San Bernardino National Forest
Travel Analysis Report

September 30, 2015

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Executive Summary

The San Bernardino National Forest completed the Roads Analysis Process (RAP) from 2001 through 2004 as part of the Land Management Plan Revision for the four Southern California Forests which include the Angeles, Cleveland, Los Padres and San Bernardino National Forests. Within this effort, the Roads Analysis Process was conducted to analyze all maintenance level 1 through 5 roads on each of the forests. The process was a six-step process and the documents are available for review with references for their location documented in this report, see Appendix G. The process involved a large interdisciplinary team of specialists from all fields and from all four forests as well as representation from four Regional Office road engineers. The science-based process was used to assess benefits, problems and risks of the current road system. The process included four rounds of public meetings with over 10,000 comments received pertaining specifically to access.

The roads analysis was incorporated into the Land Management Plan (LMP) Revision final 2006 Record of Decision (ROD). That effort defined the minimum road system needed for safe and efficient travel and for administration, utilization, and protection of National Forest System lands. This effort constituted Subpart A. The Regional Office reviewed the Roads Analysis Process for the four Southern California Forests and agreed that the process met the requirements of the Travel Analysis Process. The four Southern California National Forests conducted Travel Management (Subpart B) during the period from 2006 to 2008. Roads and motorized trails were analyzed with the objective of designating those open for motorized public use. The end result of this process was the development of the Motorized Vehicle Use Map (MVUM).

In 2011, the four Southern California Forests convened an Inventoried Roadless Area (IRA) Road and Trail Analysis Collaborative Group to develop criteria for decommissioning roads and trails in IRA's. Both the 2005 RAP and 2011 Southern California Collaborative Study (2011 Collaborative) of roads and trails in and near Inventoried Roadless Areas (IRA's) were GIS based studies. From 2011 through 2013 the San Bernardino NF has conducted NEPA processes on planned Fuels and Watershed projects and has implemented decommissioning of roads identified as no longer needed under the Subpart A process. In 2014, the Land Management Plan (LMP) was amended to change the zoning for approximately 10,000 acres across five Inventoried Roadless Areas (IRAs) from their existing land use zones. This amendment made no changes to the status of any existing road or trail and no change in public motorized access.

This Travel Analysis Update Report describes that previous work and the progress made on the San Bernardino NF to implement the recommendations and decisions made to date. The recommendations from RAP, Subpart A and the IRA Collaborative group were reviewed. The report also incorporates decisions made during the LMP Revision, Travel Management and subsequent project-level NEPA decisions. The national direction on completing Subpart A has evolved since the forest completed the Roads Analysis Process and Subpart A. Each forest is now required to produce a map displaying roads that are likely needed and roads likely not needed for future use. To meet this current requirement, the forest has reviewed the previous work and considered changes that have occurred in the available road

maintenance funding. The determination of the current list of roads as likely needed or not likely needed is not a decision and only a recommendation at this time. Further site specific NEPA would be needed to change a road from its current maintenance level to a decommissioned status or to an alternate use such as a trail. The forest has developed the current list of opportunities for change with input from multiple disciplines and will pursue opportunities to implement the recommendations as they arise.

An interdisciplinary team on the San Bernardino NF reviewed the importance of all 634 roads currently in the Forest Transportation Atlas, totaling 1,118 miles. Of these reviewed, 443 roads and 927 miles were considered Likely Needed for Future Use (LN), and 191 roads were considered Likely Not Needed for Future Use (LNN) for 191 miles. Factors of current state of the roads and current budget situation, changed use since 2005 and future use were considered. The summary of these efforts is located in Table 1 below. A map of these roads is shown in Figure 1 below.

This team identified 161 roads totaling 135 miles not previously identified under previous transportation analyses that they considered Likely Not Needed for Future Use. Most of the roads identified were low priority, had very little access need, or were redundant to other NFS roads within the same area. Within the last 13 years since these roads were first looked at, and with decreasing budgets, many of these roads have deteriorated due to lack of maintenance and lack of use. Before any road is removed completely from the system, public involvement through the NEPA process would occur.

Table 1 SBNF TAP Update Summary of 634 Roads, 1118 Miles Reviewed for Importance

Review Category		**Likely Needed**		**Likely Not Needed**		**Total**	
		Number of Roads	Miles	Number of Roads	Miles	Number of Roads	Miles
2005 RAP	HRLI	7	21	5	3	12	24
	HPM	11	123	3	20	14	143
	LPM	19	108	5	9	24	117
	Total	**37**	**252**	**13**	**32**	**50**	**284**
2011 Collaborative	LH	4	10	7	13	11	23
	LL	4	8	3	4	7	12
	HH	1	1	2	2	3	3
	HL	10	24	5	5	15	29
	Total	**19**	**43**	**17**	**24**	**36**	**67**
All Other ML1-ML5 Reviewed	**Total**	**387**	**632**	**161**	**135**	**548**	**766**
Total Current NFSR		**443**	**927**	**191**	**191**	**634**	**1118***

*mileages are based on GIS segment lengths and will vary from Infra mileage numbers

