MTN. SADDLE	5	10	15	16	5	21	Mod / Low
25S21	COOKS PEAK	9	12	21	10	3	13	High / High
25S22	BOUNDARY ROAD	5	9	14	19	6	25	Mod / Low
25S22A	BOUNDARY ROAD	5	9	14	21	6	27	Mod / Low
25S23	BARTOLAS CR. WEST	5	9	14	21	6	27	Mod / Low
25S23A	BARTOLAS CR. WEST	7	8	15	21	6	27	Mod / Low
25S24	BARTOLAS COUNTRY	7	9	16	21	6	27	Mod / Low
25S24A	BARTOLAS COUNTRY	5	8	13	21	6	27	Low / Low
25S24B	BARTOLAS COUNTRY	5	8	13	21	6	27	Low / Low
25S25	SHIRLEY SPRINGS	9	12	21	7	4	11	High / High
25S26	BLACK MTN.SADDLE	5	11	16	16	5	21	Mod / Low
25S27	BLACK MTN.	5	11	16	16	5	21	Mod / Low
25S27A	BLACK MTN.	5	10	15	20	5	25	Mod / Low
25S28	OWL MINE	5	11	16	7	4	11	Mod / High
25S28A	OWL MINE	5	10	15	20	5	25	Mod / Low
25S28B	OWL MINE	5	8	13	20	5	25	Low / Low
25S28C	OWL MINE	8	8	16	9	4	13	Mod / High
25S29	SHIRLEY	5	11	16	19	6	25	Mod / Low
25S30	SHIRLEY CR. NORTH	8	8	16	12	5	17	Mod / Mod
25S31	SHIRLEY MEADOWS	10	12	22	7	4	11	High / High
25S32	SHIRLEY CREEK	10	7	17	16	5	21	Mod / Low
25S33	SLICK ROCK CREEK	10	9	19	12	5	17	Mod / Mod
25S36	BLACK	7	11	18	11	4	15	Mod / Mod
25S37	CAVE	5	10	15	20	6	26	Mod / Low
25S37A	CAVE	5	10	15	21	6	27	Mod / Low
25S38	BULL RUN BASIN	6	11	17	13	5	18	Mod / Mod
25S38A	BULL RUN BASIN	5	11	16	13	5	18	Mod / Mod
25S39	SILVER STRAND	5	9	14	9	4	13	Mod / High
25S40	SUNDAY	8	8	16	21	6	27	Mod / Low
25S40A	SUNDAY	8	8	16	21	6	27	Mod / Low
25S41	KERNVILLE AIRPORT	5	11	16	11	2	13	Mod / High
25S43	OLD HIGH SCHOOL ROAD	3	10	13	20	3	23	Low / Low
25S44	OLD KERNVILLE CEMETARY	6	10	16	15	2	17	Mod / Mod
25S44A	OLD KERNVILLE CEMETARY	3	10	13	15	4	19	Low / Mod
25S45	FAY RANCH	10	8	18	18	5	23	Mod / Low
25S49	SHIRLEY PEAK	8	12	20	12	3	15	Mod / Mod

25S49A	SHIRLEY PEAK	8	12	20	12	4	16	Mod / Mod
25S50	KERNVILLE HELIPORT	3	10	13	13	2	15	Low / Mod
26S01	GREENHORN MTN. WEST	8	10	18	13	4	17	Mod / Mod
26S01A	GREENHORN MTN. WEST	8	10	18	20	5	25	Mod / Low
26S01B	GREENHORN MTN. WEST	8	10	18	20	5	25	Mod / Low
26S02	HEADQUARTERS -PONDEROSA DR	3	10	13	9	2	11	Low / High
26S02A	HEADQUARTERS	3	10	13	16	2	18	Low / Mod
26S02B	HEADQUARTERS	3	10	13	11	2	13	Low / High
26S02C	HEADQUARTERS - BARLOW DR	3	10	13	9	2	11	Low / High
26S02D	HEADQUARTERS PARKING	3	10	13	15	2	17	Low / Mod
26S04	BROWNS MILL	10	10	20	12	4	16	Mod / Mod
26S04A	BROWNS MILL	8	10	18	20	5	25	Mod / Low
26S04B	BROWNS MILL	10	10	20	20	5	25	Mod / Low
26S04C	BROWNS MILL	10	10	20	20	5	25	Mod / Low
26S04D	BROWNS MILL	10	10	20	20	5	25	Mod / Low
26S05	BASKET PASS	10	11	21	8	4	12	High / High
26S06	BLACK GULCH	7	11	18	9	4	13	Mod / High
26S06A	BLACK GULCH	7	10	17	15	5	20	Mod / Mod
26S06B	BLACK GULCH	7	8	15	15	5	20	Mod / Mod
26S07	FRANK	8	10	18	19	5	24	Mod / Low
26S07A	FRANK	8	10	18	19	5	24	Mod / Low
26S08	BASKET RIDGE	10	9	19	15	5	20	Mod / Mod
26S09	WOODWARD	8	9	17	20	5	25	Mod / Low
26S09A	WOODWARD	8	9	17	20	5	25	Mod / Low
26S10	ENGINEER POINT	3	11	14	19	4	23	Mod / Low
26S10B	ENGINEER POINT	3	10	13	19	4	23	Low / Low
26S11	MAYFLOWER MINE	8	10	18	14	5	19	Mod / Mod
26S12	LITTLE POSO CREEK	8	10	18	20	5	25	Mod / Low
26S13	DAVIS ROAD	9	11	20	16	5	21	Mod / Low
26S13A	DAVIS ROAD	8	10	18	20	5	25	Mod / Low
26S13B	DAVIS ROAD	10	11	21	20	5	25	High / Low
26S14	DAVIS HELIPORT	10	11	21	20	6	26	High / Low
26S15	LAUNCH AREA 19	3	11	14	16	2	18	Mod / Mod
26S15A	LAUNCH AREA 19	3	11	14	16	2	18	Mod / Mod
26S15B	LAUNCH AREA 19	3	11	14	16	2	18	Mod / Mod
26S16	OLD LIKELY MILL	7	9	16	9	5	14	Mod / Mod
26S17	AUXILIARY DAM	3	10	13	10	2	12	Low / High
26S17-1	AUXILIARY DAM	3	10	13	13	2	15	Low / Mod

26S17A	AUXILIARY DAM	3	10	13	13	2	15	Low / Mod
26S17B	AUXILIARY DAM	3	10	13	13	2	15	Low / Mod
26S17B-1	AUXILIARY DAM	3	10	13	13	2	15	Low / Mod
26S17C	AUXILIARY DAM	3	10	13	13	2	15	Low / Mod
26S18	EVANS FLAT WEST	8	10	18	16	5	21	Mod / Low
26S18A	EVANS FLAT WEST	8	9	17	20	5	25	Mod / Low
26S19	RHYMES	10	10	20	19	5	24	Mod / Low
26S19A	RHYMES	8	7	15	21	5	26	Mod / Low
26S20	LIKELY SADDLE	8	10	18	11	5	16	Mod / Mod
26S20A	LIKELY SADDLE	10	9	19	14	5	19	Mod / Mod
26S20B	LIKELY SADDLE	8	9	17	20	5	25	Mod / Low
26S21	RAMP AREA 17 (OLD ISABELLA)	3	9	12	12	2	14	Low / Mod
26S21A	RAMP AREA 17 (OLD ISABELLA)	3	10	13	19	2	21	Low / Low
26S21-A	SO FORK WATER TANK	3	9	12	16	4	20	Low / Mod
26S22	SOUTH FORK	4	10	14	18	2	20	Mod / Mod
26S22A	SOUTH FORK	3	9	12	18	2	20	Low / Mod
26S22B	SOUTH FORK	3	9	12	18	3	21	Low / Low
26S23	RED MOUNTAIN	10	10	20	18	5	23	Mod / Low
26S23A	RED MOUNTAIN	10	10	20	18	5	23	Mod / Low
26S24	LONE STAR	10	10	20	13	4	17	Mod / Mod
26S24A	LONE STAR	10	10	20	16	5	21	Mod / Low
26S25	OAK RIDGE	8	12	20	13	4	17	Mod / Mod
26S25A	OAK RIDGE	8	9	17	21	5	26	Mod / Low
26S25B	OAK RIDGE	8	9	17	21	5	26	Mod / Low
26S25C	OAK RIDGE	8	10	18	21	5	26	Mod / Low
26S26	FRENCH GULCH MARINA	3	11	14	9	2	11	Mod / High
26S26-A	PIONEER PT LIFT STATION	3	10	13	17	5	22	Low / Low
26S27	EVANS FLAT CG	10	10	20	12	3	15	Mod / Mod
26S27A	EVANS FLAT CG	12	10	22	15	4	19	High / Mod
26S28	DAVIS WEST	8	10	18	20	5	25	Mod / Low
26S28A	DAVIS WEST	5	8	13	20	5	25	Low / Low
26S29	POSO CREEK EAST	8	11	19	20	5	25	Mod / Low
26S29A	POSO CREEK EAST	8	10	18	21	5	26	Mod / Low
26S29B	POSO CREEK EAST	8	11	19	21	5	26	Mod / Low
26S30	DAVIS LOOP	10	11	21	13	5	18	High / Mod
26S31	PARADISE COVE C.G.	3	9	12	16	2	18	Low / Mod
26S31A	PARADISE COVE C G	3	9	12	16	2	18	Low / Mod
26S31B	PARADISE COVE C G	3	9	12	16	2	18	Low / Mod

26S31C	PARADISE COVE C G	3	9	12	16	2	18	Low / Mod
26S32	KISSACK COVE	3	9	12	19	3	22	Low / Low
26S32A	KISSACK COVE	3	9	12	18	3	21	Low / Low
26S33	MAYFLOWER	10	10	20	11	5	16	Mod / Mod
26S34	PATTERSON LN.	4	13	17	11	4	15	Mod / Mod
26S34A	PATTERSON LN.	3	10	13	20	3	23	Low / Low
26S34B	PATTERSON LN	4	12	16	20	5	25	Mod / Low
26S34C	PATTERSON LN	5	12	17	20	5	25	Mod / Low
26S34C-1	PATTERSON LN	5	7	12	20	5	25	Low / Low
26S36	HANNING FLAT	5	11	16	19	2	21	Mod / Low
26S36A	HANNING FLAT	3	13	16	19	4	23	Mod / Low
26S36A-1	HANNING FLAT	3	10	13	19	5	24	Low / Low
26S36B	HANNING FLAT	3	10	13	19	4	23	Low / Low
26S36C	HANNING FLAT	6	10	16	19	4	23	Mod / Low
26S36C-1	HANNING FLAT	3	10	13	19	4	23	Low / Low
26S37	PETTITT	9	11	20	8	5	13	Mod / High
26S37A	PETTITT	10	9	19	17	5	22	Mod / Low
26S38	ROBINSON BAY	7	10	17	10	3	13	Mod / High
26S39	STINE COVE	5	9	14	19	3	22	Mod / Low
26S40	MT MESA	7	8	15	19	2	21	Mod / Low
26S40A	MT MESA	5	10	15	19	3	22	Mod / Low
26S40B	MT MESA	7	8	15	12	3	15	Mod / Mod
26S40C	MT MESA	3	8	11	19	3	22	Low / Low
26S41	CAMP 9	5	11	16	17	2	19	Mod / Mod
26S41-1	CAMP 9	4	10	14	18	3	21	Mod / Low
26S41A	CAMP 9	5	11	16	18	2	20	Mod / Mod
26S41A-1	CAMP 9	7	11	18	18	2	20	Mod / Mod
26S41A-2	CAMP 9	5	11	16	18	2	20	Mod / Mod
26S41A-3	CAMP 9	3	11	14	18	2	20	Mod / Mod
26S41A-4	CAMP 9	7	11	18	18	2	20	Mod / Mod
26S41A-G1	CAMP 9 GROUP 1	5	11	16	18	2	20	Mod / Mod
26S41A-G2	CAMP 9 GROUP 2	3	11	14	18	2	20	Mod / Mod
26S41A-G3	CAMP 9 GROUP 3	3	11	14	18	2	20	Mod / Mod
26S41A-G4	CAMP 9 GROUP 4	3	11	14	18	2	20	Mod / Mod
26S41A-G5	CAMP 9 GROUP 5	3	11	14	18	2	20	Mod / Mod
26S41A-G6	CAMP 9 GROUP 6	3	11	14	18	2	20	Mod / Mod
26S41B	CAMP 9	5	9	14	18	2	20	Mod / Mod
26S41B-1	CAMP 9	7	11	18	18	2	20	Mod / Mod

26S41C	CAMP 9	3	9	12	18	2	20	Low / Mod
26S41C-1	CAMP 9	5	11	16	18	2	20	Mod / Mod
26S41C-2	CAMP 9	3	9	12	18	2	20	Low / Mod
26S41C-3	CAMP 9	3	9	12	18	2	20	Low / Mod
26S41D	CAMP 9	3	9	12	18	2	20	Low / Mod
26S41E	CAMP 9	3	9	12	18	2	20	Low / Mod
26S41F	CAMP 9	3	9	12	18	2	20	Low / Mod
26S41F-1	CAMP 9	3	9	12	18	2	20	Low / Mod
26S41F-2	CAMP 9	3	9	12	18	2	20	Low / Mod
26S41G	CAMP 9	3	9	12	18	2	20	Low / Mod
26S42	CYRUS CANYON	7	9	16	12	3	15	Mod / Mod
26S42A	CYRUS CANYON	3	10	13	19	4	23	Low / Low
26S43A	TILLIE CREEK C G	5	10	15	19	2	21	Mod / Low
26S43B	TILLIE CREEK C G	5	10	15	19	2	21	Mod / Low
26S43C	TILLIE CREEK C G	5	10	15	19	2	21	Mod / Low
26S43D	TILLIE CREEK C G	5	10	15	19	2	21	Mod / Low
26S43E	TILLIE CKEEK C G	5	10	15	19	2	21	Mod / Low
26S43F	TILLIE CREEK C G	5	10	15	19	2	21	Mod / Low
26S43N-1	TILLIE CREEK C G	5	10	15	19	2	21	Mod / Low
26S43N-2	TILLIE CREEK C G	5	10	15	19	2	21	Mod / Low
26S43N-3	TILLIE CREEK C G	5	10	15	19	2	21	Mod / Low
26S43N-4	TILLIE CREEK C G	5	10	15	19	2	21	Mod / Low
26S43NA	TILLIE CREEK C G	5	10	15	19	2	21	Mod / Low
26S43NB	TILLIE CREEK C G	5	10	15	19	2	21	Mod / Low
26S43NC	TILLIE CREEK C G	5	10	15	19	2	21	Mod / Low
26S43ND	TILLIE CREEK C G	5	10	15	19	2	21	Mod / Low
26S43ND-1	TILLIE CREEK C G	5	10	15	19	2	21	Mod / Low
26S43ND-2	TILLIE CREEK C G	5	10	15	19	2	21	Mod / Low
26S44	LIVE OAK C G	5	10	15	19	2	21	Mod / Low
26S44-A	LIVE OAK C G	5	10	15	19	2	21	Mod / Low
26S44-B	LIVE OAK C G	5	10	15	19	2	21	Mod / Low
26S44S	LIVE OAK C G - SOUTH	5	10	15	19	2	21	Mod / Low
26S44S-A	LIVE OAK C G - SOUTH	5	10	15	19	2	21	Mod / Low
26S44S-B	LIVE OAK C G - SOUTH	5	10	15	19	2	21	Mod / Low
26S44S-C	LIVE OAK C G - SOUTH	5	10	15	19	2	21	Mod / Low
26S44S-D	LIVE OAK C G - SOUTH	5	10	15	19	2	21	Mod / Low
26S44S-E	LIVE OAK C G - SOUTH	5	10	15	19	2	21	Mod / Low
26S44S-F	LIVE OAK C G - SOUTH	5	10	15	19	2	21	Mod / Low

26S45	BOULDER GULCH C.G.	5	10	15	19	2	21	Mod / Low
26S45-A	BOULDER GULCH C G	5	10	15	19	2	21	Mod / Low
26S45-B	BOULDER GULCH C G	5	10	15	19	2	21	Mod / Low
26S45-C	BOULDER GULCH C G	5	10	15	19	2	21	Mod / Low
26S45-D	BOULDER GULCH C G	5	10	15	19	2	21	Mod / Low
26S45-E	BOULDER GULCH C G	5	10	15	19	2	21	Mod / Low
26S45-F	BOULDER GULCH C G	5	10	15	19	2	21	Mod / Low
26S45-G	BOULDER GULCH C G	5	10	15	19	2	21	Mod / Low
26S45-H	BOULDER GULCH C G	5	10	15	19	2	21	Mod / Low
26S45-I	BOULDER GULCH C G	5	10	15	19	2	21	Mod / Low
26S45-J	BOULDER GULCH C G	5	10	15	19	2	21	Mod / Low
26S45-K	BOULDER GULCH C G	5	10	15	19	2	21	Mod / Low
26S45-L	BOULDER GULCH C G	5	10	15	19	2	21	Mod / Low
26S45-M	BOULDER GULCH CG	5	10	15	19	2	21	Mod / Low
26S46	HUNGRY GULCH C.G.	5	10	15	19	2	21	Mod / Low
26S46A	HUNGRY GULCH C G	5	10	15	19	2	21	Mod / Low
26S46B	HUNGRY GULCH C G	5	10	15	19	2	21	Mod / Low
26S46C	HUNGRY GULCH C G	5	10	15	19	2	21	Mod / Low
26S46D	HUNGRY GULCH C G	5	10	15	19	2	21	Mod / Low
26S46E	HUNGRY GULCH C G	5	10	15	19	2	21	Mod / Low
26S47	FRENCH GULCH REC. AREA	3	10	13	19	2	21	Low / Low
26S47A	FRENCH GULCH REC AREA	3	10	13	19	2	21	Low / Low
26S47B	FRENCH GULCH REC AREA	3	10	13	19	2	21	Low / Low
26S47C	FRENCH GULCH REC AREA	3	10	13	19	2	21	Low / Low
26S48	PIONEER C.G.	3	10	13	19	2	21	Low / Low
26S48-A	PIONEER C G	3	10	13	19	2	21	Low / Low
26S48-B	PIONEER C G	3	10	13	19	2	21	Low / Low
26S48-C	PIONEER C G	3	10	13	19	2	21	Low / Low
26S48-D	PIONEER C G	3	10	13	19	2	21	Low / Low
26S48-E	PIONEER C G	3	10	13	19	2	21	Low / Low
26S49	MAIN DAM C.G.	6	10	16	19	2	21	Mod / Low
26S49A	MAIN DAM C G	6	10	16	19	2	21	Mod / Low
26S49B	MAIN DAM C G	6	10	16	19	2	21	Mod / Low
26S49C	MAIN DAM C G	6	10	16	19	2	21	Mod / Low
26S49D	MAIN DAM C G	6	10	16	19	2	21	Mod / Low
26S49E	MAIN DAM C G	6	10	16	19	2	21	Mod / Low
26S50	RICH GULCH	4	10	14	19	4	23	Mod / Low
26S50A	RICH GULCH	3	9	12	19	4	23	Low / Low

26S50B	RICH GULCH	3	9	12	13	5	18	Low / Mod
26S51	WOFFORD HTS PARK LOOP	5	11	16	19	4	23	Mod / Low
26S52	AIRFORCE CAMP	5	9	14	12	5	17	Mod / Mod
26S52A	AIRFORCE CAMP	3	9	12	13	6	19	Low / Mod
26S53	FRENCH GULCH TANK	3	9	12	11	5	16	Low / Mod
26S54	VISTA POINT (PARKING)	3	11	14	16	3	19	Mod / Mod
27S01	ROUGH AND READY MTN.	5	10	15	11	5	16	Mod / Mod
27S01A	ROUGH AND READY MTN.	5	10	15	12	5	17	Mod / Mod
27S02	SADDLE SPRINGS	6	12	18	5	3	8	Mod / High
27S02A	SADDLE SPRING C.G.	5	8	13	10	4	14	Low / Mod
27S02B	PIUTE MTN.	9	8	17	20	6	26	Mod / Low
27S02C	PIUTE MTN.	7	8	15	20	6	26	Mod / Low
27S02D	PIUTE MTN.	5	8	13	21	5	26	Low / Low
27S02E	PIUTE MTN.	5	10	15	21	5	26	Mod / Low
27S02F	PIUTE MTN.	5	9	14	17	5	22	Mod / Low
27S02G	PIUTE MTN.	5	9	14	15	5	20	Mod / Mod
27S04	BODFISH	12	10	22	15	5	20	High / Mod
27S05	HOBO C.G./MIRACLE HS	10	10	20	12	2	14	Mod / Mod
27S05-A	HOBO CG OVERFLOW	10	10	20	12	2	14	Mod / Mod
27S06	SANDY FLAT C G	10	9	19	16	2	18	Mod / Mod
27S06A	SANDY FLAT C G	10	9	19	16	2	18	Mod / Mod
27S06A-1	SANDY FLAT C G	10	9	19	16	2	18	Mod / Mod
27S06B	SANDY FLAT C G	10	9	19	16	2	18	Mod / Mod
27S07	BOREL EAST	10	10	20	15	5	20	Mod / Mod
27S08	BOREL	10	10	20	9	5	14	Mod / Mod
27S09	SPRING	11	11	22	15	5	20	High / Mod
27S10	HOOPER HILL	10	10	20	13	5	18	Mod / Mod
27S11	HORSE MTN. S.U.	9	10	19	13	4	17	Mod / Mod
27S12	DELONEGHA ACCESS	10	11	21	13	2	15	High / Mod
27S13	EAGLE	10	10	20	10	5	15	Mod / Mod
27S14	QUONSET BEACH	10	12	22	14	5	19	High / Mod
27S17	DEMOCRAT W.C.	12	10	22	12	4	16	High / Mod
27S20	OAK FLAT L.O.	8	9	17	10	5	15	Mod / Mod
27S29	GROUP CAMP	10	10	20	13	5	18	Mod / Mod
27S30	REC. MINE	10	9	19	17	5	22	Mod / Low
27S30A	REC. MINE	10	9	19	18	6	24	Mod / Low
27S33	OVERPASS	8	10	18	18	5	23	Mod / Low
27S37	CHINA GARDEN	9	9	18	12	3	15	Mod / Mod

27S37A	CHINA GARDEN 4WD	10	9	19	12	4	16	Mod / Mod
28S01	BUXTON MILL ROAD	10	10	20	13	3	16	Mod / Mod
28S04	SUNSET	7	9	16	15	5	20	Mod / Mod
28S04A	SUNSET	7	8	15	20	6	26	Mod / Low
28S05	LIEBEL PEAK	7	9	16	17	5	22	Mod / Low
28S06	BRECKENRIDGE	10	10	20	7	2	9	Mod / High
28S07	BRECKENRIDGE L.O.	10	11	21	5	4	9	High / High
28S07A	BRECKENRIDGE L.O.	10	8	18	19	5	24	Mod / Low
28S07C	BRECKENRIDGE L.O.	8	9	17	14	5	19	Mod / Mod
28S07D	BRECKENRIDGE L.O.	10	8	18	19	5	24	Mod / Low
28S07E	BRECKENRIDGE L.O.	8	9	17	21	6	27	Mod / Low
28S07F	BRECKENRIDGE L.O.	8	8	16	21	6	27	Mod / Low
28S08	GOLF MEADOW	6	8	14	6	4	10	Mod / High
28S08A	GOLF MEADOW	3	8	11	21	6	27	Low / Low
28S09	COW FLAT	10	10	20	7	5	12	Mod / High
28S09A	COW FLAT	8	9	17	15	5	20	Mod / Mod
28S10	SQUIRREL	10	9	19	16	5	21	Mod / Low
28S11	UPPER RICHBAR	10	9	19	12	2	14	Mod / Mod
28S12	LIVE OAK PARKING	10	8	18	12	2	14	Mod / Mod
28S14	DOUGHTERY	10	9	19	13	5	18	Mod / Mod
28S15	SATURDAY SPRINGS	10	9	19	9	4	13	Mod / High
28S16	MUNZER	8	8	16	15	4	19	Mod / Mod
28S17	PIUTE TEMP. L.O.	5	11	16	13	5	18	Mod / Mod
28S17A	PIUTE TEMP L.O.	5	10	15	20	5	25	Mod / Low
28S17B	PIUTE TEMP L.O.	5	11	16	16	5	21	Mod / Low
28S18	BROWN MEADOW	8	11	19	7	4	11	Mod / High
28S18A	BROWN MEADOW	8	9	17	20	6	26	Mod / Low
28S18B	BROWN MEADOW	9	9	18	21	6	27	Mod / Low
28S19	O'BRIAN SPRINGS	8	8	16	10	5	15	Mod / Mod
28S20	HAVILAH W.C.	5	9	14	16	2	18	Mod / Mod
28S20A	HAVILAH W.C.	5	9	14	16	2	18	Mod / Mod
28S21	BRECKENRIDGE C.G.	10	9	19	14	3	17	Mod / Mod
28S22	MUNZER MDW.	5	8	13	7	4	11	Low / High
28S23	PEAK	8	10	18	16	5	21	Mod / Low
28S24	WOOLSTAFF MDW.	7	11	18	9	4	13	Mod / High
28S24B	WOOLSTAFF MEADOW	7	8	15	17	5	22	Mod / Low
28S24C	WOOLSTAFF MEADOW	8	10	18	17	5	22	Mod / Low
28S24D	WOOLSTAFF MEADOW	7	8	15	17	5	22	Mod / Low