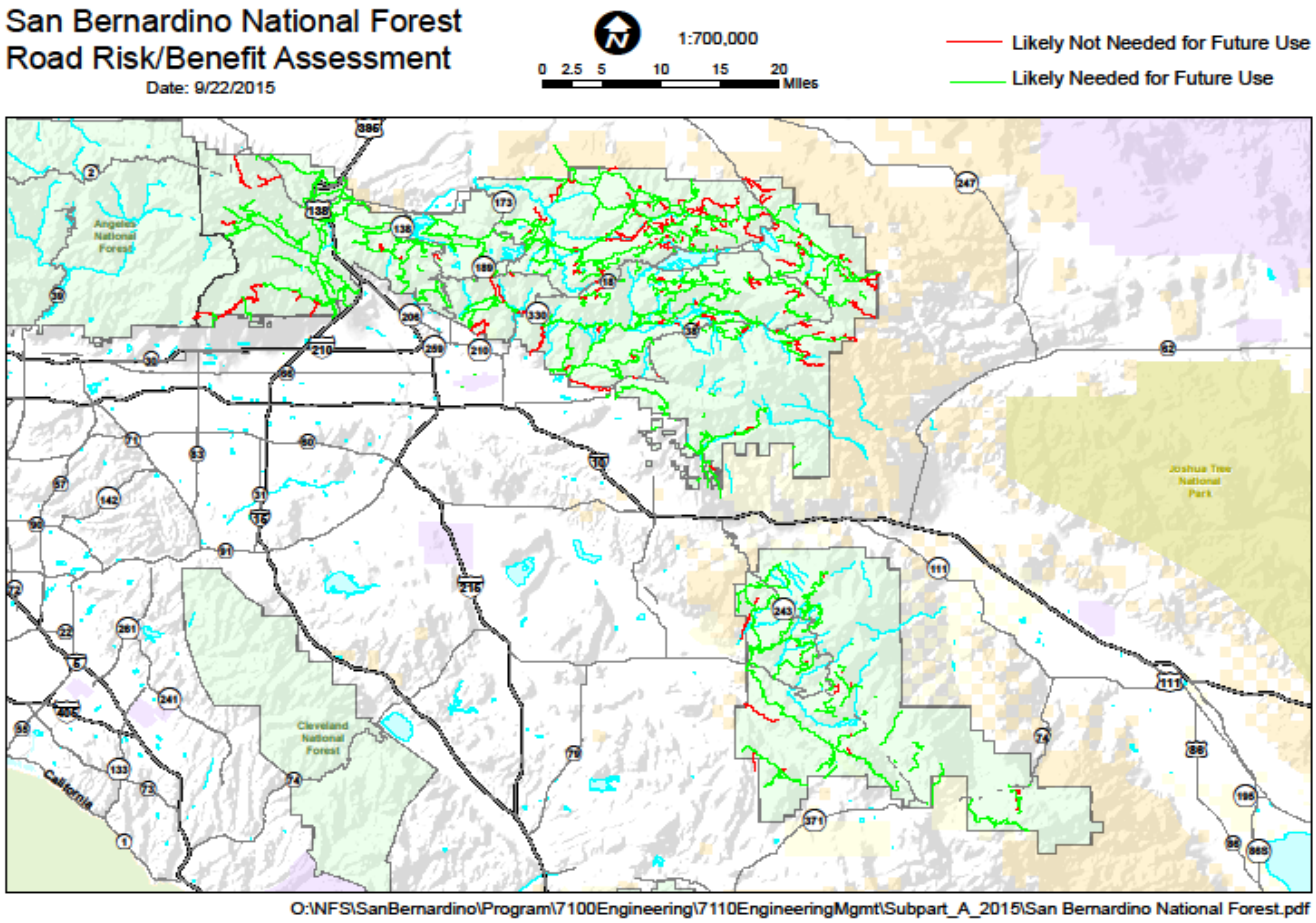
HRLI High Resource Risk Low Importance; **HPM** High Priority for Mitigation**; LPM** Low Priority for Mitigation

LH Low Importance High Resource Risk; **LL** Low Importance Low Risk

HH High Importance High Resource Risk; **HL** High Importance Low Resource Risk

ML Maintenance Level, 1 Closed, 2 High Clearance Vehicles, 3, 4, 5 Passenger Cars (4 and 5 paved)

FIGURE 1 LIKELY NEEDED LIKELY NOT NEEDED FOREST ROAD MAP



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.

This TAR documents the changes to the SBNF NFSR from 2005 to 2015 and validates the measures of public and administrative importance to the HRLI list from the 2005 RAP and the LH and LL lists from the 2011 SoCal Collaborative Study and other roads identified during the review process. Some HRLI, LH and LL roads may now be more important than in 2005 and 2011, the converse may also be true.

Purpose of 2015 SBNF Travel Analysis (TAP)

This San Bernardino National Forest (SBNF) Travel Analysis Report (TAR) focuses on what is different today with importance of the Maintenance Level (ML) 1-5 roads since the Road Analysis Process (RAP) of 2005 was completed as part of the Land Management Plan (LMP) Revision process, which concluded in 2006 with the issuance of the final Record of Decision (ROD). Over 10,000 road-related comments were received from the public during this process. The natural resource concerns and risks are similar by specific location today to those identified in the RAP and subsequent studies since 2005.

Two major forest wide Travel Analyses occurred in the decade: 2005 RAP and 2011 Southern California Collaborative Study (2011 Collaborative) of roads and trails in and near Inventoried Roadless Areas (IRA's). Both were Geographic Information System (GIS) based analyses weighing the risk to natural resources with the benefits for access to the National Forest. The results of these analyses are not decisions, rather the results are used to inform decisions during the NEPA process. The public involvement included representatives from a spectrum of diverse groups meeting and working towards consensus.

San Bernardino National Forest Transportation System

Background

Most of the roads were constructed by the Civilian Conservation Corps in the 1930's for fire and watershed protection. These roads are narrow, steep, native-surfaced travel ways with few, if any, turnouts and minimal drainage features. These roads are designated as Level 2 maintenance and make up the bulk of the road system. The amount of use these roads currently receive was not anticipated in the 1930's, nor was the size of today's fire engines. As a result of road maintenance budgets not keeping up with inflation and road deterioration, the condition of many roads on the Forests have fallen below the levels necessary for resource protection and to efficiently support the traffic volumes being carried. About one third of the total Level 2 miles have points of difficulty for the latest generation of wildland fire engines.

Since 2005 the population of San Bernardino County has grown 11.4% to 2,088,371, Riverside County 21% to 2,292,507 and nearby Los Angeles County 2.4% to 14,398,000. According to the Southern California Association of Governments (SCAG) 2012 study the 2004 population of the three counties should increase from 13,586,392 to 17,427,000 by 2035, an increase of 28%. Riverside and San Bernardino Counties will increase from 3,800,000 to 6,074,000 by 2035 accounting for most of the growth. The supply of developed and dispersed recreation opportunities will likely remain level unless a national level program encourages and funds major new and expanded recreation sites, trails, campgrounds, and roads to access them. So, population will grow both outside the Forest and in the communities surrounded by the Forest. Use and competition for the limited supply of popular Forest recreation sites will lead to capacity management. Public use of the open system roads will increase and 1930's CCC era roads may need widening, turnouts, enhanced signing, possibly surfacing.

The large special uses program on the San Bernardino National Forest will continue to grow with more demand for infrastructure to support communications and wind, solar, and transmission of electrical energy. Nearby developing communities will apply to install water and waste water systems. Current permit holders will want to expand operations. Most will want to use some Forest system roads, which may have to be upgraded to support the commercial activities.