28S25	MORELAND MILL	7	11	18	11	5	16	Mod / Mod
28S26	SADDLE SPRINGS NORTH	5	9	14	20	6	26	Mod / Low
28S27	FRENCH MEADOW	7	11	18	8	4	12	Mod / High
28S27A	FRENCH MEADOW	6	9	15	15	5	20	Mod / Mod
28S28	VALLEY VIEW	5	8	13	15	5	20	Low / Mod
28S29	COLD SPRINGS NORTH	8	9	17	21	5	26	Mod / Low
28S30	COLD SPRINGS SOUTH	8	9	17	15	5	20	Mod / Mod
28S33	PIUTE SPRING	11	9	20	15	5	20	Mod / Mod
28S34	SQUIRREL MEADOW	8	9	17	21	6	27	Mod / Low
28S37	BRECKENRIDGE MTN. SOUTH	8	9	17	21	5	26	Mod / Low
28S37A	BRECKENRIDGE MTN.	8	8	16	21	5	26	Mod / Low
28S40	MACK	5	10	15	8	5	13	Mod / High
28S40A	MACK	7	9	16	15	5	20	Mod / Mod
28S40B	MACK	7	9	16	17	5	22	Mod / Low
28S43	NO. PIUTE MTN.	7	10	17	17	5	22	Mod / Low
28S44	SOLOMONS RIDGE	10	11	21	13	5	18	High / Mod
28S44A	SOLOMONS RIDGE	10	8	18	17	5	22	Mod / Low
28S47	BROWN MDW. SOUTH	10	10	20	6	4	10	Mod / High
28S47A	BROWN MDW. SOUTH	8	9	17	19	6	25	Mod / Low
28S47B	BROWN MDW. SOUTH	10	9	19	20	6	26	Mod / Low
28S60	FAUST MILL	7	9	16	16	5	21	Mod / Low
28S62	GROUSE SPRING	4	9	13	7	4	11	Low / High
28S62B	BRECKENRIDGE L.O.	8	9	17	11	6	17	Mod / Mod
28S67	DEMOCRAT BEACHES	10	9	19	10	4	14	Mod / Mod
28S67A	DEMOCRAT BEACHES	10	9	19	10	4	14	Mod / Mod
28S68	WILLOW SPRING CR.	10	10	20	10	2	12	Mod / High
28S74	LOWER RICHBAR C.G.	10	10	20	12	2	14	Mod / Mod
28S81	DOUGHERTY CREEK	10	10	20	12	5	17	Mod / Mod
29S01	GROUSE MDW.	5	9	14	13	5	18	Mod / Mod
29S02	FRANCESCHI MINE	7	10	17	6	4	10	Mod / High
29S03	GALLUP	5	10	15	8	4	12	Mod / High
29S03B	GALLUP	7	9	16	16	5	21	Mod / Low
29S04	SORREL PEAK	7	9	16	6	5	11	Mod / High
29S05	LANDERS W.C.	4	11	15	13	5	18	Mod / Mod
29S07	WATERHOLE MINE	5	10	15	10	5	15	Mod / Mod
29S19	B & C MILL CREEK	7	8	15	10	4	14	Mod / Mod
W H Park	WOFFORD HEIGHTS PARK	5	10	15	19	4	23	Mod / Low

Roads rated RED (Low, Moderate or High Risk, and Low Benefit)

These roads are red on the Opportunities Maps
Low/Low: Consider for reduced maintenance level, closure or decommissioning.
Moderate/Low and High/Low: Considered for decommissioning.
(Low / Low = low priority, Mod / Low = medium priority, High / Low = high priority)

FS Road Number	Road Name	Aquatic Risk Composite	Terrestrial Risk Composite	Resource Risk Composite	Access Composite	Social Composite	Access Needs or Benefit Composite	Opportunity Classes (Risk/Benefit)
11S12Z	BLACKROCK	5	8	13	16	5	21	Low / Low
12S01D	DAVIS	5	7	12	20	5	25	Low / Low
12S04A	PINE	5	8	13	16	5	21	Low / Low
13S03B	CHICAGO STUMP	5	7	12	19	6	25	Low / Low
13S03C	CHICAGO STUMP	5	8	13	20	5	25	Low / Low
13S03F	CHICAGO STUMP	5	8	13	21	5	26	Low / Low
13S03H	CHICAGO STUMP	5	8	13	19	5	24	Low / Low
13S04F	BUCK ROCK	3	8	11	19	5	24	Low / Low
13S04G	BUCK ROCK	3	8	11	19	5	24	Low / Low
13S04I	BUCK ROCK	3	8	11	19	5	24	Low / Low
13S04J	BUCK ROCK	3	9	12	19	5	24	Low / Low
13S04K	BUCK ROCK	5	8	13	19	5	24	Low / Low
13S04L	BUCK ROCK	5	8	13	19	5	24	Low / Low
13S05D	CAMP 7	3	8	11	19	5	24	Low / Low
13S09D	TENMILE	5	7	12	20	5	25	Low / Low
13S09J	TENMILE	5	8	13	19	5	24	Low / Low
13S13	LUCKY	5	8	13	16	5	21	Low / Low
13S14B	SUNSET MEADOW	5	8	13	19	5	24	Low / Low
13S23A	LITTLE BOULDER	5	7	12	21	5	26	Low / Low
13S23C	LITTLE BOULDER	5	8	13	19	5	24	Low / Low
13S23E	LITTLE BOULDER	5	8	13	21	5	26	Low / Low
13S23I	LITTLE BOULDER	5	8	13	21	4	25	Low / Low
13S31	CONVERSE BASIN	5	7	12	18	4	22	Low / Low
13S46A	CAMP 19	5	8	13	21	5	26	Low / Low
13S46B	CAMP 19	5	8	13	18	5	23	Low / Low
13S52B	PARK RIDGE	5	7	12	20	5	25	Low / Low
13S52D	PARK RIDGE	5	7	12	20	5	25	Low / Low
13S62A	MILE	5	8	13	20	5	25	Low / Low

13S62B	MILE	5	8	13	19	5	24	Low / Low
13S69	SAMSON	5	7	12	21	6	27	Low / Low
13S69B	SAMSON	5	7	12	21	6	27	Low / Low
13S70A	MILL FLAT CR.	5	8	13	20	5	25	Low / Low
13S76B	HORSESHOE BEND GROVE	5	7	12	21	5	26	Low / Low
13S77B	CHERRY GAP	5	8	13	17	5	22	Low / Low
13S81	NORTH SUNSET	3	9	12	19	5	24	Low / Low
13S85A	MCKENZIE	5	8	13	20	5	25	Low / Low
13S92A	MILL FLAT	5	8	13	21	5	26	Low / Low
14S01C	NORTH BIG MDW.	3	8	11	20	4	24	Low / Low
14S01D	NORTH BIG MDW.	3	8	11	20	6	26	Low / Low
14S02K	BURTON	3	9	12	19	5	24	Low / Low
14S03A	SHELL MTN.	3	7	10	21	5	26	Low / Low
14S03B	SHELL MTN.	5	8	13	21	5	26	Low / Low
14S05	MEADOW FLAT	5	8	13	19	6	25	Low / Low
14S11B	HORSE CORRAL	3	9	12	19	5	24	Low / Low
14S11C	HORSE CORRAL	3	9	12	20	5	25	Low / Low
14S11D	HORSE CORRAL	4	8	12	20	5	25	Low / Low
14S11F	HORSE CORRAL	5	8	13	19	6	25	Low / Low
14S11G	HORSE CORRAL	3	9	12	19	6	25	Low / Low
14S11J	HORSE CORRAL	3	7	10	20	6	26	Low / Low
14S11L	HORSE CORRAL	5	8	13	20	6	26	Low / Low
14S11Q	HORSE CAMP	3	8	11	19	5	24	Low / Low
14S13B	WOODCOCK MEADOW	3	9	12	18	5	23	Low / Low
14S14A	BIG MEADOW CREEK	3	9	12	19	5	24	Low / Low
14S14B	BIG MEADOW CREEK	3	7	10	21	5	26	Low / Low
14S14C	BIG MEADOW CREEK	3	8	11	21	5	26	Low / Low
14S15B	FOX MEADOW	3	9	12	21	6	27	Low / Low
14S18A	WOODWARD - STONY	3	9	12	17	4	21	Low / Low
14S18C	WOODWARD - STONY	3	9	12	19	6	25	Low / Low
14S18F	WOODWARD - STONY	3	9	12	21	6	27	Low / Low
14S19	BEARTRAP STONY	3	8	11	19	6	25	Low / Low
14S21A	STONY CREEK PICNIC	5	8	13	17	5	22	Low / Low
14S22	STONY CREEK	5	8	13	19	6	25	Low / Low
14S24A	STONY SOUTH	3	8	11	19	6	25	Low / Low
14S25	BIG MDW TRAILHEAD	3	9	12	18	3	21	Low / Low
14S26	NORTH STONY	3	8	11	20	6	26	Low / Low
14S29G	CHIMNEY ROCK	3	9	12	21	6	27	Low / Low

14S31A	SHELL MTN. WEST	3	9	12	21	5	26	Low / Low
14S31B	SHELL MTN.WEST	3	9	12	21	6	27	Low / Low
14S31C	SHELL MTN. WEST	3	9	12	21	6	27	Low / Low
14S44A	ESHOM FUEL BREAK	3	9	12	20	5	25	Low / Low
14S44B	ESHOM FUEL BREAK	3	8	11	20	5	25	Low / Low
14S44C	ESHOM FUEL BREAK	3	7	10	20	5	25	Low / Low
14S45	FUEL BREAK	3	9	12	20	5	25	Low / Low
14S49A	BEARTRAP CR.	3	9	12	19	5	24	Low / Low
14S56B	WOODWARD CREEK	4	9	13	21	6	27	Low / Low
14S56C	WOODWARD CREEK	3	8	11	21	5	26	Low / Low
14S56D	WOODWARD CREEK	3	8	11	19	5	24	Low / Low
14S59A	OLD SAWMILL	5	8	13	20	5	25	Low / Low
14S62	BUCK ROCK SOUTH	3	7	10	17	5	22	Low / Low
14S81	BOULDER	5	8	13	20	5	25	Low / Low
14S81A	BOULDER	5	7	12	20	5	25	Low / Low
15S03	STONE CHIMNEY	3	8	11	19	5	24	Low / Low
15S04C	WORDEN	5	7	12	17	5	22	Low / Low
15S09A	CHERRY RD.	5	8	13	20	4	24	Low / Low
15S09B	CHERRY RD.	5	7	12	20	4	24	Low / Low
15S12	HARTLAND SOUTH	5	8	13	16	5	21	Low / Low
19S05	DENNISON PEAK	5	7	12	19	5	24	Low / Low
19S20A	BROWNIE MEADOW	5	8	13	17	5	22	Low / Low
20S08B	CREST	5	8	13	17	5	22	Low / Low
20S18A	NORTH POWELL	5	7	12	21	6	27	Low / Low
20S22A	POWELL	3	9	12	19	6	25	Low / Low
20S22B	POWELL	3	9	12	19	6	25	Low / Low
20S24A	POWELL MDW. CREEK	3	9	12	21	6	27	Low / Low
20S24B	POWELL MDW. CREEK	3	8	11	18	6	24	Low / Low
20S25B	EAST BEACH CREEK	3	8	11	21	6	27	Low / Low
20S26B	EAST OSA	3	9	12	21	6	27	Low / Low
20S26C	EAST OSA	3	9	12	19	5	24	Low / Low
20S26D	EAST OSA	3	9	12	21	6	27	Low / Low
20S27	OSA	3	10	13	17	5	22	Low / Low
20S27A	OSA	3	10	13	21	6	27	Low / Low
20S28A	RIDGE	3	9	12	21	6	27	Low / Low
20S28B	RIDGE	3	8	11	21	6	27	Low / Low
20S29	LION	3	10	13	20	5	25	Low / Low
20S29A	LION	3	9	12	21	6	27	Low / Low

20S30	DEAD DOE	3	9	12	18	5	23	Low / Low
20S30A	DEAD DOE	3	8	11	21	6	27	Low / Low
20S39A	SMITH MEADOW	3	9	12	21	6	27	Low / Low
20S39B	SMITH MEADOW	3	9	12	21	6	27	Low / Low
20S40A	CASTLE RD.	5	8	13	16	5	21	Low / Low
20S41A	SABLE RD.	5	7	12	20	5	25	Low / Low
20S44	COFFEE MILL MDW	3	9	12	19	5	24	Low / Low
20S62	UPPER LLOYD MDW	5	8	13	18	5	23	Low / Low
20S62A	UPPER LLOYD MDW.	5	8	13	18	5	23	Low / Low
20S64A	CLICKS CR.	5	8	13	20	5	25	Low / Low
20S67A	LLOYD FLAT	5	8	13	18	5	23	Low / Low
20S67C	LLOYD FLAT	5	8	13	20	5	25	Low / Low
20S67D	LLOYD FLAT	5	8	13	20	5	25	Low / Low
20S68A	WHITE MDW.	5	8	13	21	5	26	Low / Low
20S75C	DEEP MEADOW	3	9	12	20	5	25	Low / Low
20S75D	DEEP MEADOW	5	8	13	19	5	24	Low / Low
20S75E	DEEP MDW.	3	9	12	19	5	24	Low / Low
20S79C	FISH CREEK	5	8	13	20	5	25	Low / Low
20S79D	FISH CREEK	4	7	11	21	5	26	Low / Low
20S86	CASTLE	4	9	13	19	5	24	Low / Low
20S90	TRAIL	3	9	12	20	5	25	Low / Low
20S96C	BEACH CREEK	3	10	13	21	6	27	Low / Low
21S02D	BEACH	3	10	13	19	5	24	Low / Low
21S02F	BEACH	3	9	12	18	5	23	Low / Low
21S03B	BLACKROCK	4	8	12	20	5	25	Low / Low
21S03C	BLACKROCK	3	8	11	21	6	27	Low / Low
21S03D	BLACKROCK	3	8	11	21	6	27	Low / Low
21S03E	BLACKROCK	3	8	11	21	6	27	Low / Low
21S03F	LITTLE HORSE	3	8	11	21	6	27	Low / Low
21S03J	BLACKROCK	3	9	12	21	6	27	Low / Low
21S03P	BLACKROCK	3	9	12	21	6	27	Low / Low
21S06A	NEEDLEROCK CR.	5	8	13	17	5	22	Low / Low
21S06D	NEEDLEROCK CR.	5	8	13	19	5	24	Low / Low
21S07C	S. FORK PEPPERMINT	5	7	12	18	5	23	Low / Low
21S09B	HOLBY	3	8	11	19	4	23	Low / Low
21S11	RATTLESNAKE NORTH	3	9	12	21	6	27	Low / Low
21S13	MAHOGANY CR	3	9	12	21	5	26	Low / Low
21S14	PORTERVILLE AIR ATTACK BASE	3	5	8	19	4	23	Low / Low

21S15	SPRINGVILLE W C	3	8	11	19	4	23	Low / Low
21S15A	SPRINGVILLE W C	3	8	11	19	4	23	Low / Low
21S15B	SPRINGVILLE W C	3	8	11	19	5	24	Low / Low
21S16	PORTERVILLE WC	3	5	8	19	4	23	Low / Low
21S17	RATTLESNAKE CREEK	3	9	12	16	5	21	Low / Low
21S18	BEACH RIDGE	3	10	13	20	4	24	Low / Low
21S18A	BEACH RIDGE	3	7	10	20	5	25	Low / Low
21S19A	BEACH G.S.	3	10	13	21	6	27	Low / Low
21S19B	BEARTRAP NORTH	3	9	12	19	6	25	Low / Low
21S20B	CANNELL OSA	3	9	12	21	5	26	Low / Low
21S20C	CANNELL OSA	3	9	12	21	6	27	Low / Low
21S20D	CANNELL OSA	3	9	12	21	6	27	Low / Low
21S20E	CANNELL OSA	3	8	11	21	6	27	Low / Low
21S26A	EAST DANNER MEADOW	3	9	12	20	6	26	Low / Low
21S32C	MAHOGANY	5	7	12	15	6	21	Low / Low
21S32D	MAHOGANY	5	8	13	17	6	23	Low / Low
21S34A	STATION	3	10	13	20	4	24	Low / Low
21S34B	STATION	3	10	13	21	5	26	Low / Low
21S34D	STATION	3	10	13	21	5	26	Low / Low
21S35	SALVAGE	4	9	13	20	5	25	Low / Low
21S35A	SALVAGE	3	9	12	21	5	26	Low / Low
21S37A	SMITH MTN.	3	9	12	20	6	26	Low / Low
21S38	EAST LITTLE HORSESHOE	3	10	13	17	5	22	Low / Low
21S38A	EAST LITTLE HORESHOE	3	10	13	21	6	27	Low / Low
21S38B	EAST LITTLE HORSHOE	3	8	11	21	6	27	Low / Low
21S39	NORTH LION	3	10	13	20	5	25	Low / Low
21S39A	NORTH LION	3	10	13	21	6	27	Low / Low
21S41	BLACK PK. EAST	3	10	13	16	5	21	Low / Low
21S42A	LITTLE HORSE MEADOW	3	9	12	20	6	26	Low / Low
21S42B	LITTLE HORSE MEADOW	3	9	12	21	6	27	Low / Low
21S43	BLACK SMITH SO.	3	9	12	21	5	26	Low / Low
21S43A	BLACK SMITH SO.	3	9	12	20	6	26	Low / Low
21S44	BLACKROCK ROAD	3	10	13	19	5	24	Low / Low
21S44A	BLACKROCK ROAD	3	8	11	21	6	27	Low / Low
21S45	DOME	5	8	13	20	5	25	Low / Low
21S50A	NORTH ROAD	3	10	13	16	5	21	Low / Low
21S51	LLOYD ROAD W	5	8	13	19	5	24	Low / Low
21S52	SODA SPRING	5	8	13	20	5	25	Low / Low

21S53	BELL	5	8	13	19	5	24	Low / Low
21S54A	PONDEROSA	5	8	13	18	5	23	Low / Low
21S54B	PONDEROSA	5	8	13	19	5	24	Low / Low
21S54C	PONDEROSA	5	8	13	17	5	22	Low / Low
21S60D	LION MEADOWS	3	8	11	18	5	23	Low / Low
21S63A	SAND HILL	5	8	13	16	5	21	Low / Low
21S64	BLACKROCK WEST	3	8	11	20	6	26	Low / Low
21S65A	MAHOGANY CREEK	5	8	13	20	6	26	Low / Low
21S66	LITTLE BEACH	3	8	11	20	6	26	Low / Low
21S68	SO. DEAD DOE	3	8	11	19	6	25	Low / Low
21S76	WEST MAHOGANY	3	9	12	19	5	24	Low / Low
21S76A	WEST MAHOGANY	3	8	11	21	5	26	Low / Low
21S84A	URSA	3	9	12	20	6	26	Low / Low
21S84B	URSA	3	9	12	21	6	27	Low / Low
21S84C	URSA	3	8	11	21	6	27	Low / Low
21S97A	SAM LEWIS	3	9	12	20	6	26	Low / Low
21S97B	SAM LEWIS	5	8	13	21	6	27	Low / Low
21S99A	WOODY'S	3	8	11	18	5	23	Low / Low
21S99B	WOODY'S	5	8	13	19	4	23	Low / Low
21S99C	WOODY'S	3	8	11	19	5	24	Low / Low
22S01	TROUT CREEK	3	10	13	20	6	26	Low / Low
22S01A	TROUT CREEK	3	10	13	21	6	27	Low / Low
22S02A	LAST CHANCE	5	8	13	17	5	22	Low / Low
22S03J	MULE PEAK	5	7	12	16	5	21	Low / Low
22S04D	HORSE MDW CRK	4	9	13	17	5	22	Low / Low
22S05B	SHERMAN PASS	3	9	12	19	6	25	Low / Low
22S05H	SHERMAN PASS	3	10	13	21	6	27	Low / Low
22S05J	SHERMAN PASS	3	10	13	21	6	27	Low / Low
22S05K	SHERMAN PASS	3	8	11	21	6	27	Low / Low
22S07A	MACHINE CREEK	3	7	10	21	6	27	Low / Low
22S08C	LONG MEADOW	5	8	13	18	4	22	Low / Low
22S10B	SOUTH CREEK	5	8	13	17	5	22	Low / Low
22S18	MAHOGANY WEST	3	8	11	21	6	27	Low / Low
22S20A	BOONE MEADOW	3	9	12	21	6	27	Low / Low
22S20B	BOONE MEADOW	3	9	12	21	6	27	Low / Low
22S20D	BOONE MEADOW	3	9	12	21	6	27	Low / Low
22S21A	SIRRETTA MEADOW	3	8	11	21	6	27	Low / Low
22S21B	SIRRETTA MEADOW	3	8	11	19	6	25	Low / Low

22S21C	SIRRETTA MEADOW	3	8	11	21	6	27	Low / Low
22S21D	SIRRETTA MEADOW	3	8	11	21	6	27	Low / Low
22S24A	WEST RD.	3	10	13	21	6	27	Low / Low
22S26A	CORRAL MEADOW	3	8	11	21	6	27	Low / Low
22S26C	CORRAL MEADOW	3	9	12	21	6	27	Low / Low
22S27A	BONE	5	8	13	20	5	25	Low / Low
22S28	SOUTH BOONE	3	7	10	19	5	24	Low / Low
22S28A	SOUTH BOONE	3	7	10	21	5	26	Low / Low
22S33A	BONITA	3	9	12	21	6	27	Low / Low
22S34	NORTHERLY	3	9	12	21	6	27	Low / Low
22S34A	NORTHERLY	3	9	12	21	6	27	Low / Low
22S35A	PEAK	3	8	11	21	6	27	Low / Low
22S38	SOUTH PALOMA	3	10	13	19	6	25	Low / Low
22S38A	SOUTH PALOMA	3	9	12	21	6	27	Low / Low
22S38B	SOUTH PALOMA	3	8	11	21	6	27	Low / Low
22S40A	EAST PALOMA	3	10	13	21	5	26	Low / Low
22S68A	CURLISS MDW.	3	10	13	20	5	25	Low / Low
22S68B	CURLISS MDW.	3	10	13	20	5	25	Low / Low
22S72B	NOBE	5	8	13	18	5	23	Low / Low
22S73A	CRANE MEADOW	5	8	13	19	5	24	Low / Low
22S74A	MULE MEADOW	5	8	13	18	5	23	Low / Low
22S74B	MULE MEADOW	5	8	13	18	5	23	Low / Low
22S74C	MULE MEADOW	3	8	11	17	5	22	Low / Low
22S74D	MULE MEADOW	3	8	11	18	5	23	Low / Low
22S77A	BALD MTN. L.O.	3	9	12	19	5	24	Low / Low
23S08B	SALMON CREEK	5	8	13	19	6	25	Low / Low
23S13C	SALMON GROUP CAMP	3	9	12	20	6	26	Low / Low
23S13D	SALMON GROUP CAMP	3	9	12	21	6	27	Low / Low
23S14B	POISON MEADOW	5	8	13	16	5	21	Low / Low
23S16B	SUGARLOAF	5	8	13	17	5	22	Low / Low
23S18A	PARKER FORKS	5	8	13	21	5	26	Low / Low
23S23	MOSQUITO	5	8	13	19	5	24	Low / Low
23S23A	MOSQUITO	5	8	13	19	5	24	Low / Low
23S41A	POISON CREEK	5	7	12	21	6	27	Low / Low
23S41B	POISON CREEK	5	7	12	21	6	27	Low / Low
23S41D	POISON CREEK	5	7	12	21	6	27	Low / Low
23S53A	DAVIS CANYON	3	10	13	20	6	26	Low / Low
23S64C	COLD SPRINGS	5	8	13	18	5	23	Low / Low

23S64E	COLD SPRINGS	5	8	13	20	5	25	Low / Low
23S65A	STARVATION CREEK	5	7	12	16	5	21	Low / Low
23S66D	HATCHET PEAK	4	9	13	16	5	21	Low / Low
24S07A	SANDY CREEK	5	8	13	21	5	26	Low / Low
24S07B	SANDY CREEK	5	7	12	21	6	27	Low / Low
24S13D	TAYLOR	3	9	12	21	6	27	Low / Low
24S14A	BARTOLAS	5	8	13	18	6	24	Low / Low
24S14B	BARTOLAS	3	8	11	18	6	24	Low / Low
24S14C	BARTOLAS	3	8	11	18	6	24	Low / Low
24S14D	BARTOLAS	5	8	13	18	6	24	Low / Low
24S14F	BARTOLAS	3	8	11	18	6	24	Low / Low
24S30A	DRY LAKE	5	8	13	19	6	25	Low / Low
24S32D	CHURCH	5	8	13	21	6	27	Low / Low
24S33A	NORTH RATTLESNAKE	3	10	13	21	5	26	Low / Low
24S42	SOUTH CHURCH-DOME	5	8	13	21	6	27	Low / Low
24S43	TAYLOR CR.	3	10	13	21	5	26	Low / Low
24S43D	TAYLOR CR.	3	10	13	21	5	26	Low / Low
24S50A	GREENHORN MTN.	6	7	13	19	5	24	Low / Low
24S50B	GREENHORN MTN.	5	8	13	17	5	22	Low / Low
24S56C	CANNELL MEADOW	3	8	11	16	5	21	Low / Low
24S80A	LOWER DRY MEADOW	5	8	13	17	5	22	Low / Low
24S82A	DEAD HORSE	4	8	12	20	5	25	Low / Low
24S93A	PEEL PEAK	3	8	11	16	5	21	Low / Low
25S06	TIGER FLAT C. G.	5	8	13	17	5	22	Low / Low
25S13B	BARTOLAS EAST	5	8	13	21	6	27	Low / Low
25S24A	BARTOLAS COUNTRY	5	8	13	21	6	27	Low / Low
25S24B	BARTOLAS COUNTRY	5	8	13	21	6	27	Low / Low
25S28B	OWL MINE	5	8	13	20	5	25	Low / Low
25S43	OLD HIGH SCHOOL ROAD	3	10	13	20	3	23	Low / Low
26S10B	ENGINEER POINT	3	10	13	19	4	23	Low / Low
26S21A	RAMP AREA 17 (OLD ISABELLA)	3	10	13	19	2	21	Low / Low
26S22B	SOUTH FORK	3	9	12	18	3	21	Low / Low
26S26-A	PIONEER PT LIFT STATION	3	10	13	17	5	22	Low / Low
26S28A	DAVIS WEST	5	8	13	20	5	25	Low / Low
26S32	KISSACK COVE	3	9	12	19	3	22	Low / Low
26S32A	KISSACK COVE	3	9	12	18	3	21	Low / Low
26S34A	PATTERSON LN.	3	10	13	20	3	23	Low / Low
26S34C-1	PATTERSON LN	5	7	12	20	5	25	Low / Low

26S36A-1	HANNING FLAT	3	10	13	19	5	24	Low / Low
26S36B	HANNING FLAT	3	10	13	19	4	23	Low / Low
26S36C-1	HANNING FLAT	3	10	13	19	4	23	Low / Low
26S40C	MT MESA	3	8	11	19	3	22	Low / Low
26S42A	CYRUS CANYON	3	10	13	19	4	23	Low / Low
26S47	FRENCH GULCH REC. AREA	3	10	13	19	2	21	Low / Low
26S47A	FRENCH GULCH REC AREA	3	10	13	19	2	21	Low / Low
26S47B	FRENCH GULCH REC AREA	3	10	13	19	2	21	Low / Low
26S47C	FRENCH GULCH REC AREA	3	10	13	19	2	21	Low / Low
26S48	PIONEER C.G.	3	10	13	19	2	21	Low / Low
26S48-A	PIONEER C G	3	10	13	19	2	21	Low / Low
26S48-B	PIONEER C G	3	10	13	19	2	21	Low / Low
26S48-C	PIONEER C G	3	10	13	19	2	21	Low / Low
26S48-D	PIONEER C G	3	10	13	19	2	21	Low / Low
26S48-E	PIONEER C G	3	10	13	19	2	21	Low / Low
26S50A	RICH GULCH	3	9	12	19	4	23	Low / Low
27S02D	PIUTE MTN.	5	8	13	21	5	26	Low / Low
28S08A	GOLF MEADOW	3	8	11	21	6	27	Low / Low
12S01A	CAMP 4-1/2 CG	10	7	17	19	4	23	Mod / Low
12S01B	CAMP 4 CG	8	7	15	19	4	23	Mod / Low
12S01C	MILL FLAT C.G.	10	7	17	19	5	24	Mod / Low
12S01F	GREEN CABIN FLAT C.G.	10	7	17	19	5	24	Mod / Low
12S02A	RANCHERIA SITE	8	7	15	20	4	24	Mod / Low
12S19A	DELILAH	8	9	17	21	5	26	Mod / Low
13S01	LOWER LONG MEADOW	7	9	16	17	5	22	Mod / Low
13S01A	LOWER LONG MEADOW	5	9	14	21	5	26	Mod / Low
13S01B	LOWER LONG MEADOW	5	9	14	21	6	27	Mod / Low
13S01Y	BURTON MDW.	7	8	15	21	5	26	Mod / Low
13S02A	HUCKLEBERRY	6	9	15	19	4	23	Mod / Low
13S02B	HUCKLEBERRY	7	9	16	20	4	24	Mod / Low
13S02C	HUCKLEBERRY	5	9	14	20	4	24	Mod / Low
13S02D	HUCKLEBERRY	6	9	15	20	4	24	Mod / Low
13S03A	CHICAGO STUMP	6	9	15	16	5	21	Mod / Low
13S03D	CHICAGO STUMP	5	9	14	20	5	25	Mod / Low
13S03E	CHICAGO STUMP	5	9	14	20	5	25	Mod / Low
13S04A	BUCK ROCK	5	9	14	21	5	26	Mod / Low
13S04C	BUCK ROCK	5	10	15	21	5	26	Mod / Low
13S05A	CAMP 7	5	9	14	20	4	24	Mod / Low

13S05B	CAMP 7	5	11	16	21	5	26	Mod / Low
13S05C	CAMP 7	7	9	16	21	5	26	Mod / Low
13S05Y	HUCKLEBERRY MDW.	7	9	16	19	4	23	Mod / Low
13S05YA	HUCKLEBERRY MDW.	5	9	14	20	5	25	Mod / Low
13S07B	CONVERSE	5	9	14	20	6	26	Mod / Low
13S08A	HORSESHOE K.V. CAMP	7	9	16	19	5	24	Mod / Low
13S09E	TENMILE	7	10	17	20	5	25	Mod / Low
13S09F	TENMILE	7	8	15	19	5	24	Mod / Low
13S09G	TENMILE	5	10	15	19	5	24	Mod / Low
13S09H	TENMILE	7	10	17	18	5	23	Mod / Low
13S09I	TENMILE	5	9	14	19	5	24	Mod / Low
13S09M	TENMILE	7	8	15	21	6	27	Mod / Low
13S09N	TENMILE CG	7	9	16	19	5	24	Mod / Low
13S09O	TENMILE	7	9	16	17	4	21	Mod / Low
13S10	BUCK ROCK CR.	7	9	16	16	5	21	Mod / Low
13S12A	MT MADDOX	7	10	17	18	5	23	Mod / Low
13S12B	MT. MADDOX	7	9	16	21	5	26	Mod / Low
13S12C	MT. MADDOX	7	9	16	16	5	21	Mod / Low
13S12E	MT MADDOX	5	9	14	16	5	21	Mod / Low
13S14A	SUNSET MEADOW	5	9	14	20	5	25	Mod / Low
13S15	HORSE CORRAL CR.	6	10	16	19	5	24	Mod / Low
13S15A	HORSE CORRAL CR.	5	10	15	18	5	23	Mod / Low
13S16A	TORNADO CREEK	7	8	15	19	4	23	Mod / Low
13S17A	BOUNDARY	7	8	15	18	5	23	Mod / Low
13S18A	BEARSKIN	5	9	14	19	5	24	Mod / Low
13S19	GRANTS	5	9	14	16	5	21	Mod / Low
13S19A	GRANTS	5	9	14	20	5	25	Mod / Low
13S20	LOGGER FLAT WEST	7	9	16	19	4	23	Mod / Low
13S23B	LITTLE BOULDER	7	7	14	21	5	26	Mod / Low
13S23G	LITTLE BOULDER	7	8	15	21	5	26	Mod / Low
13S23H	LITTLE BOULDER	7	8	15	21	4	25	Mod / Low
13S25A	KENNEDY GROVE	7	8	15	18	5	23	Mod / Low
13S26A	TORNADO MEADOW	5	9	14	21	5	26	Mod / Low
13S26B	TORNADO MEADOW	5	9	14	19	5	24	Mod / Low
13S26D	TORNADO MEADOW	7	9	16	19	5	24	Mod / Low
13S26F	TORNADO MEADOW	6	9	15	19	5	24	Mod / Low
13S26G	TORNADO MEADOW	5	9	14	21	5	26	Mod / Low
13S27	TENMILE CREEK	5	9	14	19	5	24	Mod / Low

13S28	LOST MEADOW	5	9	14	21	5	26	Mod / Low
13S28A	LOST MEADOW	7	9	16	21	5	26	Mod / Low
13S29	LITTLE BOULDER GROVE	7	8	15	21	5	26	Mod / Low
13S30A	BOOLE TREE	5	11	16	20	5	25	Mod / Low
13S30B	BOOLE TREE	5	9	14	21	5	26	Mod / Low
13S33A	LAVA - BURTON	5	9	14	19	5	24	Mod / Low
13S33B	LAVA - BURTON	7	8	15	19	5	24	Mod / Low
13S33D	LAVA - BURTON	7	8	15	19	5	24	Mod / Low
13S35	GRANT GROVE	5	10	15	17	5	22	Mod / Low
13S35A	GRANT GROVE	7	10	17	20	5	25	Mod / Low
13S41	TENMILE CREEK ROAD	8	7	15	16	5	21	Mod / Low
13S42B	HUME	5	9	14	18	4	22	Mod / Low
13S44	EVANS GROVE	5	10	15	18	5	23	Mod / Low
13S45A	BIG WHISTLE	7	9	16	19	4	23	Mod / Low
13S45B	BIG WHISTLE	7	9	16	20	6	26	Mod / Low
13S45C	BIG WHISTLE	5	9	14	19	6	25	Mod / Low
13S46	CAMP 19	5	9	14	16	5	21	Mod / Low
13S47	NORTH SUNSET	6	8	14	17	5	22	Mod / Low
13S52A	PARK RIDGE	5	9	14	19	5	24	Mod / Low
13S53	BOULDER GROVE	7	10	17	19	5	24	Mod / Low
13S54	CONVERSE RIDGE	5	11	16	16	5	21	Mod / Low
13S55A	CONVERSE MTN.	7	10	17	17	5	22	Mod / Low
13S55B	CONVERSE MTN.	5	10	15	20	6	26	Mod / Low
13S55D	CONVERSE MTN.	5	9	14	18	5	23	Mod / Low
13S56	PARK ROAD	5	9	14	16	5	21	Mod / Low
13S56A	PARK ROAD	5	9	14	19	5	24	Mod / Low
13S57	CHICAGO STUMP LOOP	5	12	17	17	4	21	Mod / Low
13S58A	ABBOTT	7	10	17	20	5	25	Mod / Low
13S58B	ABBOTT	7	9	16	17	5	22	Mod / Low
13S58D	ABBOTT	5	9	14	20	6	26	Mod / Low
13S58E	ABBOTT	5	9	14	20	6	26	Mod / Low
13S59	MCKENZIE SOUTH	5	9	14	21	5	26	Mod / Low
13S60	CONVERSE BASIN	5	11	16	16	5	21	Mod / Low
13S60A	CONVERSE BASIN	5	10	15	21	6	27	Mod / Low
13S60B	CONVERSE BASIN	5	11	16	20	6	26	Mod / Low
13S62C	MILE	6	9	15	20	5	25	Mod / Low
13S63A	GRANT LINK	10	9	19	20	5	25	Mod / Low
13S63B	GRANT LINK	7	9	16	20	5	25	Mod / Low

13S68	MILLWOOD ROAD	9	8	17	19	4	23	Mod / Low
13S73	MILL FLAT EAST	7	8	15	19	5	24	Mod / Low
13S73A	MILL FLAT EAST	7	8	15	21	5	26	Mod / Low
13S75B	DELILAH CREST	8	9	17	17	6	23	Mod / Low
13S75C	DELILAH CREST	8	8	16	20	6	26	Mod / Low
13S76	HORSESHOE BEND GROVE	5	9	14	16	6	22	Mod / Low
13S76A	HORSESHOE BEND GROVE	5	9	14	21	5	26	Mod / Low
13S78A	MILL	5	10	15	19	5	24	Mod / Low
13S78B	MILL	5	10	15	19	5	24	Mod / Low
13S78C	MILL	6	10	16	16	5	21	Mod / Low
13S84	MCKENZIE WEST	8	10	18	17	5	22	Mod / Low
13S85	MCKENZIE	5	11	16	17	5	22	Mod / Low
13S85B	MCKENZIE	6	9	15	15	6	21	Mod / Low
13S90	MILL RD.	5	10	15	20	5	25	Mod / Low
13S95	YUCCA POINT HELIPORT	5	9	14	16	5	21	Mod / Low
13S97C	MILLWOOD	10	7	17	20	6	26	Mod / Low
13S97D	MILLWOOD	8	10	18	20	6	26	Mod / Low
13S97E	MILLWOOD	10	8	18	19	6	25	Mod / Low
13S97F	MILLWOOD	8	8	16	20	6	26	Mod / Low
13S97G	MILLWOOD	10	8	18	20	6	26	Mod / Low
13S99A	BASIN	7	10	17	20	5	25	Mod / Low
13S99B	BASIN	5	10	15	20	5	25	Mod / Low
13S99C	BASIN	7	9	16	20	5	25	Mod / Low
13S99D	BASIN	7	9	16	21	5	26	Mod / Low
13S99F	BASIN	5	10	15	20	5	25	Mod / Low
14S02C	BURTON	5	10	15	19	5	24	Mod / Low
14S02G	BURTON	5	9	14	16	5	21	Mod / Low
14S02M	BURTON	5	9	14	19	6	25	Mod / Low
14S04	TENMILE GROVE	7	10	17	16	5	21	Mod / Low
14S06	BACON	7	9	16	20	5	25	Mod / Low
14S06A	BACON	5	9	14	20	6	26	Mod / Low
14S07	BOULDER FLAT	7	10	17	19	6	25	Mod / Low
14S08	BOULDER RIDGE	6	10	16	19	5	24	Mod / Low
14S09	BOULDER CREEK	7	10	17	18	5	23	Mod / Low
14S11O	HORSE CORRAL	5	9	14	19	6	25	Mod / Low
14S12	WEAVER CREEK	5	10	15	19	4	23	Mod / Low
14S13A	WOODCOCK MEADOW	5	9	14	18	5	23	Mod / Low
14S15A	FOX MEADOW	5	9	14	21	5	26	Mod / Low

14S16A	MEADOWS	5	9	14	19	6	25	Mod / Low
14S16B	MEADOWS	5	9	14	20	6	26	Mod / Low
14S17	BIG MEADOW CG	7	9	16	18	4	22	Mod / Low
14S17A	BIG MEADOW CG	5	9	14	19	5	24	Mod / Low
14S17B	BIG MEADOW CG	5	9	14	19	5	24	Mod / Low
14S17C	BIG MEADOW CG	5	9	14	19	5	24	Mod / Low
14S17D	BIG MEADOW CG	5	9	14	19	5	24	Mod / Low
14S18B	WOODWARD - STONY	5	10	15	19	4	23	Mod / Low
14S18H	WOOWARD - STONY	5	9	14	21	6	27	Mod / Low
14S29A	CHIMNEY ROCK	5	9	14	19	6	25	Mod / Low
14S29B	CHIMNEY ROCK	5	9	14	19	5	24	Mod / Low
14S29C	CHIMNEY ROCK	5	9	14	20	6	26	Mod / Low
14S29H	CHIMNEY ROCK	5	10	15	20	6	26	Mod / Low
14S31	SHELL MTN WEST	5	10	15	18	5	23	Mod / Low
14S32	BEARTRAP MEADOW	5	10	15	16	5	21	Mod / Low
14S32A	BEARTRAP MEADOW	5	10	15	20	6	26	Mod / Low
14S33A	BIG BALDY	7	10	17	20	5	25	Mod / Low
14S35	REDWOOD	5	9	14	17	6	23	Mod / Low
14S36A	LOG CORRAL MDW.	6	9	15	16	6	22	Mod / Low
14S37A	LOG CORRAL	7	9	16	19	5	24	Mod / Low
14S38	REDWOOD MTN	5	11	16	16	5	21	Mod / Low
14S41A	PIERCE VALLEY	5	9	14	20	5	25	Mod / Low
14S41B	PIERCE VALLEY	7	9	16	20	5	25	Mod / Low
14S41C	PIERCE VALLEY	7	9	16	20	5	25	Mod / Low
14S43A	DARK CANYON	5	9	14	20	4	24	Mod / Low
14S43B	DARK CANYON	7	10	17	20	5	25	Mod / Low
14S43C	DARK CANYON	7	8	15	19	5	24	Mod / Low
14S43D	DARK CANYON	5	10	15	20	5	25	Mod / Low
14S43F	DARK CANYON	5	9	14	20	5	25	Mod / Low
14S44	ESHOM FUEL BREAK	5	10	15	17	5	22	Mod / Low
14S46A	LOGGER POINT	5	10	15	19	4	23	Mod / Low
14S46B	LOGGER POINT	5	9	14	17	5	22	Mod / Low
14S51	CHIMNEY	7	9	16	19	5	24	Mod / Low
14S52	BLACK OAK	7	9	16	20	5	25	Mod / Low
14S54	UPPER DRY CREEK	5	10	15	19	5	24	Mod / Low
14S54A	UPPER DRY CREEK	7	9	16	20	5	25	Mod / Low
14S59	OLD SAWMILL	5	9	14	17	5	22	Mod / Low
14S61	PINE ROAD	6	12	18	16	5	21	Mod / Low

14S65	MILL CREEK RD	7	9	16	19	5	24	Mod / Low
14S70	ESHOM CR WEST	5	9	14	20	5	25	Mod / Low
14S74	CREEK ROAD	7	9	16	20	5	25	Mod / Low
14S78	REDWOOD RIDGE	5	10	15	19	4	23	Mod / Low
14S78A	REDWOOD RIDGE	5	10	15	20	4	24	Mod / Low
14S85	DRY	7	9	16	20	5	25	Mod / Low
14S86A	CANYON	5	12	17	20	5	25	Mod / Low
14S87A	RANCH RD.	5	12	17	20	5	25	Mod / Low
15S02A	ESHOM CREEK	5	9	14	19	5	24	Mod / Low
15S02B	ESHOM CREEK	5	9	14	20	5	25	Mod / Low
15S04A	WORDEN	7	8	15	17	5	22	Mod / Low
15S07	PIERCE CREEK	5	9	14	17	5	22	Mod / Low
15S12A	HARTLAND SOUTH	5	9	14	19	5	24	Mod / Low
19S04	UPPER GROUSE VALLEY	5	9	14	16	5	21	Mod / Low
19S09A	JACK FLAT	8	8	16	16	6	22	Mod / Low
20S06	JACKASS MDW	3	11	14	19	6	25	Mod / Low
20S06A	JACKASS MDW.	3	11	14	21	6	27	Mod / Low
20S11B	NELSON CR.	8	9	17	19	5	24	Mod / Low
20S25A	EAST BEACH CREEK	5	11	16	21	6	27	Mod / Low
20S26A	EAST OSA	5	10	15	18	5	23	Mod / Low
20S31A	BLACKROCK MTN.	7	10	17	21	6	27	Mod / Low
20S40	CASTLE RD	5	9	14	16	5	21	Mod / Low
20S41	SABLE RD.	7	10	17	20	5	25	Mod / Low
20S55	LLOYD MDW CR	7	8	15	20	4	24	Mod / Low
20S56	VIEW	5	9	14	20	5	25	Mod / Low
20S56A	VIEW	5	9	14	20	5	25	Mod / Low
20S57	MCINTYRE CREEK	7	9	16	18	5	23	Mod / Low
20S60	LLOYD MEADOW NORTH	7	8	15	21	5	26	Mod / Low
20S63	FISHER	6	8	14	18	5	23	Mod / Low
20S66	FREEMAN CREEK	5	9	14	19	5	24	Mod / Low
20S67B	LLOYD FLAT	5	9	14	19	5	24	Mod / Low
20S68	WHITE MDW	5	9	14	17	5	22	Mod / Low
20S73	SMITH-FAILING MEADOW	5	9	14	17	5	22	Mod / Low
20S78A	FREEMAN CR. GROVE	5	9	14	19	5	24	Mod / Low
20S79B	FISH CREEK	6	8	14	17	5	22	Mod / Low
20S80	FIRE'S FOLLY	8	8	16	16	5	21	Mod / Low
20S81A	LOG CABIN	5	9	14	20	5	25	Mod / Low
20S96B	BEACH CREEK	7	9	16	21	6	27	Mod / Low

21S02A	BEACH	8	8	16	19	5	24	Mod / Low
21S06B	NEEDLEROCK CR.	7	8	15	19	5	24	Mod / Low
21S06C	NEEDLEROCK CR.	7	8	15	18	5	23	Mod / Low
21S06E	NEEDLEROCK CR.	5	9	14	20	5	25	Mod / Low
21S17A	RATTLESNAKE CREEK	5	9	14	17	5	22	Mod / Low
21S19C	BEARTRAP NORTH	8	9	17	18	5	23	Mod / Low
21S23A	LOWER SLATE	7	8	15	17	5	22	Mod / Low
21S25D	LONG CANYON	9	9	18	15	6	21	Mod / Low
21S26	EAST DANNER MEADOW	5	10	15	16	5	21	Mod / Low
21S26B	EAST DANNER MEADOW	5	9	14	21	6	27	Mod / Low
21S32A	MAHOGANY	7	9	16	15	6	21	Mod / Low
21S34C	STATION	5	10	15	21	5	26	Mod / Low
21S36B	SMITH	5	11	16	20	6	26	Mod / Low
21S46	DANNER MEADOW	6	9	15	16	6	22	Mod / Low
21S49A	IZZY	5	9	14	18	5	23	Mod / Low
21S50C	NORTH ROAD	7	9	16	16	5	21	Mod / Low
21S50E	NORTH ROAD	5	9	14	17	5	22	Mod / Low
21S57	DANNER CREEK	5	9	14	19	5	24	Mod / Low
21S63B	SAND HILL	5	9	14	16	5	21	Mod / Low
21S67	SOUTH FISH	5	10	15	21	6	27	Mod / Low
21S75	DOME ROCK CREEK	7	9	16	16	5	21	Mod / Low
21S94A	CRAWFORD	6	9	15	16	5	21	Mod / Low
21S99	WOODY'S	5	9	14	17	5	22	Mod / Low
22S03H	MULE PEAK	5	9	14	20	4	24	Mod / Low
22S05F	FISH CREEK OVERFLOW (HOOKER)	7	10	17	16	5	21	Mod / Low
22S05L	SHERMAN PASS	5	9	14	16	5	21	Mod / Low
22S06	SENTINEL	5	9	14	19	4	23	Mod / Low
22S06A	SENTINEL	6	8	14	19	3	22	Mod / Low
22S11	NOBE YOUNG CREEK	10	7	17	19	5	24	Mod / Low
22S12A	CHERRY HILL	7	9	16	21	5	26	Mod / Low
22S12B	CHERRY HILL	7	9	16	16	5	21	Mod / Low
22S12C	CHERRY HILL	5	9	14	21	6	27	Mod / Low
22S12D	CHERRY HILL	9	9	18	21	6	27	Mod / Low
22S12E	CHERRY HILL	5	9	14	21	6	27	Mod / Low
22S12F	CHERRY HILL	5	9	14	21	6	27	Mod / Low
22S12G	CHERRY HILL	5	9	14	21	6	27	Mod / Low
22S14	TROUT	5	10	15	18	5	23	Mod / Low
22S16	RATTLESNAKE EAST	5	9	14	17	6	23	Mod / Low

22S16A	RATTLESNAKE EAST	5	9	14	21	6	27	Mod / Low
22S20C	BOONE MEADOW	5	9	14	21	6	27	Mod / Low
22S20E	BOONE MEADOW	5	9	14	21	6	27	Mod / Low
22S24B	WEST RD.	5	9	14	21	6	27	Mod / Low
22S25	BONE CREEK	7	9	16	16	5	21	Mod / Low
22S27	BONE	7	9	16	19	5	24	Mod / Low
22S29	BEARTRAP SOUTH	5	10	15	21	5	26	Mod / Low
22S30	BONITA MEADOWS	6	9	15	19	6	25	Mod / Low
22S30A	BONITA MEADOWS	5	9	14	21	6	27	Mod / Low
22S41G	LOOKOUT MTN.	5	10	15	20	5	25	Mod / Low
22S44	SOUTH TABLE MTN.	5	9	14	17	5	22	Mod / Low
22S44A	SOUTH TABLE MTN.	5	9	14	17	5	22	Mod / Low
22S50	UPPER LONG MEADOW	5	9	14	20	5	25	Mod / Low
22S53B	DRY MDWS	7	7	14	17	4	21	Mod / Low
22S53C	DRY MDWS	7	8	15	20	5	25	Mod / Low
22S53D	DRY MDWS	6	8	14	20	5	25	Mod / Low
22S53E	DRY MDWS	7	8	15	20	5	25	Mod / Low
22S53F	DRY MDWS	7	8	15	20	5	25	Mod / Low
22S53G	DRY MDW.	7	8	15	20	5	25	Mod / Low
22S56	ELEPHANT CAMP	7	7	14	19	5	24	Mod / Low
22S57	CORRAL MDW. EAST	7	10	17	18	5	23	Mod / Low
22S58	DANNER MDW. SOUTH	7	9	16	18	5	23	Mod / Low
22S63A	NOBE YOUNG MDW.	5	9	14	17	5	22	Mod / Low
22S68	CURLISS MDW.	5	10	15	19	5	24	Mod / Low
22S69	CAMP 2 AREA	7	9	16	18	5	23	Mod / Low
22S70	CAMP 3 AREA	7	8	15	19	5	24	Mod / Low
22S82E	SNAKE FLAT	7	8	15	18	5	23	Mod / Low
22S82F	PEPPERMINT FALLS	7	8	15	17	4	21	Mod / Low
22S82H	SOUTH PEPPERMINT	7	7	14	17	4	21	Mod / Low
22S90	ALDER	5	9	14	17	5	22	Mod / Low
22S91	ROUND MEADOW	9	10	19	19	5	24	Mod / Low
23S03	POWDERHORN RIDGE	5	10	15	16	5	21	Mod / Low
23S05D	CAPINERO	5	10	15	16	5	21	Mod / Low
23S08A	SALMON CREEK	5	9	14	20	6	26	Mod / Low
23S10A	HORSE MEADOW	5	10	15	19	5	24	Mod / Low
23S11A	POWDERHORN GROVE	5	9	14	19	5	24	Mod / Low
23S12	POISON MDW. CREEK	7	8	15	21	6	27	Mod / Low
23S12A	POISON MDW. CREEK	9	8	17	21	6	27	Mod / Low

23S13B	K.V. CAMP CUTOFF	5	9	14	21	5	26	Mod / Low
23S14A	POISON MEADOW	5	10	15	20	4	24	Mod / Low
23S14C	POISON MEADOW	7	9	16	21	6	27	Mod / Low
23S14D	POISON MEADOW	7	11	18	21	6	27	Mod / Low
23S14E	POISON MEADOW	7	10	17	21	6	27	Mod / Low
23S16C	SUGARLOAF	7	7	14	19	5	24	Mod / Low
23S16D	SUGARLOAF	7	8	15	19	5	24	Mod / Low
23S17A	DOUBLEBUNK MDW.	5	9	14	19	5	24	Mod / Low
23S20	ROADS END G.S.	10	10	20	16	6	22	Mod / Low
23S32A	S.D. CANYON	5	9	14	21	5	26	Mod / Low
23S34	CHAMISE FLAT	10	9	19	19	4	23	Mod / Low
23S34A	CHAMISE FLAT	10	9	19	19	4	23	Mod / Low
23S36	PACKSADDLE CANYON	7	11	18	20	5	25	Mod / Low
23S41	POISON CREEK	6	9	15	20	6	26	Mod / Low
23S42	ROADS END RAFT LAUNCH	10	8	18	19	4	23	Mod / Low
23S43	ROADS END DAY USE	10	10	20	19	4	23	Mod / Low
23S44	CALKINS FLAT-A	10	9	19	19	4	23	Mod / Low
23S45	CALKINS FLAT-B	10	9	19	19	4	23	Mod / Low
23S46	SALMON CREEK	10	10	20	19	4	23	Mod / Low
23S62	FORKS	5	9	14	17	5	22	Mod / Low
23S64A	COLD SPRINGS	7	10	17	18	5	23	Mod / Low
23S64B	COLD SPRINGS	7	8	15	20	5	25	Mod / Low
23S64F	COLD SPRINGS	7	10	17	20	5	25	Mod / Low
23S64G	COLD SPRINGS	7	9	16	17	5	22	Mod / Low
23S65B	STARVATION CREEK	7	9	16	17	5	22	Mod / Low
23S66A	HATCHET PEAK	5	9	14	16	5	21	Mod / Low
23S66B	HATCHET PEAK	5	9	14	16	5	21	Mod / Low
23S73B	GREENHORN	7	7	14	16	5	21	Mod / Low
24S11	COUNTY LINE	5	9	14	21	5	26	Mod / Low
24S12A	CANNELL	5	9	14	21	6	27	Mod / Low
24S12B	CANNELL	5	9	14	21	6	27	Mod / Low
24S12D	CANNELL	8	9	17	21	6	27	Mod / Low
24S12E	CANNELL	7	9	16	19	4	23	Mod / Low
24S13A	TAYLOR	5	9	14	21	6	27	Mod / Low
24S14E	BARTOLAS	7	8	15	18	6	24	Mod / Low
24S15B	PORTUGUESE MEADOW	5	9	14	16	5	21	Mod / Low
24S24B	TOBIAS MEADOW	5	10	15	21	6	27	Mod / Low
24S30	DRY LAKE	5	9	14	16	5	21	Mod / Low