Major fires, major floods, landslides, earthquakes, windstorms, tree mortality, major drought have occurred in the 2004 – 2014 decade. In all cases the SBNF road system has been critical in providing access to accomplish fires suppression, BAER restoration, watershed restoration, ERFO road system repairs, hazardous fuels reduction and community protection, as well as, providing the portal for a huge recreation program. Subsequent repair and restoration programs like CMLG, WFPR, CMES, CMRD Supplemental, ARRA and ERFO have funded the major restoration repairs and decommissioning of roads. As will be described later, the SBNF ML 1 – 5 maintained system totaled 1,270 miles in 2004, in 2015 it totals 1,113 with a reduction in road density from 1.21 mi/sqmi to 1.06 mi/sqmi. The Forest embarked on a strategic program to analyze roads, informed by the 2005 RAP, and based upon site specific environmental analysis, make decisions to add or remove and restore roads, system and undetermined, first at the Forest scale during Motorized Travel Management then at watershed and sub – watershed scale projects. Having the NEPA and decisions done allowed the Forest to apply for funds

and to consolidate work into contracts to decommission roads determined through the NEPA process including public involvement to not be needed.

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).

Table 2 SBNF Road Miles by Operating Maintenance Level

Category	SBNF Infra 2004	SBNF Infra2015	Net Change
Maintenance Level			
5	38	35	-3
4	22	25	+3
3	273	214	-59
2	865	749	-116
1	72	90	+18
Total road miles	1,270	1113	-157
Level 3-5	333	274	-59
Level 1-2	937	839	-98
Rd Density ML 1-5 (Mile/mi^2)	1.21	1.06	-0.15
Rd Density ML 3-5 (Mile/mi^2)	0.32	0.26	-0.06
Rd Density ML 1-2 (Mile/mi^2)	0.89	0.80	-0.09

Source: INFRA Travel Routes Database 2004 and 2014 (Red means lower)

Current Transportation System

The San Bernardino National Forest currently manages and maintains a NFTS of approximately 1,113 miles of system roads. The NFTS is managed and maintained to various road 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 3 – Miles of SBNF Roads by Operational ML and Objective ML[a]

ML	Objective	Operating
	SBNF	**SBNF**
ML 1	81	90
ML 2	723	749
ML 3	244	214
ML 4	25	25
ML 5	35	35
Convert Use	2.3	-
Decommission	2.5	-
Total Miles	**1113**	**1113**

[a] Data was taken from the USDA Forest Service Infrastructure resource information database system (INFRA) in September of 2015

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).

Sustainability Including Fiscal Capacity

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 either isn't needed annually or 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.

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) but adjusted for the high costs in urban southern California. 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 4 – Existing Average Annual Maintenance Needs –San Bernardino National Forest

Maintenance Level	Cost/Mile	Forest Miles	SBNF Annual Maintenance
ML 1	$400	90	$36,000
ML 2	$1,000	749	$749,000
ML 3	$6,500	214	$1,391,000
ML 4	$20,000	25	$500,000
ML 5	$30,000	35	$1,050,000
		Total Needed	$3,726,000
		2015 Available	$222,000

In 2004, the San Bernardino National Forest received a total of $968,000 (equivalent to $1,550,000 in 2015 dollars) to maintain 1,270 miles of NFSR, of which 60 are Maintenance Levels 4 and 5 (paved higher standard roads). On the average, 35 percent of the Forest's miles received some maintenance in 2004, and only 20 percent of miles were maintained to standard. The deferred maintenance backlog of $36,000,000 represents the dollars needed to bring Level 2 through 5 roads up to their designated standards in regards to health and safety, protection of resources, and to support the mission of the Forest Service. The CMRD road maintenance budget has declined each year to $506,000 in 2015. Fixed budget costs to cover personnel, equipment, and materials, results in only around $222,000 available for completion of actual road maintenance (44%) in FY 2015. Very few miles can be maintained with such a severely reduced budget.

Each year, the San Bernardino 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, contractors, volunteers, user groups, cooperators, and other forest resources, as appropriate.

The deferred maintenance backlog continues to grow each year that maintenance needs are unable to be fulfilled. Erosion of the driveable surface on some of the 1930's era Level 2 roads has left portions of uneven exposed bedrock. These portions are impassable by today's fire equipment. Other problems have contributed to the loss of available drivable width. Other problems include: small slides, heavy brush encroachment, eroded outsloped sections, lack of improved water crossings, and tight horizontal radius curves through vertical solid rock cuts.

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. Some of the maintenance to the road system is being funded through OHV grants, cooperative maintenance agreements, and partnerships. The forest road maintenance allocation gives priority to 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.

Table 5 - Road System Appropriated Funding and Maintenance[a]

Road Activity	2006	2007	2008	2009	2010	2011	2012	2013	2014
Roads (CMRD)	$849,000	$601,000	$797,000	$771,000	$586,000	$725,000	$494,000	$472,000	$472,000
Miles Maintained	236	166	198	190	204	280	143	98	110

[a] Data was taken from a variety of Forest Service budget and accomplishment reporting systems.

Road maintenance budgets have declined over the past decade. Annual road maintenance budgets have not been sufficient to accomplish all needed maintenance activities on the San Bernardino 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 San Bernardino 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 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 San Bernardino National Forest is $36,000,000 for roads as projected from the $21,000,000 recorded in the 2002 Forest Service infrastructure resource information database system (INFRA) for maintenance. During the decade the San Bernardino National Forest received $1,688,000 from FHWA to repair storm -damaged roads. Other recovery and emergency supplemental programs: WFW3, CMES, and RIRI totaled $1,865,000 to restore roads in burned areas. This work restored the damaged roads to their previous existing condition with an emphasis on grading and drainage repairs. Storm damage and fire area damage to roads that are repaired focuses on restoring equivalent access, not accomplishing deferred maintenance.

The ARRA program in 2010 provided $1,400,000 for road deferred maintenance split between roadside brushing, road maintenance, and road decommissioning. These projects addressed a pressing need for the sustainability of the SBNF road system. The CMLG program has provided $2,085,000 over seven years to address roads and watersheds. As programs within and outside of the Forest Service become available for competitive grants, the Forest needs to balance endangered species protection, watershed restoration, road conditions for public and administrative users to determine the most pressing needs when preparing grants.