24S33	NORTH RATTLESNAKE	5	10	15	18	5	23	Mod / Low
24S34A	TYLER MEADOW	5	9	14	21	6	27	Mod / Low
24S35A	SHULTZ CREEK	5	11	16	19	6	25	Mod / Low
24S35C	SHULTZ CREEK	5	9	14	16	5	21	Mod / Low
24S37	SOUTH DRY MDW.	5	11	16	19	6	25	Mod / Low
24S38	WEST ROAD	7	10	17	19	6	25	Mod / Low
24S39A	CANE MEADOW	5	10	15	20	6	26	Mod / Low
24S39B	CANE MEADOW	5	10	15	20	6	26	Mod / Low
24S39C	CANE MEADOW	5	10	15	21	6	27	Mod / Low
24S39D	CANE MEADOW	6	8	14	20	6	26	Mod / Low
24S40	RATTLESNAKE WEST	7	9	16	19	6	25	Mod / Low
24S41	RATTLESNAKE MDW.	5	9	14	19	6	25	Mod / Low
24S41A	RATTLESNAKE MDW.	5	9	14	19	6	25	Mod / Low
24S41B	RATTLESNAKE MDW.	5	9	14	21	6	27	Mod / Low
24S45	STORMY CANYON	7	10	17	20	6	26	Mod / Low
24S46A	DEEP CREEK	5	9	14	19	6	25	Mod / Low
24S49	SPRINGHILL NORTH	10	9	19	19	4	23	Mod / Low
24S50C	GREENHORN MTN.	5	9	14	21	6	27	Mod / Low
24S51	SPRINGHILL SOUTH	10	9	19	19	4	23	Mod / Low
24S51A	SPRINGHILL SOUTH	10	9	19	19	4	23	Mod / Low
24S52	HOSPITAL FLAT OVERFLOW	8	11	19	19	4	23	Mod / Low
24S53	CHICO FLAT-A	8	11	19	19	4	23	Mod / Low
24S54	CHICO FLAT-B	8	11	19	19	4	23	Mod / Low
24S54A	CHICO FLAT-B	8	11	19	19	4	23	Mod / Low
24S56B	CANNELL MEADOW	7	8	15	17	5	22	Mod / Low
24S57	HALFWAY	8	11	19	19	4	23	Mod / Low
24S57B	HALFWAY	8	11	19	19	4	23	Mod / Low
24S77A	EAST HORSE	5	9	14	21	6	27	Mod / Low
24S80	LOWER DRY MEADOW	5	11	16	16	5	21	Mod / Low
24S80B	LOWER DRY MEADOW	5	10	15	16	5	21	Mod / Low
24S80C	LOWER DRY MEADOW	5	10	15	17	5	22	Mod / Low
24S83	UPPER DRY MEADOW	7	11	18	16	5	21	Mod / Low
24S83A	UPPER DRY MEADOW	7	10	17	16	5	21	Mod / Low
25S03	BARTOLAS WEST	7	9	16	17	5	22	Mod / Low
25S03A	BARTOLAS WEST	7	8	15	20	5	25	Mod / Low
25S05	BARTOLAS CREEK	9	7	16	18	6	24	Mod / Low
25S05A	BARTOLAS CREEK	7	7	14	18	6	24	Mod / Low
25S10	FAY CR.	7	10	17	17	5	22	Mod / Low

25S11A	GREENHORN EAST	5	9	14	21	6	27	Mod / Low
25S13	BARTOLAS EAST	5	9	14	19	5	24	Mod / Low
25S13A	BARTOLAS EAST	6	9	15	21	5	26	Mod / Low
25S15B	RANCHERIA	8	8	16	20	5	25	Mod / Low
25S15C	RANCHERIA	5	11	16	18	4	22	Mod / Low
25S15D	RANCHERIA	8	9	17	20	5	25	Mod / Low
25S18	CANE	8	10	18	18	5	23	Mod / Low
25S18A	CANE	5	10	15	21	5	26	Mod / Low
25S20	BLACK MTN. SADDLE	5	10	15	16	5	21	Mod / Low
25S22	BOUNDARY ROAD	5	9	14	19	6	25	Mod / Low
25S22A	BOUNDARY ROAD	5	9	14	21	6	27	Mod / Low
25S23	BARTOLAS CR. WEST	5	9	14	21	6	27	Mod / Low
25S23A	BARTOLAS CR. WEST	7	8	15	21	6	27	Mod / Low
25S24	BARTOLAS COUNTRY	7	9	16	21	6	27	Mod / Low
25S26	BLACK MTN.SADDLE	5	11	16	16	5	21	Mod / Low
25S27	BLACK MTN.	5	11	16	16	5	21	Mod / Low
25S27A	BLACK MTN.	5	10	15	20	5	25	Mod / Low
25S28A	OWL MINE	5	10	15	20	5	25	Mod / Low
25S29	SHIRLEY	5	11	16	19	6	25	Mod / Low
25S32	SHIRLEY CREEK	10	7	17	16	5	21	Mod / Low
25S37	CAVE	5	10	15	20	6	26	Mod / Low
25S37A	CAVE	5	10	15	21	6	27	Mod / Low
25S40	SUNDAY	8	8	16	21	6	27	Mod / Low
25S40A	SUNDAY	8	8	16	21	6	27	Mod / Low
25S45	FAY RANCH	10	8	18	18	5	23	Mod / Low
26S01A	GREENHORN MTN. WEST	8	10	18	20	5	25	Mod / Low
26S01B	GREENHORN MTN. WEST	8	10	18	20	5	25	Mod / Low
26S04A	BROWNS MILL	8	10	18	20	5	25	Mod / Low
26S04B	BROWNS MILL	10	10	20	20	5	25	Mod / Low
26S04C	BROWNS MILL	10	10	20	20	5	25	Mod / Low
26S04D	BROWNS MILL	10	10	20	20	5	25	Mod / Low
26S07	FRANK	8	10	18	19	5	24	Mod / Low
26S07A	FRANK	8	10	18	19	5	24	Mod / Low
26S09	WOODWARD	8	9	17	20	5	25	Mod / Low
26S09A	WOODWARD	8	9	17	20	5	25	Mod / Low
26S10	ENGINEER POINT	3	11	14	19	4	23	Mod / Low
26S12	LITTLE POSO CREEK	8	10	18	20	5	25	Mod / Low
26S13	DAVIS ROAD	9	11	20	16	5	21	Mod / Low

26S13A	DAVIS ROAD	8	10	18	20	5	25	Mod / Low
26S18	EVANS FLAT WEST	8	10	18	16	5	21	Mod / Low
26S18A	EVANS FLAT WEST	8	9	17	20	5	25	Mod / Low
26S19	RHYMES	10	10	20	19	5	24	Mod / Low
26S19A	RHYMES	8	7	15	21	5	26	Mod / Low
26S20B	LIKELY SADDLE	8	9	17	20	5	25	Mod / Low
26S23	RED MOUNTAIN	10	10	20	18	5	23	Mod / Low
26S23A	RED MOUNTAIN	10	10	20	18	5	23	Mod / Low
26S24A	LONE STAR	10	10	20	16	5	21	Mod / Low
26S25A	OAK RIDGE	8	9	17	21	5	26	Mod / Low
26S25B	OAK RIDGE	8	9	17	21	5	26	Mod / Low
26S25C	OAK RIDGE	8	10	18	21	5	26	Mod / Low
26S28	DAVIS WEST	8	10	18	20	5	25	Mod / Low
26S29	POSO CREEK EAST	8	11	19	20	5	25	Mod / Low
26S29A	POSO CREEK EAST	8	10	18	21	5	26	Mod / Low
26S29B	POSO CREEK EAST	8	11	19	21	5	26	Mod / Low
26S34B	PATTERSON LN	4	12	16	20	5	25	Mod / Low
26S34C	PATTERSON LN	5	12	17	20	5	25	Mod / Low
26S36	HANNING FLAT	5	11	16	19	2	21	Mod / Low
26S36A	HANNING FLAT	3	13	16	19	4	23	Mod / Low
26S36C	HANNING FLAT	6	10	16	19	4	23	Mod / Low
26S37A	PETTITT	10	9	19	17	5	22	Mod / Low
26S39	STINE COVE	5	9	14	19	3	22	Mod / Low
26S40	MT MESA	7	8	15	19	2	21	Mod / Low
26S40A	MT MESA	5	10	15	19	3	22	Mod / Low
26S41-1	CAMP 9	4	10	14	18	3	21	Mod / Low
26S43A	TILLIE CREEK C G	5	10	15	19	2	21	Mod / Low
26S43B	TILLIE CREEK C G	5	10	15	19	2	21	Mod / Low
26S43C	TILLIE CREEK C G	5	10	15	19	2	21	Mod / Low
26S43D	TILLIE CREEK C G	5	10	15	19	2	21	Mod / Low
26S43E	TILLIE CKEEK C G	5	10	15	19	2	21	Mod / Low
26S43F	TILLIE CREEK C G	5	10	15	19	2	21	Mod / Low
26S43N-1	TILLIE CREEK C G	5	10	15	19	2	21	Mod / Low
26S43N-2	TILLIE CREEK C G	5	10	15	19	2	21	Mod / Low
26S43N-3	TILLIE CREEK C G	5	10	15	19	2	21	Mod / Low
26S43N-4	TILLIE CREEK C G	5	10	15	19	2	21	Mod / Low
26S43NA	TILLIE CREEK C G	5	10	15	19	2	21	Mod / Low
26S43NB	TILLIE CREEK C G	5	10	15	19	2	21	Mod / Low

26S43NC	TILLIE CREEK C G	5	10	15	19	2	21	Mod / Low
26S43ND	TILLIE CREEK C G	5	10	15	19	2	21	Mod / Low
26S43ND-1	TILLIE CREEK C G	5	10	15	19	2	21	Mod / Low
26S43ND-2	TILLIE CREEK C G	5	10	15	19	2	21	Mod / Low
26S44	LIVE OAK C G	5	10	15	19	2	21	Mod / Low
26S44-A	LIVE OAK C G	5	10	15	19	2	21	Mod / Low
26S44-B	LIVE OAK C G	5	10	15	19	2	21	Mod / Low
26S44S	LIVE OAK C G - SOUTH	5	10	15	19	2	21	Mod / Low
26S44S-A	LIVE OAK C G - SOUTH	5	10	15	19	2	21	Mod / Low
26S44S-B	LIVE OAK C G - SOUTH	5	10	15	19	2	21	Mod / Low
26S44S-C	LIVE OAK C G - SOUTH	5	10	15	19	2	21	Mod / Low
26S44S-D	LIVE OAK C G - SOUTH	5	10	15	19	2	21	Mod / Low
26S44S-E	LIVE OAK C G - SOUTH	5	10	15	19	2	21	Mod / Low
26S44S-F	LIVE OAK C G - SOUTH	5	10	15	19	2	21	Mod / Low
26S45	BOULDER GULCH C.G.	5	10	15	19	2	21	Mod / Low
26S45-A	BOULDER GULCH C G	5	10	15	19	2	21	Mod / Low
26S45-B	BOULDER GULCH C G	5	10	15	19	2	21	Mod / Low
26S45-C	BOULDER GULCH C G	5	10	15	19	2	21	Mod / Low
26S45-D	BOULDER GULCH C G	5	10	15	19	2	21	Mod / Low
26S45-E	BOULDER GULCH C G	5	10	15	19	2	21	Mod / Low
26S45-F	BOULDER GULCH C G	5	10	15	19	2	21	Mod / Low
26S45-G	BOULDER GULCH C G	5	10	15	19	2	21	Mod / Low
26S45-H	BOULDER GULCH C G	5	10	15	19	2	21	Mod / Low
26S45-I	BOULDER GULCH C G	5	10	15	19	2	21	Mod / Low
26S45-J	BOULDER GULCH C G	5	10	15	19	2	21	Mod / Low
26S45-K	BOULDER GULCH C G	5	10	15	19	2	21	Mod / Low
26S45-L	BOULDER GULCH C G	5	10	15	19	2	21	Mod / Low
26S45-M	BOULDER GULCH CG	5	10	15	19	2	21	Mod / Low
26S46	HUNGRY GULCH C.G.	5	10	15	19	2	21	Mod / Low
26S46A	HUNGRY GULCH C G	5	10	15	19	2	21	Mod / Low
26S46B	HUNGRY GULCH C G	5	10	15	19	2	21	Mod / Low
26S46C	HUNGRY GULCH C G	5	10	15	19	2	21	Mod / Low
26S46D	HUNGRY GULCH C G	5	10	15	19	2	21	Mod / Low
26S46E	HUNGRY GULCH C G	5	10	15	19	2	21	Mod / Low
26S49	MAIN DAM C.G.	6	10	16	19	2	21	Mod / Low
26S49A	MAIN DAM C G	6	10	16	19	2	21	Mod / Low
26S49B	MAIN DAM C G	6	10	16	19	2	21	Mod / Low
26S49C	MAIN DAM C G	6	10	16	19	2	21	Mod / Low

26S49D	MAIN DAM C G	6	10	16	19	2	21	Mod / Low
26S49E	MAIN DAM C G	6	10	16	19	2	21	Mod / Low
26S50	RICH GULCH	4	10	14	19	4	23	Mod / Low
26S51	WOFFORD HTS PARK LOOP	5	11	16	19	4	23	Mod / Low
27S02B	PIUTE MTN.	9	8	17	20	6	26	Mod / Low
27S02C	PIUTE MTN.	7	8	15	20	6	26	Mod / Low
27S02E	PIUTE MTN.	5	10	15	21	5	26	Mod / Low
27S02F	PIUTE MTN.	5	9	14	17	5	22	Mod / Low
27S30	REC. MINE	10	9	19	17	5	22	Mod / Low
27S30A	REC. MINE	10	9	19	18	6	24	Mod / Low
27S33	OVERPASS	8	10	18	18	5	23	Mod / Low
28S04A	SUNSET	7	8	15	20	6	26	Mod / Low
28S05	LIEBEL PEAK	7	9	16	17	5	22	Mod / Low
28S07A	BRECKENRIDGE L.O.	10	8	18	19	5	24	Mod / Low
28S07D	BRECKENRIDGE L.O.	10	8	18	19	5	24	Mod / Low
28S07E	BRECKENRIDGE L.O.	8	9	17	21	6	27	Mod / Low
28S07F	BRECKENRIDGE L.O.	8	8	16	21	6	27	Mod / Low
28S10	SQUIRREL	10	9	19	16	5	21	Mod / Low
28S17A	PIUTE TEMP L.O.	5	10	15	20	5	25	Mod / Low
28S17B	PIUTE TEMP L.O.	5	11	16	16	5	21	Mod / Low
28S18A	BROWN MEADOW	8	9	17	20	6	26	Mod / Low
28S18B	BROWN MEADOW	9	9	18	21	6	27	Mod / Low
28S23	PEAK	8	10	18	16	5	21	Mod / Low
28S24B	WOOLSTAFF MEADOW	7	8	15	17	5	22	Mod / Low
28S24C	WOOLSTAFF MEADOW	8	10	18	17	5	22	Mod / Low
28S24D	WOOLSTAFF MEADOW	7	8	15	17	5	22	Mod / Low
28S26	SADDLE SPRINGS NORTH	5	9	14	20	6	26	Mod / Low
28S29	COLD SPRINGS NORTH	8	9	17	21	5	26	Mod / Low
28S34	SQUIRREL MEADOW	8	9	17	21	6	27	Mod / Low
28S37	BRECKENRIDGE MTN. SOUTH	8	9	17	21	5	26	Mod / Low
28S37A	BRECKENRIDGE MTN.	8	8	16	21	5	26	Mod / Low
28S40B	MACK	7	9	16	17	5	22	Mod / Low
28S43	NO. PIUTE MTN.	7	10	17	17	5	22	Mod / Low
28S44A	SOLOMONS RIDGE	10	8	18	17	5	22	Mod / Low
28S47A	BROWN MDW. SOUTH	8	9	17	19	6	25	Mod / Low
28S47B	BROWN MDW. SOUTH	10	9	19	20	6	26	Mod / Low
28S60	FAUST MILL	7	9	16	16	5	21	Mod / Low
29S03B	GALLUP	7	9	16	16	5	21	Mod / Low

W H Park	WOFFORD HEIGHTS PARK	5	10	15	19	4	23	Mod / Low
13S70D	MILL FLAT CR	10	11	21	17	5	22	High / Low
13S97B	MILLWOOD	11	10	21	20	6	26	High / Low
24S47	ANT CANYON	10	12	22	19	4	23	High / Low
24S47A	ANT CANYON	10	12	22	19	4	23	High / Low
24S48-A	OLD GOLDLEDGE (UPPER)	10	12	22	19	4	23	High / Low
24S48-B	OLD GOLDLEDGE (LOWER)	10	12	22	19	4	23	High / Low
24S55	THUNDERBIRD	10	11	21	19	4	23	High / Low
24S55A	THUNDERBIRD	10	11	21	19	4	23	High / Low
24S57A	HALFWAY	10	11	21	19	4	23	High / Low
26S13B	DAVIS ROAD	10	11	21	20	5	25	High / Low
26S14	DAVIS HELIPORT	10	11	21	20	6	26	High / Low

Roads rated ORANGE (High Risk and Moderate or High Benefit)

These roads are orange on the Opportunities Maps Consider for road maintenance priority, storm proofing, reconstruction, or reroute. (High Priority)								
FS Road Number	**Road Name**	**Aquatic Risk Composite**	**Terrestrial Risk Composite**	**Resource Risk Composite**	**Access Composite**	**Social Composite**	**Access Needs or Benefit Composite**	**Opportunity Classes (Risk/Benefit)**
22S99	PEYRONE GROVE	10	11	21	14	4	18	High / Mod
23S21	FAIRVIEW C G	10	11	21	16	2	18	High / Mod
23S21A	FAIRVIEW C G	10	11	21	16	2	18	High / Mod
23S21B	FAIRVIEW C G	10	11	21	16	2	18	High / Mod
24S19	HOSPITAL C.G.	10	11	21	15	2	17	High / Mod
24S21	HEADQUARTERS C.G.	10	11	21	14	2	16	High / Mod
24S89	RINCON	10	13	23	10	5	15	High / Mod
25S04A	ALDER CREEK	10	11	21	13	5	18	High / Mod
26S27A	EVANS FLAT CG	12	10	22	15	4	19	High / Mod
26S30	DAVIS LOOP	10	11	21	13	5	18	High / Mod
27S04	BODFISH	12	10	22	15	5	20	High / Mod
27S09	SPRING	11	11	22	15	5	20	High / Mod
27S12	DELONEGHA ACCESS	10	11	21	13	2	15	High / Mod
27S14	QUONSET BEACH	10	12	22	14	5	19	High / Mod
27S17	DEMOCRAT W.C.	12	10	22	12	4	16	High / Mod
28S44	SOLOMONS RIDGE	10	11	21	13	5	18	High / Mod
13S97	MILLWOOD	10	12	22	5	2	7	High / High
21S80	PEYRONE	10	11	21	8	5	13	High / High
22S02	LAST CHANCE	9	12	21	7	3	10	High / High
22S05	SHERMAN PASS	7	14	21	5	2	7	High / High
25S04	ALDER CREEK	10	12	22	6	2	8	High / High
25S15	RANCHERIA	10	12	22	5	2	7	High / High
25S21	COOKS PEAK	9	12	21	10	3	13	High / High
25S25	SHIRLEY SPRINGS	9	12	21	7	4	11	High / High
25S31	SHIRLEY MEADOWS	10	12	22	7	4	11	High / High
26S05	BASKET PASS	10	11	21	8	4	12	High / High
28S07	BRECKENRIDGE L.O.	10	11	21	5	4	9	High / High

Roads rated LIGHT GREEN (Moderate Risk and Moderate or High Benefit)

These roads are light green on the Opportunities Maps Consider for road maintenance priority, storm proofing, or reconstruction. (Medium Priority)								
FS Road Number	**Road Name**	**Aquatic Risk Composite**	**Terrestrial Risk Composite**	**Resource Risk Composite**	**Access Composite**	**Social Composite**	**Access Needs or Benefit Composite**	**Opportunity Classes (Risk/Benefit)**
12S01E	DAVIS	7	9	16	9	5	14	Mod / Mod
12S03	PINE FLAT RD	6	8	14	9	5	14	Mod / Mod
12S04	PINE	6	8	14	9	5	14	Mod / Mod
13S05	CAMP 7	6	11	17	14	4	18	Mod / Mod
13S07	CONVERSE	5	9	14	15	4	19	Mod / Mod
13S08	HORSESHOE K.V. CAMP	7	9	16	14	5	19	Mod / Mod
13S09L	LOGGER FLAT C.G.	7	7	14	11	3	14	Mod / Mod
13S12D	MT. MADDOX	5	10	15	12	5	17	Mod / Mod
13S16	TORNADO CREEK	7	8	15	14	4	18	Mod / Mod
13S17	BOUNDARY	7	10	17	16	4	20	Mod / Mod
13S21	CONVERSE MILL	7	11	18	13	4	17	Mod / Mod
13S21A	CONVERSE MILL	7	9	16	15	5	20	Mod / Mod
13S22	BOYDEN CAVE	10	7	17	14	3	17	Mod / Mod
13S22Y	GRIZZLY FALLS	10	7	17	16	3	19	Mod / Mod
13S23	LITTLE BOULDER	7	10	17	12	2	14	Mod / Mod
13S23D	LITTLE BOULDER	8	9	17	9	5	14	Mod / Mod
13S25	KENNEDY GROVE	5	10	15	11	3	14	Mod / Mod
13S30	BOOLE TREE	5	10	15	15	5	20	Mod / Mod
13S33	LAVA-BURTON	6	8	14	13	5	18	Mod / Mod
13S34	LANDSLIDE CR. C.G.	9	7	16	16	3	19	Mod / Mod
13S39	SUNSET MDW. NORTH	5	10	15	14	5	19	Mod / Mod
13S42	HUME	5	9	14	12	4	16	Mod / Mod
13S48	INDIAN BASIN	5	9	14	14	4	18	Mod / Mod
13S49	PRINCESS C G	7	9	16	14	3	17	Mod / Mod
13S49-A	PRINCESS C G - MORNING STAR	7	9	16	14	3	17	Mod / Mod
13S49-B	PRINCESS C G - YELLOW MOON	7	9	16	14	3	17	Mod / Mod
13S49-C	PRINCESS C G - SHINING CLOUD	7	9	16	14	3	17	Mod / Mod
13S50	CONVERSE CUTOFF	5	9	14	16	4	20	Mod / Mod
13S51	INDIAN BASIN REC.	5	10	15	14	5	19	Mod / Mod
13S52	PARK RIDGE	6	10	16	15	4	19	Mod / Mod

13S62	MILE	5	9	14	15	5	20	Mod / Mod
13S63	GRANT LINK	7	10	17	15	4	19	Mod / Mod
13S64	BEARSKIN MDW	5	10	15	15	4	19	Mod / Mod
13S65	HOIST SADDLE	5	9	14	14	4	18	Mod / Mod
13S66	HOIST RIDGE	5	9	14	12	4	16	Mod / Mod
13S67	BEARSKIN NORTH	5	10	15	14	4	18	Mod / Mod
13S70	MILL FLAT CR.	7	10	17	15	4	19	Mod / Mod
13S70B	MILL FLAT CR.	7	8	15	16	4	20	Mod / Mod
13S70C	MILL FLAT CR.	7	9	16	16	4	20	Mod / Mod
13S71	MCKENZIE G.S.	5	9	14	14	4	18	Mod / Mod
13S72	RIDGETOP	8	9	17	11	5	16	Mod / Mod
13S75A	DELILAH L.O.	8	8	16	12	3	15	Mod / Mod
13S77A	CHERRY GAP	5	10	15	16	4	20	Mod / Mod
13S78	MILL	5	10	15	15	5	20	Mod / Mod
13S79	MCKENZIE NORTH	5	9	14	15	4	19	Mod / Mod
13S83	FOX	5	9	14	12	4	16	Mod / Mod
13S87	SUMMIT MEADOW	5	9	14	14	5	19	Mod / Mod
13S88	SAMPSON VIEW	8	8	16	15	5	20	Mod / Mod
13S91	LEFEVER	7	9	16	11	5	16	Mod / Mod
13S92	MILL FLAT	7	11	18	12	4	16	Mod / Mod
13S94	WHITE DEER	8	8	16	12	5	17	Mod / Mod
13S96	CONVICT FLAT	8	10	18	14	2	16	Mod / Mod
13S98	BEARSKIN CR	7	10	17	11	5	16	Mod / Mod
13S98A	BEARSKIN CR.	5	9	14	14	4	18	Mod / Mod
13S99	BASIN	6	11	17	13	4	17	Mod / Mod
14S02B	BURTON	7	9	16	14	5	19	Mod / Mod
14S02E	BURTON	5	9	14	14	5	19	Mod / Mod
14S10A	KINGS	5	9	14	14	4	18	Mod / Mod
14S13	WOODCOCK MEADOW	4	10	14	12	4	16	Mod / Mod
14S14	BIG MEADOW CREEK	3	11	14	14	4	18	Mod / Mod
14S15	FOX MEADOW	5	10	15	14	5	19	Mod / Mod
14S16	MEADOWS	7	10	17	13	5	18	Mod / Mod
14S18	WOODWARD-STONY	5	10	15	12	4	16	Mod / Mod
14S33	BIG BALDY	7	10	17	9	5	14	Mod / Mod
14S34	WORTMAN MILL	5	11	16	15	4	19	Mod / Mod
14S37	LOG CORRAL	7	9	16	11	5	16	Mod / Mod
14S39	ESHOM CREEK CG	7	9	16	16	3	19	Mod / Mod
14S40	REDSTONE	7	9	16	11	5	16	Mod / Mod

14S41D	PIERCE VALLEY	5	10	15	13	5	18	Mod / Mod
14S41North	PIERCE VALLEY	5	10	15	9	5	14	Mod / Mod
14S41South	PIERCE VALLEY	5	10	15	9	5	14	Mod / Mod
14S42	ESHOM CREEK WEST	7	9	16	15	5	20	Mod / Mod
14S46C	LOGGER POINT	5	10	15	13	5	18	Mod / Mod
14S48	PETERS RANCH	7	12	19	11	5	16	Mod / Mod
14S50	PINEHURST R.S.	5	10	15	17	3	20	Mod / Mod
14S53	ESHOM	5	10	15	10	5	15	Mod / Mod
14S55	MONTECITO	5	11	16	9	5	14	Mod / Mod
14S55A	MONTECITO	5	10	15	14	5	19	Mod / Mod
14S55B	MONTECITO	5	10	15	9	5	14	Mod / Mod
14S57C	MONTECITO CAMP S.U.	5	9	14	12	5	17	Mod / Mod
14S58	PINEHURST BARRACKS ROAD	5	12	17	16	3	19	Mod / Mod
14S58-A	PINEHURST BARRACKS ROAD	5	12	17	16	3	19	Mod / Mod
14S64	3/4 MILE TURNOUT	5	9	14	10	5	15	Mod / Mod
14S72	HARTLAND	5	9	14	14	4	18	Mod / Mod
14S75	DRY CREEK EAST	8	9	17	12	5	17	Mod / Mod
14S76	HITCHCOCK MDW.	8	7	15	15	5	20	Mod / Mod
14S76A	HITCHCOCK MDW.	8	7	15	15	5	20	Mod / Mod
14S86	CANYON	7	12	19	11	5	16	Mod / Mod
14S87	RANCH RD.	5	9	14	12	5	17	Mod / Mod
14S90	BACON MDW.	5	10	15	15	5	20	Mod / Mod
15S02	ESHOM CREEK	5	10	15	14	4	18	Mod / Mod
15S04	WORDEN	7	9	16	14	5	19	Mod / Mod
15S05	REDWOOD MTN. WEST	5	9	14	14	5	19	Mod / Mod
15S09	CHERRY RD	7	9	16	11	4	15	Mod / Mod
15S11	PIERCE VALLEY NORTH	5	10	15	13	5	18	Mod / Mod
19S02	BACKBONE CREEK	5	9	14	12	5	17	Mod / Mod
19S03	KRAMER CREEK	7	9	16	12	5	17	Mod / Mod
19S10	FIREBREAK	8	11	19	10	5	15	Mod / Mod
19S12	RANCHERIA CR.	7	7	14	14	5	19	Mod / Mod
19S17	JACK'S CABIN	7	8	15	14	5	19	Mod / Mod
19S18	BACE MILL	7	8	15	13	5	18	Mod / Mod
19S29	COPPER MINE	10	8	18	14	5	19	Mod / Mod
20S02	MCINTYRE	5	9	14	14	5	19	Mod / Mod
20S04	HOSSACK	7	10	17	11	5	16	Mod / Mod
20S04A	HOSSACK	5	9	14	12	4	16	Mod / Mod
20S07	COFFEE CAMP-UPPER PARKING	10	10	20	13	2	15	Mod / Mod

20S08A	CREST	10	9	19	14	5	19	Mod / Mod
20S11	NELSON CR.	10	10	20	12	4	16	Mod / Mod
20S11A	NELSON CR.	8	9	17	13	4	17	Mod / Mod
20S12	BELNAP CR.	8	10	18	15	5	20	Mod / Mod
20S16	COFFEE CAMP-LOWER PARKING	12	7	19	13	2	15	Mod / Mod
20S18	NORTH POWELL	5	10	15	15	5	20	Mod / Mod
20S19	WHITE MDW NORTH	5	9	14	14	5	19	Mod / Mod
20S20	BOULDER CREEK NORTH	7	10	17	10	5	15	Mod / Mod
20S23	MOOREHOUSE CR.	7	9	16	11	5	16	Mod / Mod
20S26	EAST OSA	5	10	15	11	4	15	Mod / Mod
20S31	BLACKROCK MTN	5	10	15	12	4	16	Mod / Mod
20S39	SMITH MEADOW	4	11	15	12	5	17	Mod / Mod
20S42	STICKY FINGER	10	8	18	9	5	14	Mod / Mod
20S53	LOGGY MEADOW	7	8	15	12	4	16	Mod / Mod
20S54	TRANSFER STATION	6	9	15	14	5	19	Mod / Mod
20S64	CLICKS CR.	5	9	14	15	5	20	Mod / Mod
20S67	LLOYD FLAT	6	10	16	12	3	15	Mod / Mod
20S70	COBURN CR.	7	7	14	13	4	17	Mod / Mod
20S75	DEEP MEADOW	5	11	16	9	5	14	Mod / Mod
20S75B	DEEP MEADOW	5	9	14	14	5	19	Mod / Mod
20S78	FREEMAN CR. GROVE	5	9	14	13	4	17	Mod / Mod
20S81	LOG CABIN	7	9	16	13	5	18	Mod / Mod
20S81B	LOG CABIN	5	9	14	14	5	19	Mod / Mod
20S88	HOSSACK MDW	9	9	18	14	4	18	Mod / Mod
20S88A	HOSSACK MDW.	8	8	16	14	4	18	Mod / Mod
20S91	LOOP	5	9	14	14	4	18	Mod / Mod
20S92	BACE RANCH	7	9	16	13	5	18	Mod / Mod
20S93	HOME	6	9	15	13	5	18	Mod / Mod
21S01	ALBANITA	7	10	17	12	4	16	Mod / Mod
21S02E	BEACH	5	10	15	10	5	15	Mod / Mod
21S10	TROY MEADOW CG	5	10	15	12	2	14	Mod / Mod
21S10-A	TROY MEADOW CG	5	10	15	12	2	14	Mod / Mod
21S10-B	TROY MEADOW CG	5	10	15	12	2	14	Mod / Mod
21S10-C	TROY MEADOW CG	5	11	16	12	2	14	Mod / Mod
21S12B	SOLO	6	8	14	11	6	17	Mod / Mod
21S21	PEPPERMINT WORKCENTER	5	9	14	12	2	14	Mod / Mod
21S21A	PEPPERMINT WORKCENTER	5	9	14	12	2	14	Mod / Mod
21S23	LOWER SLATE	7	8	15	16	4	20	Mod / Mod

21S25	LONG CANYON	6	10	16	14	5	19	Mod / Mod
21S25A	LONG CANYON	5	9	14	14	5	19	Mod / Mod
21S25C	LONG CANYON	5	9	14	15	5	20	Mod / Mod
21S27	PEPPERMINT CREEK	6	8	14	14	5	19	Mod / Mod
21S28	BONITA WEST	5	10	15	15	5	20	Mod / Mod
21S29	JACKASS CREEK	7	10	17	10	4	14	Mod / Mod
21S32	MAHOGANY	7	10	17	13	5	18	Mod / Mod
21S33	FISH CR. C.G.	7	10	17	13	2	15	Mod / Mod
21S42	LITTLE HORSE MEADOW	5	10	15	12	4	16	Mod / Mod
21S49	IZZY	5	9	14	15	5	20	Mod / Mod
21S50D	NORTH ROAD	5	10	15	13	5	18	Mod / Mod
21S58	BATEMAN RIDGE	9	9	18	13	5	18	Mod / Mod
21S60	LION MEADOWS	7	9	16	16	4	20	Mod / Mod
21S63	SAND HILL	7	9	16	14	5	19	Mod / Mod
21S65	MAHOGANY CREEK	5	10	15	11	5	16	Mod / Mod
21S69	DOME ROCK	5	10	15	13	3	16	Mod / Mod
21S70	DOME CREEK	7	9	16	13	5	18	Mod / Mod
21S70A	DOME CREEK	7	9	16	13	5	18	Mod / Mod
21S71	TROY MDW.	5	9	14	14	6	20	Mod / Mod
21S90	SLATE	10	10	20	10	5	15	Mod / Mod
21S94B	CRAWFORD	7	9	16	14	5	19	Mod / Mod
21S95	RED HILL	8	9	17	10	5	15	Mod / Mod
21S97	SAM LEWIS	5	10	15	11	4	15	Mod / Mod
22S03	MULE PEAK	6	10	16	11	3	14	Mod / Mod
22S03B	MULE PEAK	5	9	14	13	5	18	Mod / Mod
22S04	HORSE MEADOW CREEK	7	9	16	9	5	14	Mod / Mod
22S10A	JOHNSONDALE W.C.	7	7	14	14	3	17	Mod / Mod
22S13	REDWOOD MEADOW	5	9	14	9	5	14	Mod / Mod
22S15	MEADOW GROVE	5	10	15	12	5	17	Mod / Mod
22S15A	MEADOW GROVE	5	9	14	14	5	19	Mod / Mod
22S19	MOSQUITO MEADOW	5	10	15	10	4	14	Mod / Mod
22S24	WEST RD.	5	9	14	12	4	16	Mod / Mod
22S31	KERN RIVER ACCESS	10	9	19	18	2	20	Mod / Mod
22S33	BONITA	3	11	14	13	5	18	Mod / Mod
22S35	PEAK	3	11	14	15	5	20	Mod / Mod
22S40	EAST PALOMA	5	11	16	12	5	17	Mod / Mod
22S45	PARENT CAMP ROAD	7	8	15	11	4	15	Mod / Mod
22S47	PARKER CREEK DISP	7	8	15	15	5	20	Mod / Mod

22S48	LONG MEADOW GROVE	5	9	14	13	5	18	Mod / Mod
22S51	RINCON	10	8	18	16	4	20	Mod / Mod
22S53A	DRY MDWS	7	7	14	13	4	17	Mod / Mod
22S59	BONE CR.	7	9	16	13	4	17	Mod / Mod
22S71	SOUTH CRK CAMP	8	7	15	13	5	18	Mod / Mod
22S72	NOBE	7	10	17	12	5	17	Mod / Mod
22S72A	NOBE	5	10	15	15	5	20	Mod / Mod
22S75	DOG	7	9	16	12	5	17	Mod / Mod
22S75A	DOG	5	9	14	14	5	19	Mod / Mod
22S81A	UPPER PARKER MEADOW	8	8	16	11	5	16	Mod / Mod
22S82A	LLOYD MEADOW	5	9	14	10	5	15	Mod / Mod
22S82G	LOWER PEPPERMINT C.G.	7	10	17	18	2	20	Mod / Mod
22S82I	PEPPERMINT MEADOWS	5	9	14	16	4	20	Mod / Mod
22S83	ALDER CREEK SLIDES	7	10	17	13	5	18	Mod / Mod
22S83A	ALDER CREEK SLIDES	7	9	16	14	5	19	Mod / Mod
22S89	SAND HILL RIDGE	7	7	14	14	5	19	Mod / Mod
23S02A	PACKSADDLE	5	9	14	12	5	17	Mod / Mod
23S05A	CAPINERO	9	8	17	10	4	14	Mod / Mod
23S05C	BONY WITT	7	10	17	11	5	16	Mod / Mod
23S06	HOLEY MDW. C.G.	5	10	15	13	2	15	Mod / Mod
23S07A	BIG MEADOW	5	9	14	10	4	14	Mod / Mod
23S09	DEADWOOD	7	10	17	15	4	19	Mod / Mod
23S11	POWDERHORN GROVE	7	9	16	14	5	19	Mod / Mod
23S13	SALMON GROUP CAMP	6	10	16	11	3	14	Mod / Mod
23S13A	HORSE MDW. K.V. CAMP	5	9	14	15	3	18	Mod / Mod
23S14	POISON MEADOW	7	11	18	12	4	16	Mod / Mod
23S15	POWDERHORN	6	11	17	12	4	16	Mod / Mod
23S15.01	POWDERHORN	5	10	15	12	5	17	Mod / Mod
23S16A	SUGARLOAF	7	10	17	10	5	15	Mod / Mod
23S17	DOUBLEBUNK MDW.	5	9	14	15	5	20	Mod / Mod
23S18	PARKER FORKS	7	8	15	9	5	14	Mod / Mod
23S19	LIMESTONE C.G.	10	9	19	16	2	18	Mod / Mod
23S25	MULE SADDLE	5	10	15	14	5	19	Mod / Mod
23S26	PARKER MDW. CREEK	7	10	17	15	5	20	Mod / Mod
23S27	BLUFFS	7	9	16	15	5	20	Mod / Mod
23S28	SHORT CUT	5	10	15	9	5	14	Mod / Mod
23S29	COLD SADDLE	5	10	15	14	5	19	Mod / Mod
23S31	MERRY CAMP	8	8	16	11	5	16	Mod / Mod

23S32	S.D. CANYON	5	10	15	11	5	16	Mod / Mod
23S50	HACHET	9	9	18	14	5	19	Mod / Mod
23S51	COLD SPRINGS PEAK	5	9	14	10	5	15	Mod / Mod
23S52	CHUTE	8	8	16	15	5	20	Mod / Mod
23S53	DAVIS CANYON	7	11	18	11	5	16	Mod / Mod
23S63	SOLDIER MEADOW	7	9	16	9	5	14	Mod / Mod
23S64	COLD SPRINGS	7	11	18	12	3	15	Mod / Mod
23S65	STARVATION CREEK	5	9	14	10	5	15	Mod / Mod
23S66	HATCHET PEAK	5	9	14	11	5	16	Mod / Mod
23S68	CHUTE SPRINGS	7	11	18	9	5	14	Mod / Mod
23S68A	CHUTE SPRINGS	5	9	14	15	5	20	Mod / Mod
23S68B	CHUTE SPRINGS	5	10	15	15	5	20	Mod / Mod
23S69	HOT SPRINGS W.C.	9	8	17	12	4	16	Mod / Mod
23S73	GREENHORN (PUP MDW)	6	8	14	9	5	14	Mod / Mod
23S73A	SPEAS MEADOW	7	7	14	14	5	19	Mod / Mod
23S73C	GREENHORN	7	8	15	11	5	16	Mod / Mod
24S03	SCHULTZ	7	9	16	13	5	18	Mod / Mod
24S12C	CANNELL	7	9	16	16	4	20	Mod / Mod
24S13	TAYLOR	7	10	17	12	4	16	Mod / Mod
24S14	BARTOLAS	5	9	14	10	5	15	Mod / Mod
24S15A	PORTUGUESE MEADOW	5	10	15	15	5	20	Mod / Mod
24S16	GOLD LEDGE C.G.	10	10	20	15	2	17	Mod / Mod
24S18	CORRAL CREEK C.G.	10	9	19	15	2	17	Mod / Mod
24S20	CAMP 3 C.G.	10	10	20	14	2	16	Mod / Mod
24S22	FIR CAMP	5	9	14	10	5	15	Mod / Mod
24S25	MC SWINEY BLVD	5	10	15	12	5	17	Mod / Mod
24S28	SUNDAY PEAK	5	10	15	10	4	14	Mod / Mod
24S31	EAST HORSE MDW.	5	9	14	9	5	14	Mod / Mod
24S32	CHURCH	7	9	16	10	5	15	Mod / Mod
24S35	SHULTZ CREEK	7	11	18	15	5	20	Mod / Mod
24S39	CANE MEADOW	7	10	17	15	5	20	Mod / Mod
24S93B	PEEL PEAK	6	8	14	15	5	20	Mod / Mod
25S01	FULTON CREEK	6	8	14	10	4	14	Mod / Mod
25S02	WAGY FLAT	8	10	18	13	5	18	Mod / Mod
25S09	KERNVILLE W C	3	11	14	14	2	16	Mod / Mod
25S09A	KERNVILLE W C	3	11	14	14	2	16	Mod / Mod
25S09B	KERNVILLE W C	3	11	14	14	2	16	Mod / Mod
25S11	GREENHORN EAST	5	10	15	10	5	15	Mod / Mod

25S12	ALDER CREEK C.G.	7	9	16	16	4	20	Mod / Mod
25S16	CALF CREEK	5	12	17	10	4	14	Mod / Mod
25S17	WINDY GAP	8	11	19	12	4	16	Mod / Mod
25S19	COW CREEK	7	9	16	12	4	16	Mod / Mod
25S30	SHIRLEY CR. NORTH	8	8	16	12	5	17	Mod / Mod
25S33	SLICK ROCK CREEK	10	9	19	12	5	17	Mod / Mod
25S36	BLACK	7	11	18	11	4	15	Mod / Mod
25S38	BULL RUN BASIN	6	11	17	13	5	18	Mod / Mod
25S38A	BULL RUN BASIN	5	11	16	13	5	18	Mod / Mod
25S44	OLD KERNVILLE CEMETARY	6	10	16	15	2	17	Mod / Mod
25S49	SHIRLEY PEAK	8	12	20	12	3	15	Mod / Mod
25S49A	SHIRLEY PEAK	8	12	20	12	4	16	Mod / Mod
26S01	GREENHORN MTN. WEST	8	10	18	13	4	17	Mod / Mod
26S04	BROWNS MILL	10	10	20	12	4	16	Mod / Mod
26S06A	BLACK GULCH	7	10	17	15	5	20	Mod / Mod
26S06B	BLACK GULCH	7	8	15	15	5	20	Mod / Mod
26S08	BASKET RIDGE	10	9	19	15	5	20	Mod / Mod
26S11	MAYFLOWER MINE	8	10	18	14	5	19	Mod / Mod
26S15	LAUNCH AREA 19	3	11	14	16	2	18	Mod / Mod
26S15A	LAUNCH AREA 19	3	11	14	16	2	18	Mod / Mod
26S15B	LAUNCH AREA 19	3	11	14	16	2	18	Mod / Mod
26S16	OLD LIKELY MILL	7	9	16	9	5	14	Mod / Mod
26S20	LIKELY SADDLE	8	10	18	11	5	16	Mod / Mod
26S20A	LIKELY SADDLE	10	9	19	14	5	19	Mod / Mod
26S22	SOUTH FORK	4	10	14	18	2	20	Mod / Mod
26S24	LONE STAR	10	10	20	13	4	17	Mod / Mod
26S25	OAK RIDGE	8	12	20	13	4	17	Mod / Mod
26S27	EVANS FLAT CG	10	10	20	12	3	15	Mod / Mod
26S33	MAYFLOWER	10	10	20	11	5	16	Mod / Mod
26S34	PATTERSON LN.	4	13	17	11	4	15	Mod / Mod
26S40B	MT MESA	7	8	15	12	3	15	Mod / Mod
26S41	CAMP 9	5	11	16	17	2	19	Mod / Mod
26S41A	CAMP 9	5	11	16	18	2	20	Mod / Mod
26S41A-1	CAMP 9	7	11	18	18	2	20	Mod / Mod
26S41A-2	CAMP 9	5	11	16	18	2	20	Mod / Mod
26S41A-3	CAMP 9	3	11	14	18	2	20	Mod / Mod
26S41A-4	CAMP 9	7	11	18	18	2	20	Mod / Mod
26S41A-G1	CAMP 9 GROUP 1	5	11	16	18	2	20	Mod / Mod

26S41A-G2	CAMP 9 GROUP 2	3	11	14	18	2	20	Mod / Mod
26S41A-G3	CAMP 9 GROUP 3	3	11	14	18	2	20	Mod / Mod
26S41A-G4	CAMP 9 GROUP 4	3	11	14	18	2	20	Mod / Mod
26S41A-G5	CAMP 9 GROUP 5	3	11	14	18	2	20	Mod / Mod
26S41A-G6	CAMP 9 GROUP 6	3	11	14	18	2	20	Mod / Mod
26S41B	CAMP 9	5	9	14	18	2	20	Mod / Mod
26S41B-1	CAMP 9	7	11	18	18	2	20	Mod / Mod
26S41C-1	CAMP 9	5	11	16	18	2	20	Mod / Mod
26S42	CYRUS CANYON	7	9	16	12	3	15	Mod / Mod
26S52	AIRFORCE CAMP	5	9	14	12	5	17	Mod / Mod
26S54	VISTA POINT (PARKING)	3	11	14	16	3	19	Mod / Mod
27S01	ROUGH AND READY MTN.	5	10	15	11	5	16	Mod / Mod
27S01A	ROUGH AND READY MTN.	5	10	15	12	5	17	Mod / Mod
27S02G	PIUTE MTN.	5	9	14	15	5	20	Mod / Mod
27S05	HOBO C.G./MIRACLE HS	10	10	20	12	2	14	Mod / Mod
27S05-A	HOBO CG OVERFLOW	10	10	20	12	2	14	Mod / Mod
27S06	SANDY FLAT C G	10	9	19	16	2	18	Mod / Mod
27S06A	SANDY FLAT C G	10	9	19	16	2	18	Mod / Mod
27S06A-1	SANDY FLAT C G	10	9	19	16	2	18	Mod / Mod
27S06B	SANDY FLAT C G	10	9	19	16	2	18	Mod / Mod
27S07	BOREL EAST	10	10	20	15	5	20	Mod / Mod
27S08	BOREL	10	10	20	9	5	14	Mod / Mod
27S10	HOOPER HILL	10	10	20	13	5	18	Mod / Mod
27S11	HORSE MTN. S.U.	9	10	19	13	4	17	Mod / Mod
27S13	EAGLE	10	10	20	10	5	15	Mod / Mod
27S20	OAK FLAT L.O.	8	9	17	10	5	15	Mod / Mod
27S29	GROUP CAMP	10	10	20	13	5	18	Mod / Mod
27S37	CHINA GARDEN	9	9	18	12	3	15	Mod / Mod
27S37A	CHINA GARDEN 4WD	10	9	19	12	4	16	Mod / Mod
28S01	BUXTON MILL ROAD	10	10	20	13	3	16	Mod / Mod
28S04	SUNSET	7	9	16	15	5	20	Mod / Mod
28S07C	BRECKENRIDGE L.O.	8	9	17	14	5	19	Mod / Mod
28S09A	COW FLAT	8	9	17	15	5	20	Mod / Mod
28S11	UPPER RICHBAR	10	9	19	12	2	14	Mod / Mod
28S12	LIVE OAK PARKING	10	8	18	12	2	14	Mod / Mod
28S14	DOUGHTERY	10	9	19	13	5	18	Mod / Mod
28S16	MUNZER	8	8	16	15	4	19	Mod / Mod
28S17	PIUTE TEMP. L.O.	5	11	16	13	5	18	Mod / Mod

28S19	O'BRIAN SPRINGS	8	8	16	10	5	15	Mod / Mod
28S20	HAVILAH W.C.	5	9	14	16	2	18	Mod / Mod
28S20A	HAVILAH W.C.	5	9	14	16	2	18	Mod / Mod
28S21	BRECKENRIDGE C.G.	10	9	19	14	3	17	Mod / Mod
28S25	MORELAND MILL	7	11	18	11	5	16	Mod / Mod
28S27A	FRENCH MEADOW	6	9	15	15	5	20	Mod / Mod
28S30	COLD SPRINGS SOUTH	8	9	17	15	5	20	Mod / Mod
28S33	PIUTE SPRING	11	9	20	15	5	20	Mod / Mod
28S40A	MACK	7	9	16	15	5	20	Mod / Mod
28S62B	BRECKENRIDGE L.O.	8	9	17	11	6	17	Mod / Mod
28S67	DEMOCRAT BEACHES	10	9	19	10	4	14	Mod / Mod
28S67A	DEMOCRAT BEACHES	10	9	19	10	4	14	Mod / Mod
28S74	LOWER RICHBAR C.G.	10	10	20	12	2	14	Mod / Mod
28S81	DOUGHERTY CREEK	10	10	20	12	5	17	Mod / Mod
29S01	GROUSE MDW.	5	9	14	13	5	18	Mod / Mod
29S05	LANDERS W.C.	4	11	15	13	5	18	Mod / Mod
29S07	WATERHOLE MINE	5	10	15	10	5	15	Mod / Mod
29S19	B & C MILL CREEK	7	8	15	10	4	14	Mod / Mod
11S12	BLACK ROCK	6	9	15	9	2	11	Mod / High
12S01	DAVIS	5	13	18	5	3	8	Mod / High
12S19	DELILAH	5	12	17	5	3	8	Mod / High
13S02	HUCKLEBERRY	6	10	16	7	2	9	Mod / High
13S03	CHICAGO STUMP	6	10	16	10	3	13	Mod / High
13S06	SANDY COVE	7	9	16	7	2	9	Mod / High
13S09	TENMILE	7	11	18	5	2	7	Mod / High
13S09A	TENMILE	6	8	14	9	2	11	Mod / High
13S09C	TENMILE	5	9	14	7	5	12	Mod / High
13S12	MT. MADDOX	6	10	16	7	4	11	Mod / High
13S14	SUNSET MEADOW	7	10	17	9	3	12	Mod / High
13S18	BEARSKIN	7	9	16	9	4	13	Mod / High
13S26	TORNADO	7	10	17	7	3	10	Mod / High
13S32	LITTLE BOULDER CREEK	7	10	17	9	4	13	Mod / High
13S40	ASPEN HOLLOW	6	8	14	9	2	11	Mod / High
13S45	BIG WHISTLE	7	10	17	8	2	10	Mod / High
13S55	CONVERSE MTN	5	11	16	7	3	10	Mod / High
13S58	ABBOTT	6	11	17	9	4	13	Mod / High
13S74	MCKENZIE RIDGE	5	10	15	8	5	13	Mod / High
13S75	DELILAH CREST	8	9	17	6	3	9	Mod / High

13S77	CHERRY GAP	5	9	14	9	4	13	Mod / High
14S02	BURTON	6	12	18	5	2	7	Mod / High
14S02A	BURTON	5	9	14	10	2	12	Mod / High
14S02D	HEART MDW.	5	9	14	9	4	13	Mod / High
14S11	HORSE CORRAL	7	11	18	5	2	7	Mod / High
14S23	BRTP. MDW. ORG.	5	9	14	9	4	13	Mod / High
14S29	CHIMNEY ROCK	7	10	17	7	3	10	Mod / High
14S36	LOG CORRAL MDW	7	8	15	8	4	12	Mod / High
14S43	DARK CANYON	7	12	19	7	3	10	Mod / High
14S46	LOGGER POINT	6	10	16	10	3	13	Mod / High
14S56	WOODWARD CREEK	5	11	16	9	2	11	Mod / High
14S57	MONTECITO CAMP S.U.	5	11	16	9	4	13	Mod / High
15S01	CHERRY FLAT	5	9	14	8	4	12	Mod / High
19S09	DILLON	10	8	18	7	5	12	Mod / High
20S03	FOX FARM	10	9	19	5	4	9	Mod / High
20S05	BELKNAP C.G.	10	8	18	7	2	9	Mod / High
20S08	CREST	9	10	19	8	5	13	Mod / High
20S25	EAST BEACH CREEK	4	12	16	5	3	8	Mod / High
20S46	CEDAR SLOPE	6	10	16	8	4	12	Mod / High
20S71	JORDAN PK L.O.	5	9	14	5	3	8	Mod / High
20S77	PYLES CAMP	7	8	15	8	4	12	Mod / High
20S79	FISH CREEK	7	12	19	5	3	8	Mod / High
20S89	MT. HOME	7	8	15	8	4	12	Mod / High
20S97	OAK OPENING	10	10	20	8	5	13	Mod / High
21S02	BEACH	5	11	16	7	2	9	Mod / High
21S03	BLACKROCK	3	11	14	5	2	7	Mod / High
21S05	NEEDLES L.O.	5	9	14	7	4	11	Mod / High
21S06	NEEDLEROCK CR.	5	9	14	9	4	13	Mod / High
21S07A	S. FORK PEPPERMINT	7	8	15	8	3	11	Mod / High
21S12	SOLO	6	10	16	8	4	12	Mod / High
21S19	BEARTRAP NORTH	4	11	15	8	4	12	Mod / High
21S20A	CANNELL OSA	5	10	15	7	4	11	Mod / High
21S36	SMITH	4	13	17	7	4	11	Mod / High
21S40	BLACKROCK W.C.	3	11	14	6	3	9	Mod / High
21S50	NORTH ROAD	5	12	17	5	2	7	Mod / High
21S54	PONDEROSA	7	8	15	8	5	13	Mod / High
21S88	COY FLAT C.G.	8	7	15	5	3	8	Mod / High
21S94	CRAWFORD	9	11	20	5	3	8	Mod / High