Road Management Objectives should be updated to reflect the most appropriate management for each road within current budget constraints. Possibly, some of the 214 miles of ML 3 can be maintained at a lower level and some of the 749 miles of ML 2 may be candidates for ML1 or potential decommissioning. Since 87 percent of the NFSR miles ML 2-5 appear on the MVUM, any proposed change in public motorized access on an individual road will require some appropriate level of NEPA analysis and decision. This TAP update has provided the opportunity for the Forest to closely evaluate the public and administrative importance of high resource risk roads identified in the 2005 RAP and 2011 Collaborative Study, and to look at any other roads now believed to be more or less important, again requiring further NEPA analysis to change public motorized access, or to decommission a road mapped and listed in the MVUM.

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 or bridges for aquatic organism passage; closing roads to protect sensitive plant and animal species and to encourage animal migration)
- Forest Service Mission (providing safe access on roads for fire protection, and vegetation management)

In recent years, the San Bernardino National Forest 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. The San Bernardino uses Subpart A and the results

of Subpart B to inform the more site specific NEPA analysis for watersheds and hazardous fuels projects from 20,000 acres to 6,000 acres to evaluate the impacts of NFSR, permitted, unauthorized roads to strategically right size the Forest's road system. The ARRA program funded 16 miles of decommissioning of roads with NEPA decisions.

External Transportation System Relevant to the Area

Portions of Interstate Highway 15 and State Highways 18, 38, 74, 138, 173, 189, 243, 330, and 371 pass through the Forest. Portions of Interstates 215 and 10 are adjacent to the Forest. Some current coordination issues include: maintaining scenic integrity, adding scenic and interpretive enhancements, improvements for public safety, erosion, landslides, disposal of landslide debris, protection of plants and wildlife, and introduction of non-native species of plants and wildlife.

The San Bernardino National Forest is located in two counties: San Bernardino and Riverside. Normal annual county maintenance on roads through the Forest is coordinated. The Forest coordinates on Federal Lands Access Program (FLAP,previously Forest Highways) for enhancement projects and erosion protection. Fires require rapid coordination with San Bernardino and Riverside Counties, tribes, landowners, and other agencies during suppression activities, and for the post fire rehabilitation and erosion protection.

Table 6 – Miles of Roads with other Jurisdiction

Jurisdiction	Approximate Miles
Interstate Freeway	14
State	219
County	66
Forest Highways	102
Other Forest Service*	4

* There are a few roads designated under the neighboring forests (ANF) that we maintain, because the road location and main access point is through SBNF.

Based on current trends, future demand for recreation access is expected to continue to grow and funding to maintain the current road system using current sources expected to decrease or remain at current levels.

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)

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 (See 2005 RAP Chapter 5)

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

As mentioned earlier, 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.

Road maintenance in the San Bernardino 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. 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 appropriated 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. Inadequate road maintenance will ultimately allow forest roads to degrade to a point where public and administrative access are affected. Road degradation can lead to changes in road management that may not be in the best interest or utilization of National Forest lands. Unfortunately, road maintenance funding availability is usually the deciding factor in road management decisions.

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.

Risk to Ecosystem Sustainability

Table 7 below shows a subset of questions from the FS-643 report (Roads Analysis Process), which was a guiding document used during the RAP 2005 and 2011 Roads in IRA collaborative analysis. These questions are asked to determine the risk of individual roads on Ecosystem Sustainability.

Table 7 – 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 Motorized Travel Management and the Roads in IRAs Collaborative.

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

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 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. 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. If SBNF personnel used the current allocated road maintenance budget to bring roads within the forest up to standard, only some (ML 4-5) would be maintained; none of the native surfaced roads (ML 1-3) would receive maintenance. 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, downgrading of maintenance levels, or conversion to trails. Several of the roads have been rated high in importance for vegetation management. This may result in some of the roads becoming available to consider for decommissioning in the next decades.

Conversely, the 2005 RAP noted that the SBNF had 54 roads, 151 miles, needing 190 cases to complete NFS rights-of-way. Without adequate personnel and funding resources to tackle these right-of-way issues, it is likely the majority will not get resolved in the foreseeable future. This has a direct impact on current and future access on the NFTS.

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. 2005 RAP categorized roads as High environmental Risk High Priority for Mitigation (HPM) equivalent to the HH rating used in the Roads in IRA's analysis. The High Risk Low Importance (HRLI) roads would be called LH in the IRA study. The third category is Low Priority for Mitigation (LPM) a list of roads with moderate importance and moderate to high resource risk. These roads need help to remedy resource issues and are needed on the system, but just obtaining adequate funding for a single HPM project each year is a challenge. The fourth category is all the other roads on the Forest that are Low to Moderate Resource Risk and Low to Moderate Importance. HRLI are Likely Not Needed for Future Use and any others identified through the studies and NEPA after 2005 RAP that are no longer needed in order to reduce density or watershed impacts.

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 8. This results in a Risk/Benefit rating pair for each road. There are four potential rating pairs, displayed in Table 8. 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 Not Needed for future use". 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".

Table 8: San Bernardino RAP Opportunity Categories Matrix (Listed by Risk/Benefit)

	Access Need or Benefit Equivalent (Importance)	
Resource Risk Equivalent	High/Low: HRLI Consider for closure or decommissioning (high priority).	High/High: HPM Consider for road maintenance priority, storm proofing, reconstruction, or reroute (high priority).
	Low -Moderate/Low:- Moderate All other SBNF Roads Consider for road maintenance priority, storm proofing, or reconstruction (medium priority).	Moderate/High: LPM Consider for road maintenance priority, storm proofing, or reconstruction (medium priority).

Once roads are sorted into these four rating pair categories, further screening of individual ratings could be done to further refine opportunities and priorities. As shown in Table 9, one factor is the mileage in each category, and the associated costs depending on maintenance levels.

Table 9: Opportunity Category Mileage per Current Rating (Listed by Risk/Benefit)

	Access Need or Benefit Equivalent (Importance)	
Resource Risk Equivalent	High/Low: HRLI 24 miles (12 roads)	High/High: HPM 143 miles (14 roads)
	Low -Moderate/Low:- Moderate All other SBNF Roads 766 miles (548 roads)	Moderate/High: LPM 117 miles (24 roads)

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.

As stated throughout this document, there are many 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.

The costs and mileages described in this report reflect conditions as of July 2014. The forest engineering staff has been updating the Forest Transportation Atlas.

Results of Recent Update Forest Road Reviews

After the IDT took another look and reviewed each road in the transportation atlas as NFS roads, a determination of entire and sections of routes were classified into two categories: Likely Needed for Future Use and Likely Not Needed for Future Use. During this review, the previous analyses were referenced and used as guidance for helping to determine which category a particular road or road segement best fit in. Table 10 show the roads that were categorized as HRLI, HPM, and LPM as part of the 2005 RAP analysis. Table 11 shows the roads that were categorized as HH, HL, LL, and LH as part of the 2011 SoCal IRA Roads Collective. Table 12 shows all of the remaining Likely Not Needed roads in the Transportation Atlas that did not get categorized under previous analyses. The remaining Likely Needed roads were not shown to reduce the table size. A complete list of all roads and their likely needed status is available, along with the accompanied map showing all NFS roads.

Table 10 Review of SBNF 2005 RAP Roads

ROUTE	NAME	LIKELY NEEDED	SYSTEM	MILES	RAP2005
1N03	SUGARLOAF MEADOW	Y	NFS	1.27	LPM
1N04	RADFORD FRONT LINE	Y	NFS	10.49	LPM
1N09	CITY CREEK	Y	NFS	22.39	HPM
1N09C	KELLER RIDGE	N	NFS	0.84	LPM

1N12	THOMAS HUNTING GROUNDS	Y	NFS	11.55	HRLI
1N13	SANTA ANA	Y	NFS	9.65	HPM
1N15	OLD CITY CREEK WAY	N	NFS	2.17	HRLI
1N16	ALDER CREEK	Y	NFS	11.11	LPM
1N22	DALEY	Y	NFS	10.68	HPM
1N25	WEST DALEY	Y	NFS	2.96	HRLI
1N26	LITTLE SAND CREEK	N	NFS	5.56	LPM
1N33	MEYERS CANYON	Y	NFS	2.09	HPM
1N34	BIG TREE CUCAMONGA	N	NFS	11.42	HPM
1N34	BIG TREE CUCAMONGA	Y	NFS	12.56	HPM
1N38	HEART BAR PEAK	N	NFS	2.72	HPM
1N54	CLARKS GRADE	Y	NFS	7.37	LPM
1N65	DUTCH JOHN FLAT	N	NFS	0.12	LPM
1N72	BALD COVE (4WD)	N	NFS	1.89	LPM
1N72	BALD COVE (4WD)	Y	NFS	0.65	LPM
1N86	HILL RANCH	Y	NFS	3.78	LPM
1N90	RESORT TS	N	NFS	0.19	HRLI
1S12	WARM SPRINGS	Y	NFS	4.16	LPM
2N01X	PARALLEL	Y	NFS	1.72	HRLI
2N01X	PARALLEL	Y	NFS	0.31	HRLI
2N01X	PARALLEL	N	NFS	0.23	HRLI
2N13	SNOW SLIDE	Y	NFS	9.47	HPM
2N15	GLORY RIDGE	Y	NFS	1.94	HRLI
2N36	PILOT ROCK RIDGE (OHV	Y	NFS	1.87	LPM
2N49	BAILEY CANYON	Y	NFS	17.16	HPM
2N49C	SUGARPINE SPUR	N	NFS	0.25	HRLI
2N53	APPLEWHITE	Y	NFS	2.58	HPM
2N56	SHEEP CANYON	Y	NFS	2.23	HPM
2N57	OLD CC SPUR	Y	NFS	8.31	HPM
2N58A	MIDDLE FORK SPUR	Y	NFS	0.46	HRLI
2N59	RAINBOW (OHV)	Y	NFS	4.10	LPM
2N93	WILDHORSE MEADOW	Y	NFS	11.64	LPM
2S01	RAYWOOD FLAT	Y	NFS	14.68	LPM
2S01B	PENSTOCK WATER TANK	N	NFS	0.55	HRLI
2S06	MILE HIGH	Y	NFS	3.52	LPM
3N06A	COLD WATER CANYON	Y	NFS	2.05	HRLI
3N11A	WRIGHT MINE	N	NFS	0.64	LPM
3N16	HOLCOMB VALLEY	Y	NFS	25.83	HPM
3N29	SHARPLESS RANCH	Y	NFS	2.28	LPM

3N54	FURNACE	Y	NFS	4.94	LPM
3N54	FURNACE	Y	NFS	1.14	LPM
3N66A	LITTLE HORSETHIEF	Y	NFS	1.12	LPM
3N93	HOLCOMB CREEK (4WD)	N	NFS	5.79	HPM
3S08	VISTA GRANDE	Y	NFS	5.45	LPM
4S01A	HALL DECKER SPUR	Y	NFS	0.99	LPM
5S15	ROUSE HILL	Y	NFS	17.24	LPM

Table 11 Review of 2011 SoCal Collaborative Study of SBNF Roads in or Near IRA's

ROUTE	NAME	LIKELY NEEDED	SYSTEM	MILES	COLLABORATION
1N01	PIPES CANYON	Y	NFS	4.81	LH
1N01	PIPES CANYON	N	NFS	4.74	LH
1N12C	THOMAS HUNTING GRD SPUR	N	NFS	0.58	HL
1N34B	SANSEVAIN COMMUNICATION SITE	Y	NFS	0.33	HL
1N35	WEST FORK CUCAMONGA	N	NFS	1.67	LH
1N35	WEST FORK CUCAMONGA	Y	NFS	0.91	LH
1N44	DEER CANYON	Y	NFS	2.65	LL
2N14X	SWITZER WELL	N	NFS	0.75	HL
2N31Y	CRAB FLAT LOOP (OHV)	N	NFS	0.68	HL
2N61Y	2N61Y (OHV)	Y	NFS	3.45	HL
2N61YA	2N61YA	N	NFS	0.10	LL
2N61YB	SLEEPY CREEK	Y	NFS	0.94	HH
2N62Y	2N62Y (OHV)	N	NFS	0.97	LH
2N64Y	JUNIPER SPRINGS GROUP CAMP	Y	NFS	0.76	LH
2N67	CREST PARK PICNIC AREA	Y	NFS	0.11	HL
2N70Y	RATTLESNAKE CANYON (OHV)	Y	NFS	1.27	HL
2N76Y	ANTELOPE CREEK (OHV)	N	NFS	1.41	HH
2N76YA	ANTELOPE CREEK SPUR	N	NFS	0.10	HH
2N76YB	ANTELOPE CK SPUR(OHV)	N	NFS	0.36	HL
2N82	SWITZER PARK PICNIC AREA	Y	NFS	0.03	HL
2N93G	LIGHTNING	N	NFS	0.69	LH
3N03A	HORSETHIEF FLAT (OHV)	Y	NFS	3.14	LH
3N34	CRAB FLATS	Y	NFS	12.02	HL
3N34C	SPLINTERS CABIN	Y	NFS	0.47	HL
3N35	PIONEER	N	NFS	2.22	LL
3N38B	OVERLOOK	N	NFS	1.32	LL
3N51	CIRCLE MOUNTAIN	N	NFS	4.34	LH
3N59	CARBINE FLAT (OHV)	Y	NFS	3.83	HL
3N59A	CARBINE FLAT SPUR A (4WD)	Y	NFS	5.21	LL
3N59B	CARBINE FLAT SPUR B (4WD)	N	NFS	2.70	HL
6S53	GOFF FLAT	Y	NFS	1.80	HL