22S05G	SHERMAN PASS VISTA POINT	5	9	14	10	2	12	Mod / High
22S08	LONG MEADOW	5	10	15	8	3	11	Mod / High
22S10	SOUTH CREEK	7	9	16	5	2	7	Mod / High
22S12	CHERRY HILL	7	11	18	5	2	7	Mod / High
22S41	LOOKOUT MTN.	7	10	17	5	2	7	Mod / High
22S53	DRY MEADOW	5	9	14	5	3	8	Mod / High
22S64	REDWOOD MDW. PARKING	5	10	15	10	3	13	Mod / High
22S82	LLOYD MEADOW	6	11	17	5	2	7	Mod / High
22S82B	JERKY TRAILHEAD	5	9	14	8	2	10	Mod / High
23S01	UHL R.S.	7	11	18	5	2	7	Mod / High
23S01-A	UHL R.S.	7	11	18	5	2	7	Mod / High
23S01-B	UHL R.S.	7	11	18	5	2	7	Mod / High
23S04	DEER CREEK MILL	5	9	14	7	3	10	Mod / High
23S05	CAPINERO	7	11	18	5	3	8	Mod / High
23S07	BIG MEADOW	7	10	17	8	3	11	Mod / High
23S08	SALMON CREEK	7	10	17	6	4	10	Mod / High
23S10	HORSE MEADOW	5	10	15	5	2	7	Mod / High
23S10B	HORSE MEADOW C.G.	7	10	17	9	2	11	Mod / High
23S16	SUGARLOAF	5	11	16	5	2	7	Mod / High
23S70	LEAVIS FLAT C.G.	7	8	15	10	3	13	Mod / High
24S02	BAKER POINT	5	11	16	8	2	10	Mod / High
24S04	POSO	7	9	16	7	4	11	Mod / High
24S05	JACK RANCH	5	11	16	8	3	11	Mod / High
24S07	SANDY CREEK	7	10	17	7	4	11	Mod / High
24S10	PORTUGUESE MDW.	5	11	16	8	4	12	Mod / High
24S12	CANNELL	5	10	15	6	3	9	Mod / High
24S15	PORTUGUESE MEADOW	5	11	16	6	3	9	Mod / High
24S24	TOBIAS MEADOW	5	11	16	7	4	11	Mod / High
24S26	WHITE RIVER C.G.	7	10	17	8	3	11	Mod / High
24S46	DEEP CREEK	5	9	14	8	4	12	Mod / High
24S50	GREENHORN MTN.	6	8	14	5	3	8	Mod / High
24S56	CANNELL MEADOW	6	9	15	5	4	9	Mod / High
24S88	VINCENT MEADOW	5	10	15	8	5	13	Mod / High
24S93	PEEL PEAK	5	9	14	7	5	12	Mod / High
25S07	CEDAR CREEK C.G.	7	8	15	11	2	13	Mod / High
25S14	CEDAR CREEK	7	7	14	7	4	11	Mod / High
25S15E	GREENHORN SUMMIT STA.	5	10	15	9	3	12	Mod / High
25S28	OWL MINE	5	11	16	7	4	11	Mod / High

25S28C	OWL MINE	8	8	16	9	4	13	Mod / High
25S39	SILVER STRAND	5	9	14	9	4	13	Mod / High
25S41	KERNVILLE AIRPORT	5	11	16	11	2	13	Mod / High
26S06	BLACK GULCH	7	11	18	9	4	13	Mod / High
26S26	FRENCH GULCH MARINA	3	11	14	9	2	11	Mod / High
26S37	PETTITT	9	11	20	8	5	13	Mod / High
26S38	ROBINSON BAY	7	10	17	10	3	13	Mod / High
27S02	SADDLE SPRINGS	6	12	18	5	3	8	Mod / High
28S06	BRECKENRIDGE	10	10	20	7	2	9	Mod / High
28S08	GOLF MEADOW	6	8	14	6	4	10	Mod / High
28S09	COW FLAT	10	10	20	7	5	12	Mod / High
28S15	SATURDAY SPRINGS	10	9	19	9	4	13	Mod / High
28S18	BROWN MEADOW	8	11	19	7	4	11	Mod / High
28S24	WOOLSTAFF MDW.	7	11	18	9	4	13	Mod / High
28S27	FRENCH MEADOW	7	11	18	8	4	12	Mod / High
28S40	MACK	5	10	15	8	5	13	Mod / High
28S47	BROWN MDW. SOUTH	10	10	20	6	4	10	Mod / High
28S68	WILLOW SPRING CR.	10	10	20	10	2	12	Mod / High
29S02	FRANCESCHI MINE	7	10	17	6	4	10	Mod / High
29S03	GALLUP	5	10	15	8	4	12	Mod / High
29S04	SORREL PEAK	7	9	16	6	5	11	Mod / High

Roads rated DARK GREEN (Low Risk and Moderate or High Benefit)

These roads are dark green on the Opportunities Maps Consider for reduced maintenance level								
FS Road Number	**Road Name**	**Aquatic Risk Composite**	**Terrestrial Risk Composite**	**Resource Risk Composite**	**Access Composite**	**Social Composite**	**Access Needs or Benefit Composite**	**Opportunity Classes (Risk/Benefit)**
12S02	RANCHERIA SITE	5	7	12	12	4	16	Low / Mod
13S03G	CHICAGO STUMP	5	8	13	15	5	20	Low / Mod
13S09K	TENMILE	5	7	12	15	5	20	Low / Mod
13S11	HORSE CORRAL NORTH	5	8	13	12	5	17	Low / Mod
13S24A	LAKESHORE STA.	5	8	13	16	3	19	Low / Mod
13S24C	LAKESHORE STA	5	8	13	15	3	18	Low / Mod
13S40A	ASPEN HOLLOW	5	8	13	13	4	17	Low / Mod
13S43	HUME LAKE C.G.	5	8	13	14	3	17	Low / Mod
13S82	FOX SPRINGS C.G.	5	8	13	11	4	15	Low / Mod
13S86	CLOVER MEADOW	5	8	13	15	5	20	Low / Mod
13S87A	SUMMIT MEADOW	5	8	13	15	4	19	Low / Mod
13S94A	WHITE DEER	3	8	11	15	5	20	Low / Mod
14S01	NORTH BIG MDW	3	10	13	12	4	16	Low / Mod
14S01A	NORTH BIG MDW.	3	9	12	13	4	17	Low / Mod
14S01B	NORTH BIG MDW.	3	9	12	16	4	20	Low / Mod
14S03	SHELL MTN	4	9	13	16	4	20	Low / Mod
14S11I	BIG MEADOW	3	8	11	11	3	14	Low / Mod
14S11K	HORSE CORRAL	3	7	10	11	4	15	Low / Mod
14S20	STONY CREEK CG	5	8	13	17	3	20	Low / Mod
14S21	STONY CREEK PICNIC	5	8	13	14	4	18	Low / Mod
14S21B	STONY CREEK PICNIC	5	8	13	14	4	18	Low / Mod
14S24	STONY SOUTH	3	8	11	15	5	20	Low / Mod
14S27	COVE CG	5	8	13	15	3	18	Low / Mod
14S28	FIR CG	3	9	12	15	3	18	Low / Mod
14S30	RABBIT MEADOW	4	9	13	11	4	15	Low / Mod
14S33B	BIG BALDY	5	7	12	15	5	20	Low / Mod
14S47	NORTH HEART MDW	3	9	12	12	4	16	Low / Mod
14S49	BEARTRAP CR	3	9	12	14	5	19	Low / Mod
14S55C	MONTECITO	3	9	12	12	4	16	Low / Mod
14S56A	WOODWARD CREEK	3	9	12	12	3	15	Low / Mod

14S57A	MONTECITO CAMP S.U.	3	7	10	13	4	17	Low / Mod
14S57B	MONTECITO CAMP S.U.	3	9	12	12	5	17	Low / Mod
14S63	BUCK	5	7	12	16	4	20	Low / Mod
14S71	DRY CR.	5	8	13	15	4	19	Low / Mod
19S14	RANCHERIA CR. NORTH	5	8	13	10	5	15	Low / Mod
19S20	BROWNIE MEADOW	5	8	13	10	5	15	Low / Mod
19S36	GROUSE VALLEY	5	7	12	10	5	15	Low / Mod
19S36A	GROUSE VALLEY	5	7	12	10	5	15	Low / Mod
20S21	NELSON CREEK EAST	5	8	13	10	5	15	Low / Mod
20S22	POWELL	3	10	13	12	4	16	Low / Mod
20S24	POWELL MDW CREEK	3	10	13	11	5	16	Low / Mod
20S28	RIDGE	3	10	13	11	5	16	Low / Mod
20S64B	CLICKS CR.	5	8	13	15	5	20	Low / Mod
20S71A	JORDAN PK. L.O.	5	8	13	15	5	20	Low / Mod
20S74	GARLAND	3	8	11	9	5	14	Low / Mod
20S74A	GARLAND	3	8	11	14	5	19	Low / Mod
20S75A	DEEP MEADOW	3	8	11	15	4	19	Low / Mod
20S76	MOUNTAIN GROVE	5	8	13	9	5	14	Low / Mod
20S79A	FISH CREEK	5	8	13	15	5	20	Low / Mod
20S85	WHEEL	3	8	11	13	5	18	Low / Mod
20S87	MTN. HOME NORTH	5	8	13	11	5	16	Low / Mod
20S89A	MT. HOME	5	7	12	10	5	15	Low / Mod
20S96	BEACH CREEK	3	10	13	14	5	19	Low / Mod
20S98	SEQUOIA SSTARS	3	9	12	15	5	20	Low / Mod
21S02B	BEACH	3	10	13	10	4	14	Low / Mod
21S03H	BLACKROCK	3	8	11	16	4	20	Low / Mod
21S03K	BLACKROCK	3	10	13	14	4	18	Low / Mod
21S05B	NEEDLES L.O.	4	9	13	10	5	15	Low / Mod
21S07B	S. FORK PEPPERMINT	5	8	13	11	4	15	Low / Mod
21S07D	S. FORK PEPPERMINT	5	7	12	15	5	20	Low / Mod
21S09A	HOLBY	5	8	13	14	4	18	Low / Mod
21S25B	LONG CANYON	5	8	13	15	5	20	Low / Mod
21S27A	PEPPERMINT CREEK	5	8	13	13	5	18	Low / Mod
21S34	STATION	3	10	13	12	3	15	Low / Mod
21S36A	SMITH	3	9	12	12	5	17	Low / Mod
21S36E	SMITH	3	10	13	14	5	19	Low / Mod
21S36F	SMITH	3	10	13	12	4	16	Low / Mod
21S37	SMITH MTN.	3	10	13	13	5	18	Low / Mod

21S50B	NORTH ROAD	3	9	12	13	5	18	Low / Mod
21S61A	QUAKING ASPEN	5	8	13	13	5	18	Low / Mod
21S73	TROY	3	10	13	14	5	19	Low / Mod
21S74	HOWIE	5	8	13	15	5	20	Low / Mod
21S78	QUAKER O.C.	4	8	12	11	3	14	Low / Mod
21S79	INDIAN ROCK	3	8	11	9	5	14	Low / Mod
21S79A	INDIAN ROCK	3	8	11	11	5	16	Low / Mod
21S84	URSA	3	9	12	13	5	18	Low / Mod
22S03C	MULE PEAK	5	8	13	12	5	17	Low / Mod
22S03D	MULE PEAK	3	8	11	14	4	18	Low / Mod
22S04A	HORSE MEADOW CREEK	3	8	11	10	4	14	Low / Mod
22S05A	SHERMAN PASS	5	7	12	13	3	16	Low / Mod
22S07	MACHINE CREEK	5	8	13	14	6	20	Low / Mod
22S08B	LONG MEADOW	5	8	13	11	4	15	Low / Mod
22S09	REDWOOD MEADOW	5	8	13	15	2	17	Low / Mod
22S13A	REDWOOD MEADOW	5	8	13	14	5	19	Low / Mod
22S20	BOONE MEADOW	3	9	12	10	4	14	Low / Mod
22S21	SIRRETTA MEADOW	3	10	13	14	2	16	Low / Mod
22S22	BONE MEADOWS	5	8	13	14	5	19	Low / Mod
22S26	CORRAL MEADOW	3	10	13	14	3	17	Low / Mod
22S40C	EAST PALOMA	5	8	13	15	5	20	Low / Mod
22S49	CAPITAL ROCK	5	7	12	14	5	19	Low / Mod
22S63	NOBE YOUNG MDW.	5	8	13	15	5	20	Low / Mod
22S73	CRANE MEADOW	5	8	13	11	5	16	Low / Mod
22S74	MULE MEADOW	5	8	13	14	5	19	Low / Mod
22S81	UPPER PARKER MEADOW	5	8	13	10	5	15	Low / Mod
23S02	PACKSADDLE	5	8	13	12	5	17	Low / Mod
23S04A	DEER CREEK MILL	5	8	13	15	5	20	Low / Mod
23S07B	BIG MEADOW	5	7	12	15	5	20	Low / Mod
23S15A	POWDERHORN	5	8	13	12	5	17	Low / Mod
23S22	LION RIDGE	5	8	13	9	5	14	Low / Mod
23S30	HOLEY MEADOW	3	9	12	9	5	14	Low / Mod
23S33	SPEAS RIDGE	5	8	13	13	5	18	Low / Mod
23S57	FRENCH JOE MDW.	5	8	13	9	5	14	Low / Mod
23S57A	FRENCH JOE MDW.	5	8	13	13	5	18	Low / Mod
24S01	UHL POCKET	5	8	13	9	5	14	Low / Mod
24S09	PANORAMA	5	7	12	13	4	17	Low / Mod
24S23	EAST LION	3	9	12	9	5	14	Low / Mod

24S23A	EAST LION	3	8	11	15	5	20	Low / Mod
24S25B	MC SWINEY BLVD	5	8	13	14	5	19	Low / Mod
24S29	GUERNSEY	3	9	12	10	5	15	Low / Mod
24S34	TYLER MEADOW	5	8	13	13	5	18	Low / Mod
24S56A	CANNELL MEADOW	5	8	13	11	4	15	Low / Mod
24S60A	GUERNSEY MILL	3	8	11	12	5	17	Low / Mod
24S77	EAST HORSE	5	7	12	11	4	15	Low / Mod
24S86	FROG MEADOW	5	8	13	11	3	14	Low / Mod
24S87	SUGARLOAF C.G.	3	8	11	13	5	18	Low / Mod
24S94	SPEAR	5	8	13	12	5	17	Low / Mod
24S94A	SPEAR	3	8	11	15	5	20	Low / Mod
25S08	FULTON W.C.	5	7	12	15	3	18	Low / Mod
25S44A	OLD KERNVILLE CEMETARY	3	10	13	15	4	19	Low / Mod
25S50	KERNVILLE HELIPORT	3	10	13	13	2	15	Low / Mod
26S02A	HEADQUARTERS	3	10	13	16	2	18	Low / Mod
26S02D	HEADQUARTERS PARKING	3	10	13	15	2	17	Low / Mod
26S17-1	AUXILIARY DAM	3	10	13	13	2	15	Low / Mod
26S17A	AUXILIARY DAM	3	10	13	13	2	15	Low / Mod
26S17B	AUXILIARY DAM	3	10	13	13	2	15	Low / Mod
26S17B-1	AUXILIARY DAM	3	10	13	13	2	15	Low / Mod
26S17C	AUXILIARY DAM	3	10	13	13	2	15	Low / Mod
26S21	RAMP AREA 17 (OLD ISABELLA)	3	9	12	12	2	14	Low / Mod
26S21-A	SO FORK WATER TANK	3	9	12	16	4	20	Low / Mod
26S22A	SOUTH FORK	3	9	12	18	2	20	Low / Mod
26S31	PARADISE COVE C.G.	3	9	12	16	2	18	Low / Mod
26S31A	PARADISE COVE C G	3	9	12	16	2	18	Low / Mod
26S31B	PARADISE COVE C G	3	9	12	16	2	18	Low / Mod
26S31C	PARADISE COVE C G	3	9	12	16	2	18	Low / Mod
26S41C	CAMP 9	3	9	12	18	2	20	Low / Mod
26S41C-2	CAMP 9	3	9	12	18	2	20	Low / Mod
26S41C-3	CAMP 9	3	9	12	18	2	20	Low / Mod
26S41D	CAMP 9	3	9	12	18	2	20	Low / Mod
26S41E	CAMP 9	3	9	12	18	2	20	Low / Mod
26S41F	CAMP 9	3	9	12	18	2	20	Low / Mod
26S41F-1	CAMP 9	3	9	12	18	2	20	Low / Mod
26S41F-2	CAMP 9	3	9	12	18	2	20	Low / Mod
26S41G	CAMP 9	3	9	12	18	2	20	Low / Mod
26S50B	RICH GULCH	3	9	12	13	5	18	Low / Mod

26S52A	AIRFORCE CAMP	3	9	12	13	6	19	Low / Mod
26S53	FRENCH GULCH TANK	3	9	12	11	5	16	Low / Mod
27S02A	SADDLE SPRING C.G.	5	8	13	10	4	14	Low / Mod
28S28	VALLEY VIEW	5	8	13	15	5	20	Low / Mod
12S19B	DELILAH	3	8	11	9	4	13	Low / High
13S04	BUCK ROCK	3	10	13	5	3	8	Low / High
13S04B	BUCK ROCK L.O.	3	9	12	8	4	12	Low / High
13S24	LAKESHORE STA.	5	8	13	8	2	10	Low / High
13S24B	LAKESHORE STA.	5	8	13	8	2	10	Low / High
14S11A	BIG MDW. G.S.	3	8	11	8	3	11	Low / High
14S11H	BIG MEADOW	3	8	11	10	3	13	Low / High
14S36B	LOG CORRAL MDW.	5	8	13	8	4	12	Low / High
15S01A	CHERRY FLAT	5	8	13	9	4	13	Low / High
20S03B	WISHON CG	5	8	13	7	2	9	Low / High
21S03A	BLACKROCK TRAILHEAD	3	8	11	9	2	11	Low / High
21S03G	BLACKROCK	3	9	12	9	4	13	Low / High
21S04	KENNEDY MEADOWS CG	5	8	13	11	2	13	Low / High
21S07	S. FORK PEPPERMINT	5	8	13	8	3	11	Low / High
21S08	KENNEDY MEADOW	5	8	13	11	2	13	Low / High
21S09	HOLBY	5	8	13	8	5	13	Low / High
21S20	CANNELL OSA	3	10	13	5	3	8	Low / High
21S61	QUAKING ASPEN	5	8	13	6	2	8	Low / High
22S08A	LONG MEADOW C.G.	5	8	13	8	4	12	Low / High
22S77	BALD MTN. L.O.	3	10	13	5	2	7	Low / High
24S08	TOBIAS PEAK L.O.	5	8	13	6	4	10	Low / High
24S27	SPEAR CREEK	3	8	11	7	5	12	Low / High
24S60	GUERNSEY MILL	3	8	11	7	5	12	Low / High
24S82	DEAD HORSE	5	8	13	9	3	12	Low / High
26S02	HEADQUARTERS -PONDEROSA DR	3	10	13	9	2	11	Low / High
26S02B	HEADQUARTERS	3	10	13	11	2	13	Low / High
26S02C	HEADQUARTERS - BARLOW DR	3	10	13	9	2	11	Low / High
26S17	AUXILIARY DAM	3	10	13	10	2	12	Low / High
28S22	MUNZER MDW.	5	8	13	7	4	11	Low / High
28S62	GROUSE SPRING	4	9	13	7	4	11	Low / High

Appendix C-Sequoia National Forest Travel Analysis Evaluation Criteria[1]

AQUATIC RISK FACTORS (3 Factors)

1. Geologic Hazard

Description of Indicator

The Geologic Hazard Factor uses landslide mapping and certain topographic, soil or rock materials, and geologic conditions as an indicator of potential future mass wasting and sediment production. In general, this factor identifies those roads located within potentially unstable terrain or within areas with high sensitivity to erosion. In this context it is used primarily as a water quality and aquatic species habitat risk factor. This factor evaluates the terrain that the road is located within and considers the terrain above and below the road. This factor is an indicator of the potential to initiate mass wasting or erosion from roads rather than the potential for effects to roads from processes initiated upslope. This factor can also be viewed as an indicator for potential damage to the road system, cost of storm damage repair, or as an indicator of high maintenance needs.

1 = (Low hazard) No portion of the road segment lies within areas identified as high geologic hazard, and less than 10 percent of the road segment length is located within areas identified as moderate geologic hazard.

3 = (Moderate hazard) Less than 30 percent of the road segment lies within areas identified as high geologic hazard; OR 10 percent or greater of the road segment is located within areas identified as moderate geologic hazard.

6 = (High hazard) 30 percent or greater of the road segment is located within areas identified as high geologic hazard.

2. Stream Crossing Density

Description of Indicator

The Stream Crossing Density Factor determines the relative hazard associated with stream crossings within the road segment. This factor is defined in terms of the frequency of stream crossings per road mile for each road segment within a watershed of about 30,000 to 50,000 acres. The more frequent the stream crossings, the more potential there is to run over aquatic species, damage riparian habitat, add sediment to the stream or create impediments to species movement. The species potentially affected include California red-legged frogs, Foothill and mountain yellow-legged frogs or Western pond turtles. Frequency values are generated from GIS based on the number of times a stream segment intersects the road segment.

1 = (Low risk) Road segment has a density of 0 to 2 stream crossings per road mile.

2 = (Moderate Risk) Road segment has a density of 3 to 4 stream crossings per road mile.

3 = (High Risk) Road segment has a density which exceeds 4 stream crossings per road mile.

[1] Development and other background information regarding the creation of the evaluation criteria will be included in the appendices of the Travel Analysis Report.

3. Riparian Zone – Stream Proximity

Description of Indicator

The Riparian Zone – Stream Proximity Factor determines the relative degree of connectivity between the road system and the stream system. This factor is related to the portion of the road segment within the riparian zone or in close proximity to a stream. For this factor, riparian zones are defined as the area bordering a stream with potential for streamside habitat. The riparian zone is 300 feet wide on each side of perennial streams and 150 feet wide on each side of intermittent streams, as measured from the center of the stream channel. The longer a road follows a stream within the riparian zone, the more potential there is to run over aquatic species, damage riparian habitat, add sediment to the stream or create impediments to species movement. The species potentially affected include California red-legged frogs, Foothill and mountain yellow-legged frogs or Western pond turtles.

1 = (Low risk) 0 to 5 percent of the road segment is within the riparian zone.

2 = (Moderate risk) 6 to 10 percent of the road segment is within the riparian zone.

3 = (High risk) Greater than 10 percent of the road segment is within the riparian zone.

Aquatic Risk Factor Composite Rating

A composite rating of low, moderate and high was assigned to each road segment based on combining values of the aquatic risk factors. A cumulative aquatic score was given from a sum total of all risk factors. The lowest possible score within the aquatic matrix is 3, the highest is 12, and the range of points is 10.

Table 15: Composite Rating for Aquatic Risk Factors

Road Number	*Geologic Hazard	Stream Crossing Density	Riparian Zone Proximity	Aquatic Risk Composite
13SXX	1	1	1	3
22SXX	3	2	2	7
15SYY	6	3	3	12

*The geologic hazard was weighted heavier than the other aquatic factors because of the greater risk to the road, and other resources if the road fails, in these areas.

TERRESTRIAL RISK FACTORS (5 Factors)

1. Cultural Resources

Description of Indicator

This factor is based on the extent of risk to recorded cultural sites either directly or indirectly related to the road segment (within 200 ft. of the road). It also considers whether the road itself, because of its' history of development and use, might also be classified as a cultural site. Native American spiritual sites within ½ mile of the road were also considered. Dust, traffic noise and the intrusion of other visitors is considered to have potential adverse effect on Native American spiritual rituals and use of places of religious importance. Data gaps exist. Many roads have never been surveyed for the presence of cultural resources, or had historic value determinations made on them. Conservative risk assessments were made for road segments with little or no cultural resource data. Overall, road segments were rated on the potential that road maintenance/reconstruction, human use, or vandalism could affect sites. A numeric value is assigned to each road segment based on the following criteria:

1 = (Low risk) The road segment is fully inventoried for the presence of cultural resources. There are no known sites in or adjacent to the road that could be damaged due to road work or use. Access to cultural resources vulnerable to illegal artifact collecting and looting is unlikely and there are no known areas of Native American sensitivity near or adjacent to the road.

2 = (Moderate risk) The road segment is fully inventoried for the presence of cultural resources. There are no known sites in or adjacent to the road, or those which are known sites are not vulnerable to impact from road work. The road may also provide access to an area with a known high density of sites or isolated sites that are near to but over 200 feet from the road. The road may provide access to illegal artifact collectors and looters. Sensitive Native American use areas may also be accessed from the road.

3 = (High risk) One or more known sites are in or immediately adjacent to the road corridor (within 200 feet). These sites could be adversely affected by road use or maintenance. The road may provide looters with easy access to sites, and allow people to drive onto or camp on the sites. Additionally, a high risk road segment may be identified because the road itself may qualify as a cultural resource because of its historic significance or be located within ½ mile of a Native American sacred site where use of the road has the potential to adversely affect the quality of that use.

2. Road Density Effects to Wildlife Habitat

Description of Indicator:

Road density (roaded miles per mile squared):

Wildlife species and habitat quality can be affected in areas with high road density and use. Potential influencing factors include: direct road related mortality; species road aversion and other behavioral modification; habitat loss, fragmentation and isolation of populations. The type of road (i.e., maintenance level) further contributes to the scale of effects to wildlife. Thomas et al (1979, figure 74) assessed the impacts of traveled roads on the potential effectiveness of summer deer habitat utilizing both road density and maintenance levels (adapted from Perry and Overly 1977). The formula and other background information is discussed in Appendix E of this document. Road density and corresponding maintenance levels per square mile were calculated using arc view, generating a percent value and then placed in the corresponding risk categories:

1= (Low Risk) Less than 20 percent decline in habitat effectiveness by roaded miles per square mile.

2= (Moderate Risk) Greater than 20 percent and less than 40 percent decline in habitat effectiveness by roaded miles per square mile.

3= (High Risk) Greater than 40 percent decline in habitat effectiveness by roaded miles per square mile.

3. Botanical Resources

Description of Indicator

This rating was developed by the forest botanist to address the potential of roads affecting rare plants and unique plant habitats.

Since effects to botanical resources are highly variable and can vary by species and type and season of road use, the mere overlap of roads with these indicators does not inherently indicate an undesired conflict with botanical resources. Risk to botanical resources is highest where the potential for effects that cannot be mitigated exist.

Unit of Indicator

Botanical Resources Indicators used to identify roads or road segments that overlap botanical resources or contribute to a risk of adverse effect to botanical resources. Roads that pass through or are within 100 feet of known Federally-listed or Forest Service Sensitive species occurrences and mapped potential or suitable habitat or mapped critical habitat; known occurrence next to a native surface road for species known to be ecologically sensitive to fugitive dust; or roads that access known rare plant occurrences or native plant communities of concern that have been identified as desirable to illegal plant collectors.

Botanical Resources are focused on Federally-listed threatened or endangered species and designated critical habitat; species proposed for Federal listing, or proposed critical habitat; Forest Service sensitive species; other plant species of concern, such as forest endemics, and watch list species. This includes the designated botanical areas as well. Native plant communities of concern are also considered that include: wetlands, vernal pools, seeps, springs, peatlands, fens, aspen stands and special soil types such as serpentine or carbonate soils. Roads can affect populations of managed plant species and native plant communities through direct effects from use, road-related erosion, and fugitive dust impacts to populations. Also, similar to aquatic resources, roads can disrupt and change hydrologic flow and hydrologic characteristics and affect aquatic and wetland species, sometimes a substantial distance downstream of the road impact. In addition, roads can increase the risk of unauthorized collection of native plants. Finally, where known, areas important for cultural uses such as Native American collection sites are also considered, recognizing that disclosure of specific locations is generally protected information.

Data Sources

The data comes from the Forest Service corporate NRIS database as the primary sources for existing population and habitat GIS data. In addition, data from the California natural diversity database (CNDDB) was evaluated for data not incorporated into NRIS.

This assessment was based on existing data and no new data was gathered. This challenges the accuracy and usefulness of this exercise. Problems could exist on roads where the assessment shows none and roads that show problems in the assessment could be fine.

Road segments are rated by the potential to affect known Federally-listed or Forest Service Sensitive species occurrences, mapped potential or suitable habitat, or mapped critical habitat.

1 = Road segment prism presents little potential to affect the known populations of threatened, endangered and Forest Service identified Sensitive plants; mapped potential or suitable habitat; or mapped critical habitat.

2 = Road segment prism presents moderate potential to affect the known populations of threatened, endangered and Forest Service identified Sensitive plants; mapped potential or suitable habitat; or mapped critical habitat.

3 = Road segment prism presents high potential to affect the known populations of threatened, endangered and Forest Service identified Sensitive plants; mapped potential or suitable habitat; or mapped critical habitat.

4. Noxious Weed and Nonnative, Invasive Plants:

Description of Indicator

This rating was developed by the forest botanist to address the potential of roads providing a vector for noxious weed and non-native species invasions.

This factor is based on the effects the road segment prism has on potential to serve as a vector to spread nonnative invasive plant species (NNIS) that impact native plant communities. NNIS Indicators identify roads or road segments that overlap NNIS populations or contribute to their spread; or roads identified as risks in noxious weed or non-native, invasive species management plans or in sensitive species conservation or management plans.

Unit of Indicator

Botanical Resources Indicators used to identify roads or road segments that overlap noxious weed or invasive populations or contribute to their spread. Roads that pass through or are within 100 feet of known noxious weed or invasive populations occurrences. NNIS Indicators identify roads or road segments that overlap NNIS populations or contribute to their spread; or roads identified as risks in noxious weed or non-native, invasive species management plans or in sensitive species conservation or management plans.

Data Sources

The data comes from the Forest Service corporate NRIS and FACTS databases as the primary sources for existing population and habitat GIS data. In addition, data from the California natural diversity database (CNDDB) and the weed database of the California Department of Food and Agriculture (CDFA) were evaluated for data not incorporated into NRIS.

This assessment was based on existing data and no new data was gathered. This challenges the accuracy and usefulness of this exercise. Problems could exist on roads where the assessment shows none and roads that show problems in the assessment could be fine.

Road segments are rated by the potential to serve as a vector to introduce or spread NNIS.

1 = Road segment prism presents little potential to serve as a vector to introduce or spread NNIS.

2 = Road segment prism presents moderate potential to serve as a vector to introduce or spread NNIS.

3 = Road segment prism presents high potential to serve as a vector to introduce or spread NNIS.

5. Scenic Resources

Description of Indicator

This factor is based on the effects the road segment prism has on scenic integrity. Scenic integrity indicates the degree of intactness and wholeness of the landscape character. Human activity can sometimes raise or maintain integrity. Road segments are rated by the amount of changes in the visibility of the road and effects to the scenic view on the landscape due to road construction or maintenance/ reconstruction.

1 = Road segment prism presents few to no effects to the scenic resource (fits well within the landscape) or presents a slightly altered appearance to the valued landscape character.

2 = Road segment prism presents a moderately altered appearance to the valued landscape character.

3 = Road segment prism presents a heavily altered appearance to the valued landscape character

Terrestrial Risk Factor Composite Rating

A composite rating of low, moderate and high was assigned to each road segment based on combining values of the terrestrial risk factors. A cumulative score was given from a sum total of all risk factors. The lowest possible score within the terrestrial matrix is 5, the highest is 15, and the range of points is 11.

Table 16: Composite Rating for Terrestrial Risk Factor

Road Number	Cultural Resources	Road Density/ Wildlife Habitat	Scenic Resources	Botanical Resources	Noxious Weeds and Non-Native Invasive	Terrestrial Risk Composite
13SXX	1	1	1	1	1	5
22SXX	2	2	2	2	2	10
19SXY	3	3	3	3	3	15

ACCESS FACTORS (5 Factors)

1. Private/Non-recreation Public Access

Description of Indicators

The road system provides access to private landowners and non-Forest Service land managed by other agencies and tribes including Sequoia and Kings Canyon National Parks, Mountain Home State Forest, Public Domain Tracts (Dunlap Band of Western Mono Indians) and the Tule River Indian Reservation. In addition to private lands some roads provide access to facilities authorized by special use permit or other permits for activities including hydroelectric facilities, power lines, communications sites, cattle grazing, minerals exploration and removal, resorts, recreation residences, organization camps, special forest products, and public users for firewood cutting. When the road provides access to other landowners, the Forest Service is obligated to provide for reasonable access. Because of the need to provide and manage this access, this factor is heavily weighted.

6 = (Low importance) Road segment does not provide access to non-Forest Service managed land, a special use permit site (power line, communication site, etc.) or other non-recreation public access.

3 = (Moderate importance) Road segment serves as an alternate access to non-Forest Service managed land, a special use permit site (power line, communication site, municipal water facilities, etc.) or other non-recreation public access.

1 = (High importance) Road segment serves as the primary access to non-Forest Service managed land, a special use permit site (power line, communication site, or municipal water facilities, etc.) or other non-recreation public access.

2. Public Access (Recreation)

Description of Indicator

This factor is based on the extent of public recreation use by passenger cars, motor homes, pickups, etc. (such as for camping, hunting/fishing, ohv use, bicycling, etc.) for road segments. Road segments are rated on the type of human uses the segment serves such as access to dispersed or developed

recreation sites (campgrounds, trailheads, viewpoints, fee cabin rentals). A numeric value is assigned to each road segment based on the following criteria:

3 = (Low importance) Road segment is blocked to use by passenger cars or pickups, or only provides access for seldom used dispersed recreation, or there is no known dispersed recreation and is not a marked OHV route on the Monument OHV map.

2 = (Moderate importance) Road segment is open to vehicle use and is used for dispersed recreation, or road segment is a secondary route for OHV use and driving for pleasure.

1 = (High importance) Road segment serves as the primary access to a developed recreation facility or heavily-used, dispersed recreation site, or road segment is the primary destination for OHV (OSV, 4WD, etc.) use or driving for pleasure.

3. Administrative Site Access

Description of Indicator

This factor is based on the extent of Forest Service use for access to administrative sites such as Ranger Stations, rock sources, repeater sites, weather stations, water sources and roads that are classified as arterial. A numeric value is assigned to each road segment based on the following criteria:

3 = (Low importance) Road segment does not provide access to Forest Service administrative sites, rock sources, repeater sites, weather stations, water sources and is not classified as an arterial route.

2 = (Moderate importance) Road segment serves as an alternate access to Forest Service administrative sites, rock sources, repeater sites, weather stations, water sources and is not classified as an arterial route.

1 = (High importance) Road segment serves as the primary access to Forest Service administrative sites, rock sources, repeater sites, weather stations; or road segment is classified as an arterial route or accesses a water source (water tank at campground, work center, etc.).

4. Vegetation Management

Description of Indicator

This factor is based on the various access needs to efficiently and effectively manage vegetation. Vegetation management can be used in some areas to reduce fuel levels to reduce the risk of catastrophic fire, protect communities from fire, increase regeneration of giant sequoias and restore groves to desired stand conditions, restore ecosystems to a more natural fire regime of frequent but low intensity fires, and restore other vegetation types, such as plantations, to more natural conditions, or to limit the spread of introduced exotic insects or diseases.

Numerical scores are applied to road segments based on access needs to urban intermix defense zones or threat zones, Strategically Placed Land Area Treatments (SPLATs) or areas of high fire susceptibility, giant sequoia groves, and existing plantations.

3 = (Low importance) Road segment provides limited access to areas of high fire susceptibility, urban intermix defense zones or threat zones, giant sequoia groves or existing plantations.

2 = (Moderate importance) Road segment provides access to areas with moderate acreage of high fire susceptibility, urban intermix defense zones or threat zones, giant sequoia groves or existing plantations.

1 = (High importance) Road segment provides access to areas with high acreage of high fire susceptibility, urban intermix defense zones or threat zones, giant sequoia groves or existing plantations.

5. Fire Protection

Description of Indicator

Roads are a useful tool in protecting areas from fires. They provide access to areas for detecting fires, and deployment of suppression forces during initial attack and extended attack on wildfires. Roads can be used as fuelbreaks to limit fire spread under low and moderate conditions or for backfiring operations. Roads have often been used as the starting point accessing fuelbreaks and have value in isolating and breaking up the continuity of fuelbeds. Roads have different values for fire suppression due to the position on slope. Ridgetop roads tend to be most useful for firebreaks and defensible firelines. Midslope roads have the least value as firelines, but they often provide access to the defensible locations and are therefore still important. Well-maintained roads located in or in close proximity to communities are important for suppression resources to maneuver while protecting homes and maintaining firefighter safety. Public and commercial road access can lead to increased ignitions; this effect is highly variable from district to district.

Numerical scores are assigned to road segments based on position on slope and continuity of fuelbeds, on whether the road provides access to facilities or private property to be protected, and whether there is a high incidence of ignitions.

6 =(Low importance) Segment is midslope with little holding value for initial attack or extended attack, and does not provide access to roads with good holding value. The segment does little to isolate or break up the continuity of fuels in the area. The segment is not important for protection of facilities or private property.

3 = (Moderate importance) Segment is midslope or ridgetop with some holding value for initial attack and/or extended attack, and provides alternate access to roads with good holding value. The segment is useful in breaking up continuity of fuels. The segment may or may not be important for protection of facilities or private property.

1 = (High importance) Segment is ridgetop or close to ridgetop with good holding value for initial attack and/or extended attack, or provides extensive access to roads with good holding value. The segment is very useful in breaking up continuity of fuels. The segment is important for protection of facilities or private property. This segment is important for firefighter and public safety.

Access Composite Rating

A composite rating of low, moderate and high was assigned to each road segment based on combining values of the aquatic risk factors. A cumulative aquatic score was given from a sum total of all risk factors. The lowest possible score within the aquatic matrix is 5, the highest is 21, and the range of points is 17.

A high rating indicates high demand for the road and, conversely, a low indicates little demand.

Table 17: Composite Rating for Road Access Needs

Road Number	*Private use/ Public transport	Recreation Access	Admin. Site Access	Veg. Mgt. Access	*Fire Protection	Access Composite
13SXX	1	1	1	1	1	5
22SXX	3	2	2	2	3	12
15SYY	6	3	3	3	6	21

*Both Private use/Public transportation and Fire Protection are weighted heavier than the other access factors for specific reasons. The Forest Service is require to provide reasonable access to private property that is surrounded by National Forest System lands, for this reason the Private use portion was rated heavier. In addition, the need to protect forest ecosystems and private and public facilities from catastrophic fire is an important issue.

SOCIAL FACTORS (2 FACTORS)

1. Lifestyle, Attitudes, Beliefs & Values

Description of Indicator

This factor is based on the extent the road system may affect human lifestyles, attitudes, beliefs, and values. Lifestyles include employment, traditional uses, hobbies, and spiritual practices; attitudes, beliefs, and values include cultural values, significance of sequoias, other values of the road including access to special places, and the desire to maintain access to *their* public land. More specifically, this factor looks at the positive aspects of roads for the individual and the community. It analyzes the importance of a road for a variety of needs such as: access to areas for environmental and historical education and interpretation, psychological well-being, stress relief, solitude, desire to be in a natural setting, spend time with family, and access for the general public's other perceived needs and values of the forest. Access to Native American gathering and cultural sites are included here.

Lifestyle

3 = (Low importance) Road segment is not used for employment reasons, or traditional uses nor are there any known uses related to personal hobbies or spiritual values associated with the road.

2 = (Moderate Importance) Road segment is used occasionally for employment, means to earn a living, or traditional uses; or personal hobbies are pursued and/or spiritual values occur.

1 = (High Importance) Road segment is used for regular employment, traditional use, hobby or spiritual practice.

Attitudes, beliefs, and values

3 = (Low imp.) No desires expressed to retain road segment.

2 = (Moderate imp.) Moderate value given to road segment (Access for sake of maintaining access to National Forest). Access to a special place may be provided to a limited number of visitors.

1 = (High imp.) High demand expressed for road segment with consistent desire to access special place(s).

2. Economics by Road Maintenance Level

Description of Indicator

This factor is based on our ability to maintain the existing road system with the current budget. The arterial (ML 5) and collector roads (ML 4) are generally paved and these roads must be maintained to a high standard; however, paved roads are much more expensive to maintain than native surfaced roads. The collector roads (ML 3) are open to the public and must be maintained by law (Highway Public Safety Act) to a minimum safe standard. The forest annual road maintenance budget has been on a decline in recent years and the allocated maintenance funds are not sufficient to maintain the entire forest road system.

3 = (Low imp.) Road segment is closed or is accessible only by high clearance vehicle. ML is 1 or 2.

2 = (Moderate imp.) Road segment consists primarily of native surfacing and is listed as an operational ML 3 road. These road segments are open for public use and travel.

1 = (High imp.) Road segment is all paved; ML 4 or 5.

Social Composite Rating

A composite rating of low, moderate, or high importance was assigned to each road segment for social factors based on the following criteria:

Low = A numerical value of 7-9 for economic, lifestyle, attitudes, and beliefs values for the road segment.

Moderate = A numerical value of 5-6 for economic, lifestyle, attitudes, and beliefs values for the road segment.

High = A numerical value of 3-4 for economic, lifestyle, attitudes, and beliefs values for the road segment.

A high rating indicates low values for the road and, conversely, a low indicates high value.

Table 18: Composite Rating for Social Values

Road Number	Lifestyle	Attitude, Belief, Values	Economics	Social Composite
13SXX	1	1	1	3
22SXX	2	2	2	6
15SYY	3	3	3	9

Rating Summary

A composite rating of low, moderate or high was assigned to each road based on combining the values for the risk or benefit factors. A cumulative score was given from a sum total of all the risk or benefit factors.

The TAP risk composite adds the composite of the three aquatic factors to the composite for the five terrestrial risks for a total risk composite of 8 to 27. As a result, the overall Risk Composite is rated:

Low=8-13,
Moderate=14-20,
High=21-27

Similarly, on the benefits side the composite of the five access factors and the two Social factors were summed to give range of 7-28. The overall Benefit Composite is rated:

Low=21-28,
Moderate=14-20,
High=7-13

NOTE: The ratings for risk and benefit are flipped numerically and by color. **The bottom line for the person who just glances through is: large numbers (red color) are "high risk or low use" and low numbers (green color) are "low risk or high use".**

Appendix D-Analytical Reports

Evaluation Criteria Development Process

The evaluation criteria were developed using the *Roads Analysis: Informing Decisions about Managing the National Forest Transportation System* (FS-643), specifically Appendix 1: Ecological, Social and Economic Considerations, and validated using the TAP Guidebook. The following discussion describes the development process specific to each criteria including units of indicator and data sources.

The criterion for cultural resources was updated; and new criteria were developed for botanical resources, and noxious weeds and non-native invasive species (NNIS) using the TAP Guidebook.

Aquatic Risk Factors

The forest hydrologist was consulted at the beginning of the development process to determine what measures are standard, or necessary at a forest scale in terms of aquatic risks from roads. In addition, the forest wildlife biologist and zone fisheries biologist were consulted to determine measures of effects of roads to aquatic species and their habitat. Three criteria were developed to address the aquatic risks at the forest scale. Non-native fish are regularly planted in several streams by the State Department of Fish and Game. There is a concern in specific locations about introduction of non-native aquatic species, however this is an issue measurable only at the project level or landscape scale.

Geologic Hazard

The geologic hazard rating was developed to address the issues of surface erosion, mass wasting, and modification of the hydrology of the area due to the road location across the landscape.

Units of Indicator

The units are expressed as the percentage of road length from the travel route layer within areas identified as low, moderate, or high geologic hazard in the slope stability layer generated by Ecological Unit Inventory (EUI).

Data Sources

The geologic hazard map was created using the EUI slope stability layer that combines hazard units from the following Geographic Information System (GIS) map layers: 1) Slope Morphology, 2) Geomorphic Map Units (GMU), 3) Sequoia National Forest Soil Survey, and, 4) the USGS Geologic Map of the Sequoia National Forest. Units from the slope morphology layer combine steep slope gradients with converging topography (or hollows) and are used as an indicator of potential for shallow rapid landslides and debris flows. Units from the GMU layer include those landforms that have a mass wasting origin, or a high incidence of mass wasting. Units from the Soil Survey layer include mapped landslides, glacial lacustrine (lakebed) deposits, mountain headwalls, and inner gorge landforms. Units from the Geologic Map include relatively weak bedrock units with a tendency toward large-scale landsliding and/or fine sediment production or mapped landslides.

Stream Crossing Density

This rating was developed to address the issues of road-stream crossings influencing local stream channels, water quality and movement of aquatic species. It also gives an indication of the potential for pollutants to enter the stream system, effects to beneficial uses downstream, and overlap of the road system on high quality or unique aquatic species habitat.

Units of Indicator

The units for stream crossing density are expressed as the number of stream crossings per road mile for each road segment.

Data Sources

The stream layer and travel route layers are used to determine crossings.

Riparian Zone-Stream Proximity

This rating was developed to address the issues of hydrologic connections between the road and the streams, effects to wetlands, constraints to channel migration, shading and other effects to riparian plant communities, water quality in terms of sediment potential, and movement of aquatic species. It also gives an indication of the potential for pollutants to enter the stream system, effects to beneficial uses downstream, and overlap of the road system on high quality or unique aquatic species habitat.

Unit of Indicator

This indicator is based on the percentage of road segment within 300 or 150 feet of the stream, per the riparian conservation area guidelines in the SNFPA.

Data Sources

The data comes from the SNFPA guidelines used to buffer the perennial and intermittent stream layer, which is then overlaid with the travel routes.

Terrestrial Risk Factors

The forest and district archaeologists and forest wildlife biologists were consulted at the beginning of the development process to determine what measures are standard, or necessary at a forest scale in terms of risks to cultural resources, and wildlife species and wildlife habitat from roads.

Cultural Resources

This rating was developed to address the issues of damage to cultural resources, culturally significant locations, and sacred places from the road itself or by providing access sensitive areas that can be damaged by increased utilization, casual collection and vandalism. A distance of 200 feet between the road and known cultural resources was determined to be an appropriate measure based on the field knowledge and expert opinion of the zone, forest, and district archaeologists.

Unit of Indicator

This indicator is based on proximity of known cultural resource to roadways and the cultural resources sensitivity to impacts.

Data Sources

The data was interpreted by the zone, forest, and district archaeologists using the cultural resources geographic information system site layers overlaid with the travel routes, past site documentation, and their field knowledge of known sites.

Road Density Effects to Wildlife Habitat

This rating was developed by the forest wildlife biologists, based on Thomas et al (1979, figure 74). The rating addresses the issues of effects to wildlife species and the quality of their habitat due to roads.

The effect of roads on wildlife and their habitat is markedly influenced by road density and its use (i.e., maintenance level). Deer were selected as a sensitive indicator to assess road impacts and serve as a proxy for a variety of wildlife that may be influenced by roads. The calculation below was generated from figure 74 in Thomas et al (1979).

[(Arterials (Maintenance Level (ML) 4&5) x .08) + (Collectors (ML 3) x .17) + (Locals (ML 1&2) x .09)] x 100 = Percent Loss of Habitat Effectiveness

Some site-specific activities, including poaching are issues measurable only at the project level or landscape scale. The review of road effects to Protected Activity Centers and other site-specific wildlife habitat areas becomes diluted at the forest scale, and will need to be analyzed at the landscape or project level instead.

Units of Indicator

The rating is based on the formula above used at a 1-mile square grid.

Data Sources

The data comes from the formula above overlaid with the travel routes and a 1-mile square grid. The evaluation is described in more detail in the technical paper written by Cherie Klein (Pages 14-15 in this Appendix).

Botanical Resources

This rating was developed by the forest botanist to address the potential of roads affecting botanical resources.

Unit of Indicator

Botanical Resources Indicators used to identify roads or road segments that overlap botanical resources or contribute to a risk of adverse effect to botanical resources. Roads that pass through or are within 100 feet of known Federally-listed or Forest Service Sensitive species occurrences and mapped potential or suitable habitat or mapped critical habitat; known occurrence next to a native surface road for species known to be ecologically sensitive to fugitive dust; or roads that access known rare plant occurrences or native plant communities of concern that have been identified as desirable to illegal plant collectors.

Data Sources

The data comes from the Forest Service corporate NRIS database as the primary sources for existing population and habitat GIS data. In addition, data from the California natural diversity database (CNDDB) was evaluated for data not incorporated into NRIS.

This assessment was based on existing data and no new data was gathered. This challenges the accuracy and usefulness of this exercise. Problems could exist on roads where the assessment shows none and roads that show problems in the assessment could be fine.

Noxious Weeds and Non-native Invasive Species

This rating was developed by the forest botanist to address the potential of roads providing a vector for noxious weed and non-native species invasions.

Unit of Indicator

Botanical Resources Indicators used to identify roads or road segments that overlap noxious weed or invasive populations or contribute to their spread. Roads that pass through or are within 100 feet of known noxious weed or invasive populations occurrences. NNIS Indicators identify roads or road segments that overlap NNIS populations or contribute to their spread; or roads identified as risks in noxious weed or non-native, invasive species management plans or in sensitive species conservation or management plans.

Road segments are rated by the potential to serve as a vector to introduce or spread NNIS.

Data Sources

The data comes from the Forest Service corporate NRIS and FACTS databases as the primary sources for existing population and habitat GIS data. In addition, data from the California natural diversity database (CNDDB) was evaluated for data not incorporated into NRIS.

This assessment was based on existing data and no new data was gathered. This challenges the accuracy and usefulness of this exercise. Problems could exist on roads where the assessment shows none and roads that show problems in the assessment could be fine.

Scenic Resources

This rating was developed by the forest landscape architect to address the issue of visual scars on the land by the existence of roads across the landscape.

Unit of Indicator

This indicator is based on the appearance of the road prism across the landscape.

Data Sources

The data comes from the digital orthophotos overlaid with the travel routes at the 7.5-minute scale. The data was interpreted by the forest landscape architect.

Access Factors

These factors were developed to address the various access needs of private property owners, the visiting public, other agencies and organizations, and Forest Service personnel to manage the natural and cultural resources and facilities within the forest and Monument. The Monument prohibits new mineral exploration or claims, and is removed from the commercial timber base for the Sequoia National Forest. However fuels reduction and vegetation management activities are still necessary to restore Monument ecosystems.

Private/Non-recreation Public Access

This rating was developed by the Hume Lake and Tule River/Hot Springs District Recreation and Resource Officers, and the Special Use Administrators. It addresses the issues of access to non-recreation special use permits, special forest products, range management, private inholdings, hydroelectric power sources, impoundments and distribution canals, and culturally significant places or properties. The Dunlap Band of Mono Indians, specifically allotment holders, and Tule River Indian Tribe were contacted and consulted, as necessary, to ensure access to culturally significant areas was rated appropriately (Memo in project file).

Unit of Indicator
This indicator is based on known uses of a road.

Data Sources
The data comes from the Meaningful Measures database, Special Uses Permitted sites, private inholdings, firewood cutting areas and other non-recreation uses associated with specific travel routes, and review of 7.5-minute quadrangles. Some of the data was gathered in discussions with other agencies or organizations during the public involvement process (See Appendix F) and from the Hume Lake and Tule River/Hot Springs District Resource Officers and Special Uses Administrators.

Public Access (Recreation)
This rating was developed by the Hume Lake and Tule River/Hot Springs District Recreation and Resource Officers, and the Special Use Administrators. It addresses the issues of access to various destinations both for developed and dispersed recreation activities. It includes access to unroaded recreation destinations, road-related recreation, including off-highway vehicles and over snow vehicles, and annual special use recreation events.

Unit of Indicator
This indicator is based on known uses of a road.

Data Sources
The data comes from various sources associated with specific travel routes, review of 7.5-minute quadrangles and Forest Recreation Map. These sources include the Forest Trail Plan FEIS and project record, and the Meaningful Measures database (Concentrated Use areas used for dispersed recreation data). The data was interpreted and verified by the Hume Lake and Tule River/Hot Springs District Resource Officers, OHV Coordinators (especially, secondary route identification) and Special Uses Administrators.