6S53A	MARTINEZ	Y	NFS	0.38	HL
7S05C	DEEP CANYON SPUR	N	NFS	0.34	LH
7S05D	D SPUR	N	NFS	0.52	LH
7S14	RIBBONWOOD	Y	NFS	0.24	LL
7S14A	RIBBONWOOD EQUESTRIAN CAMP	Y	NFS	0.25	LL

Table 12 Other SBNF NFSR FS Maintained Likely Not Needed

ROUTE	NAME	LIKELY NEEDED	SYSTEM	MILES
1N01B	PIPES CG	N	NFS	0.08
1N02	COON CREEK JUMPOFF	N	NFS	1.33
1N02B	COON CREEK SPUR	N	NFS	1.19
1N02C	LIMESTONE	N	NFS	0.33
1N04A	RATTLESNAKE CREEK	N	NFS	0.47
1N05B	FISH CREEK MEADOWS SPUR	N	NFS	0.57
1N05C	AIRPLANE FLAT	N	NFS	3.25
1N07B	RESORT TS	N	NFS	0.36
1N16A	ALDER CREEK SPUR	N	NFS	0.70
1N19	WILDHORSE	N	NFS	0.68
1N19A	WILDHORSE SPUR	N	NFS	0.32
1N21	PLUNGE CREEK	N	NFS	5.41
1N22A	MUD FLAT	N	NFS	1.83
1N22B	UPPER DALEY	N	NFS	2.84
1N27	FRANKISH PEAK	N	NFS	1.72
1N30	IRONWOOD	N	NFS	0.83
1N30A	IRONWOOD SPUR	N	NFS	0.07
1N34A	ETIWANDA RIDGE	N	NFS	0.96
1N34C	DUSTIN SPRING	N	NFS	0.54
1N36	BULLOCK SPUR	N	NFS	3.00
1N37	BEAN FLAT	N	NFS	3.28
1N37A	BEAN FLAT SPUR	N	NFS	0.29
1N37V	1N37V	N	NFS	0.02
1N39	HEART BAR STATION	N	NFS	0.48
1N42B	DRY CREEK TS	N	NFS	0.24
1N62Y	CAMP OSCEOL	N	NFS	0.79
1N62YA	BARTON FLATS WATER INTAKE	N	NFS	0.31
1N86B	STETSON HOLLOW	N	NFS	1.14
1N94	CLARKS TIE	N	NFS	0.72
1N96C	SNOW VALLEY	N	NFS	1.54
1N96D	DRY CREEK	N	NFS	0.41

1N96F	DRY CREEK TS	N	NFS	0.22
1S04	SKINNER	N	NFS	0.14
1S14	MORTON FRONT LINE	N	NFS	4.69
1S15	OLD MILL CREEK CAMPGROUND	N	NFS	0.45
1S35	MONKEYFACE HELIPORT	N	NFS	0.08
2N01A	BROOM FLAT SPUR	N	NFS	0.40
2N01Y	2N01Y (4WD)	N	NFS	0.42
2N02A	ARRASTRE CREEK SPUR	N	NFS	0.16
2N02B	ARRASTRE CREEK SPUR	N	NFS	0.17
2N02F	ARRASTRE CREEK SPUR	N	NFS	0.10
2N02G	ARRASTRE CREEK SPUR	N	NFS	0.11
2N02H	ARRASTRE CREEK SPUR	N	NFS	0.23
2N02X	LITTLE BEAR PEAK	N	NFS	1.12
2N03X	CAMP SEELEY	N	NFS	1.00
2N03Y	MINNELUSA	N	NFS	0.20
2N04B	BALKY HORSE SPUR B	N	NFS	0.15
2N04C	BALKY HORSE SPUR C	N	NFS	0.42
2N04X	LUMPY	N	NFS	0.32
2N06A	HAMILTON CREEK	N	NFS	0.68
2N06X	LOWER LARGA FLAT	N	NFS	3.20
2N06Y	2N06Y	N	NFS	0.61
2N08YA	2N08YA	N	NFS	0.12
2N11A	SANTA ANA DIVIDE SPUR	N	NFS	0.30
2N12Y	GOLD HILL MINE	N	NFS	2.04
2N13C	GROUT TS SPUR	N	NFS	0.20
2N19A	LITTLE GREEN VALLEY SPUR A	N	NFS	0.27
2N19B	LITTLE GREEN VALLEY SPUR B	N	NFS	0.41
2N19C	LITTLE GREEN VALLEY SPUR C	N	NFS	0.24
2N20Y	2N20Y	N	NFS	0.22
2N26A	SPRAY	N	NFS	0.20
2N27A	SAND CANYON SPUR	N	NFS	0.48
2N35Y	NORTH FORK	N	NFS	0.53
2N44YA	2N44YA	N	NFS	0.33
2N46	SUGARPINE SPRINGS	N	NFS	1.24
2N46Y	2N46Y	N	NFS	1.38
2N49B	PINE FLAT	N	NFS	0.20
2N60	2N60	N	NFS	0.63
2N68B	OLD SNOW SLIDE SPUR	N	NFS	0.18
2N70	GRAYS PEAK	N	NFS	1.61
2N70A	GRAYS PEAK SPUR	N	NFS	0.22
2N71Y	2N71Y (OHV)	N	NFS	0.16