Administrative Site Access
This rating was developed by the forest landscape architect in association with the Hume Lake and Tule River/Hot Springs District Recreation and Resource Officers. It addresses the issues of access to various administrative destinations including work centers, campground infrastructure (water tanks, etc.) and repeaters, and the type of road (arterial).

Unit of Indicator
This indicator is based on known uses of a road.

Data Sources
The data comes from the INFRA database associated with specific travel routes, and review of 7.5 minute quadrangles. Additional information comes from the Meaningful Measures database and local expertise of district personnel (facilities managers).

Vegetation Management
This rating was developed by the forest fuels planner, with assistance from the Hume Lake and Tule River/Hot Springs district fuels specialists, and the Hume Lake and Tule River/Hot Springs district silviculturists. It addresses the issues of access for vegetation management for regenerating wildlife

habitat, ecosystem health, vectors for noxious weeds and fuels reduction and management in terms of strategic access points and fuel types.

Description of Vegetation Indicator

Management treatments can be used to determine the size and species of vegetation, tree density, crown size, and plant vigor. Treatments begun when trees are young are frequently used to accelerate the development of late successional habitat by producing large diameter trees earlier in the life of the stand and providing space for the development of multi-story canopies. Stands can be thinned to achieve a structure and fuel loading that allows wildfires to burn in more natural patterns and intensities. Road access is often necessary to maintain healthy stand conditions by removing trees injured by biotic or atmospheric factors, or to control the spread of noxious weeds, insects or diseases. This is often done along roads and trails to allow safe public travel.

Numerical scores are assigned to road segments based on the degree to which they access plantations or wild stands in need of silvicultural treatment to restore desired conditions or to create a more natural fire regime.

Description of Fuels Management Indicator

How does the road system affect fuels management?

It has been recognized that within the last century the amounts of available fuel have significantly increased over historic amounts. The situation now is that fuels occupy more contiguous tracts of land that support larger and more intense fires. This increase of fuels is reflected in the shift of conditions class and change in fire regime for various vegetation types. Wildland fire policy directs that fuels management be substantially increased on National Forest System lands to restore ecosystems and to reduce deleterious fire effects and suppression costs.

Priority roads for conducting management activities are roads that take crews and other resources such as engines, watertenders and overhead to project areas. National Fire Plan Key Point 3 – Hazardous Fuels Reduction directs activities to focus on wildland urban interface areas to reduce risk to people and property. Project areas for fuels management activities have also been outlined in the SNFPA as areas that have been identified as wildland urban intermix. The defense and threat zones have been delineated on maps so that there is little question where the intermix is located. There is also a need for projects away from the urban intermix to restore fire to the ecosystem. And management of fuels down slope and within giant sequoia groves is a high priority within GSNM.

The expected workload in fuels management is quite extensive in the Monument, particularly in the mixed conifer ecosystem. The acres that have missed more than five fire cycles cover approximately 75% of the forest. Therefore, there is a need to treat as much acreage as possible using all available access routes. There will be some roads that provide duplicate access to some areas, or do not provide enough access, in such cases as these, roads may be found unnecessary. Roads not only provide access for fire personnel, and are useful as fire lines for prescribed burning. Primarily most roads will be considered important for the treatment of fuels.

Numerical scores are assigned to road segments based on whether they access a project or projected treatment area. Land Allocations such as threat zones, defense zones and SPLATs are areas of priorities.

Vegetation Rating

Road access is a prerequisite for both stand maintenance and establishment activities, and fuels management treatments. The ratings shown below assign a relative rating for the value of a road segment for silvicultural and fuels management purposes. Ratings are based on stand age as an indicator of treatment feasibility, and current need for reforestation or fuels reduction treatments.

3 = Low importance = Road segment accesses plantations or wild stands in desired condition and free-to-grow; or segment does not intersect an area planned to have fuel treatment done in next 20 years.

2 = Moderate importance = Road segment accesses stands ≥20 years old; or segment intersects area that has moderate level of acreage planned to be treated within the next 20 years.

1 = High importance = Road segment accesses stands less than 20 years old in need of density or structural changes, or stands with unacceptable insect or weed conditions; or segment intersects an area that has a high level of acreage planned for fuel treatment within the next 20 years.

Unit of Indicator

This indicator is based on: fire susceptibility in terms of fire history, slopes, urban intermix, and fuels in and below sequoia groves; access to giant sequoia groves; level of damage from noxious plants and insects; and plantation age as an indicator of treatment feasibility.

Data Sources

The data come from the INFRA database associated with specific travel routes, the vegetation layer, annual tree mortality surveys, and from the urban defense and threat zones and SPLATs (includes fire susceptibility factors) overlaid with the travel routes; and FACTS activity polygon GIS data.

Fire Protection

This rating was developed by the forest fuels planner with assistance from the Hume Lake and Tule River/Hot Springs Fuels Specialists. It addresses the issues of access for protecting people and public, administrative and private facilities from wildfires.

How does the road system affect the capacity of the Forest Service and cooperators to suppress wildfires?

Roads are useful tools for suppression resources during initial attack and extended attack on wildfires. Roads can limit fire spread under low and moderate conditions and can be used for burn out operations for indirect line construction. Roads have often been used as foundations for fuelbreaks and have value in isolating and breaking up the continuity of fuelbeds. Roads have different values for fire suppression due to the position on slope. Ridgetop roads tend to be most useful for firebreaks and defensible firelines while midslope roads have least value.

Public and commercial road access are known to lead to increased ignitions, this effect is highly variable from district to district. If there are known corridors that trend to high fire incidence the value of closing the road may be considered.

How does the road system affect risk to firefighters and to public safety?

Roads affect firefighter safety when they are obliged to use them. Roads that lead to and through communities are used by firefighters so that they can protect the communities. Roads that are narrow

and not well maintained may slow resources or entrap resources in unexpected conditions. In general, roads are usually the safest place to be in a wildfire situation, however, the usefulness of the roads as safety zones depends on the amount of vegetation adjacent to the roadway. The quantity of road system is not more important to firefighter and public safety as much as how well they are maintained.

Unit of Indicator

This indicator is based on fire susceptibility in terms of fire history, slopes, and urban intermix.

Data Sources

The data comes from the 7.5-minute quadrangle topography, and the pre-attack map (includes SPLATs and fuelbreaks) overlaid with the travel routes. The local suppression knowledge of district personnel is very important in this evaluation.

Social Factors

These factors were developed to address the socioeconomic issues surrounding the road system including the cost of maintaining the road system, and the lifestyles, attitudes, beliefs and values associated with the roaded and unroaded features of the area. Within both the forest and the Monument there are no plans to develop roads in any of the designated unroaded areas. The issue of site-specific creating new roads or decommissioning roads needs to be analyzed at the landscape and project scale.

Examples of social issues include:

1. What are the perceived needs and values for roads? How does road management affect one's dependence on, need for, and desire for roads?

2. What are the perceived needs and values for access? How does road management affect one's dependence on, need for, and desire for access?

3. How does the road system affect cultural and traditional uses?

4. How is community, social, and economic health affected by road management (for example, lifestyles, businesses such as tourism industry, infrastructure maintenance)?

5. What is the perceived social and economic dependency of a community on an unroaded area versus the value of that unroaded area for its intrinsic existence and symbolic values?

6. How does road management affect wilderness attributes, including natural integrity, opportunities for solitude, and opportunities for primitive recreation?

Lifestyles, Attitudes, Beliefs and Values

These ratings were developed by the forest landscape architect and the actual rating was done by over 450 individuals during the public involvement process. These ratings address the public's values, needs and desires for roads, access, traditional and cultural uses, access for economic and lifestyle reasons, perceived changes in access needs due to the GSNM, and civil rights in terms of access for the elderly, cultural reasons, disabled and low-income groups.

Unit of Indicator

This indicator is based on identified traditional uses, hobbies or spiritual values associated with specific roads.

Data Sources

The data comes from public involvement with focus groups associating the travel routes with specific traditional uses, hobbies or spiritual values.

Economics by Road Maintenance Level

This rating was developed by the forest transportation engineer. It was developed to address the costs and benefits of the road system as it exists and sets the baseline for further evaluation at the landscape and project level in the event road construction or decommissioning is proposed.

Unit of Indicator

This indicator is based on the cost of maintaining the various roads, with more importance given to maintaining the arterial and collector roads because of direction found in the Highway Public Safety Act.

Data Sources

The data comes from the INFRA database linked to the travel routes.

Sequoia National Forest/Giant Sequoia National Monument Roads Analysis Project GIS Input

C. Klein November 2013

Sequoia National Forest Service
Travel Analysis Process 2013
Procedure for Joining RAP Summary Table to Current Roads
Cherie Klein – GIS Specialist – February 2013

Original RAP table (located in the project folder on the O drive)
"Forestwide_Road_Summary". Copied from disk by Marianne Emmendorfer

Saved As
"Forestwide_Road_Summary_RAP2003" (located in project folder on the T drive)
T:\FS\NFS\Sequoia\Project\SO\TravelAnalysisProcess2012\GIS\Table

	A	B	C	D	E	F	G	H	I	J
1	Sequoia National Forest									
2	Forest Area Roads									
3	Roads Analysis									
4		**Resource Risk Factors**								
5	RTE_NO	Geologic Hazard	Stream Crossing Density	Riparian Zone Proximity	**Aquatic Risk Composite**	Heritage	Road Density/ Wildlife	Scenic Resources	**Terrestrial Composite**	**Risk Factor Composite**
6	RTE_NO	GEO_HAZ	STRMX_DEI	STRM_PROX		HERITAG	RD_DENS_V	SCE_RES		
7	11S12	1	2	3	6	3	1	2	6	12
8	12S01	6	1	3	10	3	1	2	6	16
9	12S01A	6	1	3	10	3	1	1	5	15

Row 5 – Composite headings from row 5 were transcribed to row 6 so they would be retained.
Rows 1-5 were then deleted, leaving only 1 row of headings which was necessary so the table could be joined to the current road layer using column A (RTE_NO).

	A	B	C	D	E	F	G	H	I	J
1	RTE_NO	GEO_HAZ	STRMX_DENS	STRM_PROX	AquaRiskComp	HERITAGE	TAP_HERITAGE	SENS_PLANTS	NOX_WEEDS	RD_DENS_WL
2	11S12	1	2	3	6	3				1
3	11S12Z									
4	12S01	3	1	1	5	3				3
5	12S01A	6	1	3	10	3				1
6	12S01B	6	1	1	8	3				1
7	12S01C									
8	12S01D	3	1	1	5	3				1

There were 13 roads in this table that each had two entries. These were roads that appear on both the RAP Monument Roads table and the RAP Non Monument roads table (being partially in the monument and partially in the forest). At the forest level, roads are analyzed for the entire route segment so it was necessary to eliminate any duplicate entries. Due to the many updates to roads in GIS using GPS and 1 meter NAIP imagery(National Agriculture Imagery Program), it was determined that using the roads data for the entry with the miles closest to the current best known mileage in IWeb would be best.

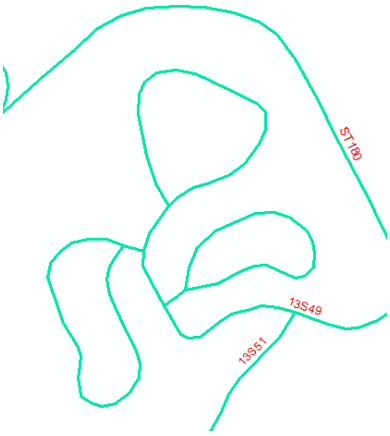
To aid in completing the Travel Analysis Subpart A, additional columns were added to the table
TAP_GIS_MILES was added to help identify those roads that had been updated spatially since the RAP. This field will be populated after the join to the current roads data.
TAP_Heritage was added so that the original Heritage ratings would be preserved while allowing the current Heritage ratings to be added.
SENS_PLANTS was added to be populated by the botanist for risk to sensitive plants.
NOX_WEEDS was added to be populated with the rating by the botanist for risk of spreading noxious weeds.

An initial test join was performed to make a comparison between the current roads layer and the RAP roads summary table. Cross checks were made for roads in the current GIS layer but not on the RAP table and roads on the RAP table that are not in the current GIS layer. Each difference was investigated and documented.
See document "RAP_to_TAP_RoadReviewFeb2013" (located in the project folder on the T drive)
T:\FS\NFS\Sequoia\Project\SO\TravelAnalysisProcess2012\GIS\Table

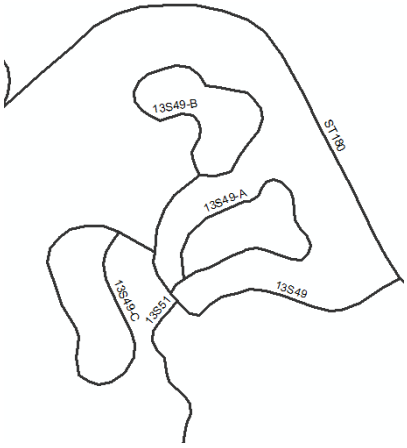
Differences were due to circumstances such as; road decommissioning or conversion to other use since the RAP, incorrect road number on the route, roads that had been determined to not exist on the ground (had been planned only), roads that had been added after recent travel analysis, some multipart roads such as those in campgrounds were desegmented and rerouted so each spur had its own unique road number.

For multipart roads that were analyzed as one road under RAP and were split into individual routes, the RAP data was transcribed from the main road onto the newly assigned spurs.

Princess Campground RAP



Princess Campground TAP



Original RAP Table

4		Resource Ris				
5	RTE_NO	Geologic Hazard	Stream Crossing Density	Riparian Zone Proximity	**Aquatic Risk Composite**	Heritage
749	13S48	3	1	1	5	3
750	13S49	3	1	3	7	3
751	13S50	3	1	1	5	3

New TAP Table

	A	B	C	D	E	F
1	RTE_NO	GEO_HAZ	STRMX_DENS	STRM_PROX	AquaRiskComp	HERITAGE
156	13S48	3	1	1	5	3
157	13S49	3	1	3	7	3
158	13S49-A	3	1	3	7	3
159	13S49-B	3	1	3	7	3
160	13S49-C	3	1	3	7	3
161	13S50	3	1	1	5	3

The completed Forest_Road_Summary_RAP2003 spreadsheet was imported into MS Access, and then exported to a dbase file that was capable of being joined to the roads layer in GIS.
(RAP2TAP.dbf - located in the project folder on the T drive)
T:\FS\NFS\Sequoia\Project\SO\TravelAnalysisProcess2012\GIS\Table

This RAP2TAP.dbf table was joined to the current roads data. The joined roads were then exported into a project geodatabase to provide a stable "snapshot" of the roads data for Travel Analysis Subpart A. This project geodatabase is called "**SQF_TravelAnalysisSubpartA.mdb**" and is located in the project folder on the T drive.
T:\FS\NFS\Sequoia\Project\SO\TravelAnalysisProcess2012\GIS\Data

Every effort was made to correct inaccuracies between past and current roads data; however it is very likely that some errors still exist due to the forest level scale of this analysis. More in depth and detailed roads analysis are done at the project level.

The initial coverages from RAP represent the individual 5th field HUC watersheds that are influenced by the Giant Sequoia National Monument.

Converse_mill	Mf_tule	Sf_tule
Deer_creek	Mill	Sqf_trans1113
Durwood_brush	Nf_kaweah	Watershed_bdy
Kings_river	Poso_creek	White_river
Little_kern	Salmon_bull	
Lower_kaweah	Sf_kaweah	

The coverage watershed_bdy is the outermost boundary of the 5th field HUCs that are influenced by the Giant Sequoia National Monument.

Sqf_trans1113 was the first version of the roads coverage that had been routed into travel routes by Tom Potter of the Regional Office. This version was not completely routed, but was determined to be completed enough to start using for the roads analysis. The determination to use this version was made due to the time constraints involved in completing the Monument portion of the Roads Analysis.

By the time the second version sqf_trans1120 became available, there had already been substantial GIS analysis done such that starting over was not feasible due to the time constraints. Additional routed roads added to subsequent versions would be reviewed individually under each analysis factor and added to the final factor analysis table.

Of the 14 analysis factors, sufficient coverages existed to perform GIS analysis on 5. Those factors are: Geologic Hazard, Stream Crossing Density, Riparian Zone Proximity, Vegetation Management Access and Road Density/Wildlife Habitat.

The following forest wide coverages were used:

Data	Forest Coverage	Location
Roads	Sqf_trans1113	/fsfiles/fstmp/rap
Monument Boundary	Sqfmonu00_2	/fsfiles/ref/library/gis/sequoia/forest
Watersheds	Sqf5huc01_3	/fsfiles/ref/library/gis/sequoia/soils_water
Ecological Unit Inventory	Sequoia_eui	/fsfiles/ref/library/gis/sequoia/forest
Streams	Sqfstrm98_2	/fsfiles/ref/library/gis/sequoia/forest
Managed Stands	Sqfstnd98_4	/fsfiles/ref/library/gis/sequoia/forest/managed_stands/srs
Urban Intermix	Sqfimix01_1	/fsfiles/ref/library/gis/sequoia/fire
Existing Vegetation	Sqfeveg97_7	/fsfiles/ref/library/gis/sequoia/forest
Current Timber Sales	Sqfsale_utm11	/fsfiles/fstmp/gistmp
SPLAT	Sqfsplat01_2	/fsfiles/ref/library/gis/sequoia/fire

The following coverages were created during the analysis:

Data	Coverage	Location
Monument Roads	Sqf_montrans	/fsfiles/fstmp/rap
Monument Streams	Monu_strms	/fsfiles/fstmp/rap
Stream Buffers	Monu_strm_buff	/fsfiles/fstmp/rap
Plantations	Pla_nopct	/fsfiles/fstmp/rap
Road Density Grid	Mon_rd_density	/fsfiles/fstmp/rap

Sqf_montrans was created by first clipping the entire roads coverage to the forest boundary, then to the coverage watershed_bdy. The following fields were added to this table to populate with the ratings in the analysis: geo_haz, strm_dens, strm_prox, veg_mgt and rd_dens_wl

Monu_strms was created by clipping the entire streams coverage to the Monument boundary.

Monu_strm_buff was created by querying the monu_strms coverage for perennial streams and buffering 300 feet. Then querying the monu_strms coverage for intermittent (seasonal) streams and buffering 150 feet. These two interim buffered coverages were then merged to create the final buffered stream coverage.

Pla_nopct represents the plantations that are less than 20 years old and have not had a precommercial thinning. The srs/gis master arcview project created by digital visions enterprise was used. This project automatically connects to Oracle and pulls in the local forest SRS database (psw_activity). It displays the physical stand numbers, activities, stocking and survival tables by default. The managed stand layer is then brought into the project and linked and cross-linked to the physical stand numbers. All other attribute data is then automatically linked. A query was then performed for all stands that were less than 20 years old using the year of origin field. From those results, another query was performed to pull out all stands that had no precommercial thinning activity. Activity codes 4511.2 (release for growth & precommercial thinning combined), 4521 (individual or selected tree precommercial thinning) and 4522

(strip precommercial thinning) were used. The resulting dataset was converted to a shapefile (pla_nopct) and filed under /fsfiles/fstmp/rap.

Aquatic Risk Factors

Geologic Hazard Indicator

Coverages Used: sqfmonu00_2, sqf_montrans, and sequoia_eui

EUI Slope Stability Field	Rating
Unknown	1
Low hazard	1
Moderate hazard	3
High hazard	6
Very high hazard	6

Sequoia_eui was queried on the slope stability field.

All roads completely within high or very high were rated as 6, all roads completely within moderate were rated as 3 and all roads completely within low or unknown were rated as 1.

All roads with their center in high or very high were looked at. Those meeting the criteria were rated as 6.

All roads with their center in moderate were looked at. Those meeting the criteria were rated as 3, some were rated as 6 if more than 30% of the road was in high or very high.

All roads with their center in low or unknown were looked at. Those meeting the criteria were rated as 1, some were rated as 3 if more than 10% of the road was in moderate.

For the few roads left, each was looked at closely and placed in the appropriate category.

Stream Crossing Density Indicator

Coverages used: watershed_bdy, sqfmonu00_2, sqf_montrans, monu_strms (perennial and intermittent)

Stream Crossings per road mile	Risk Rating
0-2	1 (low)
3-4	2 (moderate)
4+	3 (high)

Roads were intersected with monu_strms. Those roads not intersecting any streams automatically received a 1.

Roads exceeding a half-mile with only 1 stream crossing received a 1.

Roads exceeding a mile with only 2 stream crossings received a 1.

This covered many of the roads within the Monument. The remaining roads were looked at and compared their lengths to the number of stream crossings. Each was given the appropriate risk rating for the calculation.

Roads less than a mile in length with a stream crossing or crossings were looked at closely. Many of these shorter roads received a high rating even if they had only 1 crossing because of the calculation of stream crossing per road mile.

Riparian Zone – Stream Proximity Indicator

Coverages used: monu_strm_buff, watershed_bdy, sqf_montrans

Segment within Riparian Zone	Risk Rating
0-5%	1 (low)
6-10%	2 (moderate)
10+	3 (high)

Roads were intersected with monu_strm_buff. Those roads not intersecting any stream buffers automatically received a 1. Roads with an obvious insignificant piece within a stream buffer received a 1.

Roads with the majority or all of their length within a stream buffer received a 3. Roads with half of their length obviously in a stream buffer received a 3.

The remainder of the roads were looked at closely and a measurement taken of that portion of the road within the buffer. This was calculated as a percentage of the whole and the roads were assigned a risk rating according to the table above.

Access Factors

Vegetation Management Indicator

Coverages used: sqfmonu00_2, dryesh_ts, pla_nopct, sqf_montrans, sqfsale_utm11, sqfstnd98_4, sqfimix01_1, sqfeveg97_7, sqfsplat01_2 and watershed_bdy

Management Type	Indicator	Access Rating
Silviculture	Stand < 20 yrs & free to grow	3 (low)
Fuels	In SPLAT or not in Urban Core, Defense or Threat Zone	3 (low)
Silviculture	Wild stand 20-69 yrs old or mod acres treatment planned 20 yrs	2 (moderate)
Fuels	Threat Zone	2 (moderate)
Silviculture	Stand < 20 yrs and needing treatment	1 (high)
Fuels	Urban Core or Defense Zone	1 (high)

A proxy of stands less than 20 years old having no precommercial thinning activity was used to identify stands needing silvicultural treatment within 20 years and thus meeting the high access rating.

Fuels ratings were applied first as the Urban Intermix GIS coverage is fairly extensive and fuels treatments are receiving higher priority as they relate to defense of urban interface.

Roads in an Urban Core, or Defense Zones were assigned a 1.

Roads in a Threat zone and not already assigned a 1 were rated as a 2.

Roads not in a Threat or Defense or Urban Core were rated as a 3.

Silvicultural treatment needs were used next beginning with the pla_nopct coverage. Roads accessing these plantations (even though previously rated low or moderate for fuels) were rated as 1. The existing vegetation coverage was queried for those stands age 20-69 years old in the mixed conifer or conifer cover types. The size class field was used as a proxy for age, those in size class 2 and 3 represent trees primarily 20-69 yrs of age. Displayed on top of this was the managed stand layer to help eliminate areas that appeared to be wild stands from the previous query but were actually older plantations. Roads accessing the queried wild stands were rated as a 2.

By default all other roads were rated a 3.

Since the managed stand coverage is not completely up to date, the coverage sqfsale_utm11 was used to reflect additional managed stands not on this coverage from recent and planned timber sale units.

For those roads rated a 3 (low), the district silviculturists took a closer look to determine if there was local knowledge that a road was accessing an area with current needs or plans within the next 20 years. These roads were rated according to their determination of access importance and the values were updated when necessary.

Additionally, some roads rated as 2 (moderate) in the GIS analysis were downgraded to a 3 (low) after review by the silviculturist. These modifications were only made to roads not previously rated moderate by the fuels rating.

Terrestrial Risk Factor

Road Density Effects to Wildlife Habitat

Coverages used: sqf_montrans, mon_rd_density, sqfmonu00_2, sqf5huc01_3

% Decline in Habitat Effectiveness	Risk Rating
0 – <20%	1 (low)
20 – 39%	2 (mod)
> 40%	3 (high)

A one-mile grid was displayed over the analysis area. A shapefile (mon_rd_density) was created using the displayed grid as a template. The following formula (provided by the Forest Wildlife Biologist) was applied within each 1-mile “pixel” using miles of road by operational maintenance level.

(miles of ML 4 & 5 * .08) + (miles of ML 3 * .17) + (miles of ML 1 & 2 * .09) * 100 = % decline in habitat effectiveness.

Once the formula was applied, each "pixel" in the mon_rd_density grid was assigned a risk rating using the table above.

There does exist a means of automatically calculating road density using Arc GRID or ERDAS Imagine software, but the expertise in these programs or applying that type of analysis does not exist on this forest. Also, the Wildlife Biologist did not want to just look at total road density, but wanted to weight the roads based on knowledge of the effects of different road types on wildlife.

The task of "clipping" out each individual 1 mile pixel of road and calculating road mileage by maintenance level would have been incredibly time consuming and may not have been completed in the allotted time frame. It was decided to plot out the analysis area at 1 inch to the mile scale with the grid, Monument boundary, roads by maintenance level and watershed boundaries displayed. Using this plotted map, the above formula was applied visually to each 1-mile pixel and the square was colored with a highlighter to reflect the risk rating. Pink for high, orange for moderate, and yellow for low.

Occasional spot-checking was done on individual pixels by measuring the roads by maintenance levels on screen in arcview and applying the formula to cross check for accuracy.

The rating information on the paper map was transferred to the mon_rd_density shapefile. All pixels with a high or moderate rating were attributed individually and by default all others were attributed as low. This resulting density grid coverage was then intersected with the roads coverage.

All roads intersecting the high pixels were assigned a 3, all roads intersecting the moderate pixels that had not yet been attributed as a 3 were assigned a 2 and the remainder were assigned a 1.

To help facilitate the process of visually applying the formula, a table was developed to show the road maintenance levels with miles of road multiplied by the weighting factor that would categorize a pixel as low, moderate or high if all the roads in the pixel were of that same maintenance level. This is the table that was developed.

Level 4 & 5 roads * (.08)		**Level 3 roads * (.17)**		**Level 1 & 2 roads * (.09)**	
Rating	Miles of road	Rating	Miles of road	Rating	Miles of road
L	< 2.4 miles	L	< 1.2 miles	L	< 2.2 miles
M	2.5 – 4.9 miles	M	1.2 – 2.3 miles	M	2.3 – 4.4 miles
H	> 5 miles	H	> 2.4 miles	H	> 4.5 miles

This process was somewhat time consuming but went well. After displaying the density grid by high, moderate and low pixels and the roads with their assigned risk ratings of high, moderate and low, the correlation between the two was very evident.