2N73Y	2N73Y (OHV)	N	NFS	0.96
2N74Y	2N74Y (OHV)	N	NFS	0.32
2N75Y	2N75Y (OHV)	N	NFS	1.31
2N77	2N77	N	NFS	0.95
2N79Y	2N79Y	N	NFS	0.54
2N79YA	2N79YA	N	NFS	0.20
2N80A	GROUT CREEK CUTOFF SPUR	N	NFS	0.08
2N83Y	2N83Y	N	NFS	0.91
2N84	LITTLE BEAR SPRING	N	NFS	1.39
2N84A	LITTLE BEAR SPRING SPUR A	N	NFS	0.34
2N84B	LITTLE BEAR SPRING SPUR B	N	NFS	0.79
2N85	CASTLE LOOP	N	NFS	0.95
2N86Y	2N86Y	N	NFS	0.77
2N88Y	2N88Y	N	NFS	0.25
2N90A	TIP TOP MOUNTAIN SPUR A	N	NFS	0.26
2N90B	TIP TOP MOUNTAIN SPUR B	N	NFS	0.46
2N90C	TIP TOP MTN SPUR C	N	NFS	0.93
2N91Y	2N91Y	N	NFS	0.39
2N92	GREEN CANYON	N	NFS	1.50
2N93D	WILDHORSE MEADOW SPUR	N	NFS	0.09
2N95Y	2N95Y	N	NFS	0.32
2N97Y	OLD POLIQUE CANYON	N	NFS	0.21
2S01A	BIG OAKS POWERHOUSE	N	NFS	0.23
2S24A	EAST FORK MIAS CANYON	N	NFS	0.59
3N02	BURNT FLAT	N	NFS	1.44
3N03F	SMARTS RANCH SPUR	N	NFS	0.57
3N04Y	3N04Y	N	NFS	0.80
3N06D	STOCKTON FLATS SPUR (4WD)	N	NFS	1.20
3N07A	VAN DUSEN CREEK SPUR	N	NFS	0.20
3N07Y	SMART SPRING	N	NFS	0.55
3N09A	VAN DUSEN CYN SPUR	N	NFS	0.72
3N10	JOHN BULL FLAT	N	NFS	5.60
3N10A	JOHN BULL FLAT SPUR	N	NFS	0.32
3N10B	JOHN BULL FLAT SPUR	N	NFS	0.20
3N12A	DELAMAR MOUNTAIN SPUR A	N	NFS	0.20
3N12E	NORTH DELAMAR	N	NFS	0.85
3N14N	COXEY SPUR	N	NFS	0.22
3N14P	HANNA FLAT SPUR	N	NFS	0.20
3N16A	HOLCOMB VALLEY SPUR	N	NFS	0.14
3N16J	HOLCOMB VALLEY SPUR	N	NFS	0.14
3N16L	HOLCOMB VALLEY SPUR	N	NFS	0.69

3N16P	SECTION ONE SPUR	N	NFS	0.31
3N16Q	TEJON RANCH	N	NFS	0.75
3N16R	GREEN VALLEY CREEK	N	NFS	0.98
3N17D	NORTH PEAK	N	NFS	1.24
3N19	3N19	N	NFS	0.50
3N23	LITHUANIAN	N	NFS	0.71
3N34B	CRAB FLATS SPUR	N	NFS	0.18
3N35A	PIONEER SPUR	N	NFS	1.16
3N35B	PIONEER SPUR	N	NFS	0.24
3N36	MONARCH FLAT (4WD)	N	NFS	5.04
3N36A	MONARCH FLAT SPUR (4WD)	N	NFS	0.77
3N38A	SQUINTS RANCH SPUR	N	NFS	0.79
3N57	WHISKY SPRINGS	N	NFS	0.74
3N62	CACTUS FLAT	N	NFS	1.19
3N64	3N64	N	NFS	1.67
3N69	GOLD MOUNTAIN (4WD)	N	NFS	4.48
3N76	3N76	N	NFS	1.20
3N76A	3N76A	N	NFS	0.11
3N81	3N81	N	NFS	0.15
3N82	3N82	N	NFS	0.65
3N83	3N83	N	NFS	1.35
3N83A	3N83A	N	NFS	0.42
3N84	3N84	N	NFS	1.32
3N87	3N87	N	NFS	1.16
3N92	BIG PINE FLAT	N	NFS	0.71
3N97A	CIENEGA LARGA SPUR A	N	NFS	0.45
3N98	PINE SPRING	N	NFS	0.46
3N99	3N99	N	NFS	0.37
4S01E	SPUR E	N	NFS	0.33
4S06	INDIAN CANYON	N	NFS	1.63
4S06	INDIAN CANYON	N	NFS	1.16
4S06A	PEACH TREE SPRINGS	N	NFS	0.91
4S55	PLANTATION	N	NFS	1.10
4S56	BAY TREE LOOP	N	NFS	0.09
4S73	INDIAN VISTA OVERLOOK	N	NFS	0.05
5S02	COLDWATER CANYON	N	NFS	1.40
5S04A	ALVIN MEADOWS SPUR	N	NFS	0.19
5S05A	BONITA TS SPUR	N	NFS	0.56
5S09A	LOGAN TS SPUR	N	NFS	0.12
5S10A	LOGAN TS SPUR	N	NFS	0.17
5S11D	SOUTH RIDGE YP #3	N	NFS	0.03

5S18	REED VALLEY	N	NFS	1.89
5S24A	BERRY	N	NFS	0.15
6S13E	LITTLE THOMAS MTN	N	NFS	0.65
6S13F	SPILLWAY	N	NFS	0.16
6S17	BLACKBURN RIDGE	N	NFS	4.37
6S22A	RED MOUNTAIN SPUR	N	NFS	0.68
7S05A	A SPUR	N	NFS	0.10
7S05A	A SPUR	N	NFS	0.31
7S05B	CACTUS SPRING	N	NFS	0.62

Recommendations from the 2015 TAP Review and Update

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. Table 13 shows the Likely Needed/Likely Not Needed road miles by maintenance level, percentage reduction if implemented, and potential savings if the Likely Not Needed roads are decommissioned and/or converted to trails:

Table 13 – LN/LNN Roads by Maintenance Level

Maintenance Level	Likely Needed Miles	Likely Not Needed Miles	Percent Reduction if Implemented	Potential Annual Maintenance Savings[a]
ML 1	26	57	69	$ 22,800
ML 2	635	132	17	$ 132,000
ML 3	213	2	1	$ 13,000
ML 4	26	0	0	$ 0
ML 5	27	0	0	$ 0

[a] Cost figures based on annual maintenance figures by mile from table 4

The following 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.
- Reevaluate the objective road maintenance levels in light of the change in management objectives 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.
- Use dialogue initiated during the public involvement process to begin evaluating and addressing opportunities to work with other agencies and governments regarding roads.
- 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.

The 2015 SBNF Travel Analysis Process Update, Subpart A, Team is:

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Steve Eastwood, Consulting Travel Analyst

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The 2005 completed RAP is hereby incorporated by reference in this Travel Analysis Report. Core team members of that effort can be found on page 9 and 10 of the following document:

Roads Analysis (Maps not on Web now):
http://a123.g.akamai.net/7/123/11558/abc123/forestservic.download.akamai.com/11558/www/nepa/76364_FSPLT2_123928.pdf

References

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.

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

USDA Forest Service. 2002. San Bernardino Business Plan

USDA Forest Service. 2005. Southern California National Forests Road Analysis (RAP) Report as part of LMP Revision Final EIS and ROD.

USDA Forest Service. 2005. San Bernardino 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 2012. Watershed Condition Framework. FS-977 May 2011

http://apps.fs.usda.gov/WCFmapviewer

USDA Forest Service 2011. SoCal Collaborative for Roads in and adjacent to IRAs June 2011, http://www.fs.usda.gov/detail/cleveland/landmanagement/?cid=stelprdb5304738

USDA Forest Service. 2014. San Bernardino National Forest Plan Amendment and ROD

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

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 land 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 and OHVs are allowed.
- **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.

Appendix B Commonly Used Acronyms

A

ABAG: Association of Bay Area Governments

ADT: Average Daily Traffic

AIM: Abandoned and Inactive Mines

ANF: Angeles National Forest

ANILCA: Alaska National Interest Lands Conservation Act

APCD: Air Pollution Control District

ARRA: The American Recovery and Reinvestment Act of 2009

ATV: All-Terrain Vehicle AUM: Animal Unit Month

Avg: Average

B

BA: Biological Assessment

BAER: Burned Area Emergency Rehabilitation

BC: Back Country

BCMUR: Back Country Motorized Use Restricted

BCNM: Back Country Non-Motorized

BLM: Bureau of Land Management

BMP: Best Management Practices

BO: Biological Opinion

C

CAA- Clean Air Act

Cal EPPC: California Exotic Pest-Plant Council

Caltrans: California Department of Transportation

CAT EX: Categorical Exclusion

CBDT: California Backcountry Discovery Trail

CBZ: Critical Biological Zones

CCC: Civilian Conservation Corps

CDF&G: California Department of Fish and Game

CDFA: California Department of Food and Agriculture

CDMG: California Department of Mines and Geology

CE: Categorical Exclusion

CEQ: Council on Environmental Quality CEQA: California Environmental Quality Act

CERCLA: Federal Comprehensive Environmental Response, Compensation and Liability Act

CFR: Code of Federal Regulations

CHMS: Carbonate Habitat Management Strategy CIP: Capital Improvement Program

CIWMB: California Integrated Waste Management Board

CMES: Construction and Maintenance Emergency Supplemental road funds

CMII: Construction and Maintenance funds for improvement of roads

CMLG: Legacy Funds for repair and restoration of roads and trails

CMRD: Construction and Maintenance funds appropriated for annual road maintenance

CNF: Cleveland National Forest

CO: Carbon Monoxide

COE: U.S. Army Corps of Engineers

CRRD: ARRA funds for Forest Service Road maintenance and improvements

CRRPT: California Roundtable on Recreation, Parks and Tourism

CS: Consumer Surplus

CUA: Concentrated use areas

CWA- Clean Water Act (federal)

CY: Current Year

D

DAI: Developed Area Interface

DEIS: Draft Environmental Impact Statement

DEM: Digital Elevation Mode

DFG: Department of Fish and Game

DLC: Desired Landscape Character

DM: Decision Memo

DN: Decision Notice

DOD: U.S. Department of Defense

DOI: U.S. Department of the Interior

DOT: U.S. Department of Transportation

E

EF: Experimental Forest

EIS: Environmental Impact Statement

EPA: U.S. Environmental Protection Agency

ERFO: Emergency Relief for Federally Owned Roads (FHWA)

ESA: Endangered Species Act

EUI: Ecological Unit Inventory

EW: Existing Wilderness

F

FAA: Federal Aviation Administration

FEIS: Final Environmental Impact Statement

FSEIS: Final Supplemental EIS

FERC: Federal Energy Regulatory Commission

FHWA: Federal Highway Administration

FIY: Forest Inventory Analysis

FLTP: Federal Lands Transportation Program

FONSI: Finding of No Significant Impact

FR: Federal Register

FSH: Forest Service Handbook

FSM: Forest Service Manual

FTA: Forest Transportation Atlas

FWS: Fish and Wildlife Service (see USFWS) FY: Fiscal Year

G

GIS: Geographic Information System

GPRA: Government Performance and Results Act

GPS: Global Positioning System

H

HH: High Importance High Resource Risk (2011 Collaborative Study)

HL: High Importance Low Resource Risk (2011 Collaborative Study)

HAP: Hazardous Air Pollutants

HRLI: High Risk Low Importance (2005 RAP)

HPM: High Priority for Mitigation (2005 RAP)

HUC- Hydrologic Unit Code

HWY: Highway

I

IDT: Interdisciplinary Team

IMPLAN: IMpact analysis for PLANning

INFRA: Infrastructure database includes Travel Routes NFSR database

IRA: InventoryRoadlessArea

ISCST: Industrial Source Complex (Short Term)

IUCN: International Union for Conservation of Natural Resources

L

LH:Low Importance High Resource Risk (2011 Collaborative Study)

LL: Low Importance Low Resource Risk (2011 Collaborative Study)

LEIMARS: Law Enforcement and Investigation Management Reporting System

LMP: Land Management Plan (forest plan)

LN: Likely Needed for Future Use

LNN: Likely Not Needed for Future Use

LPM: Low Priority for Mitigation (2005 RAP)

LPNF: Los Padres National Forest

LRMP: Land and Resources Management Plan

LTA: Land Type Association

LUZ: Land Use Zone

M

M&E: Monitoring and Evaluation

MCP: Market Clearing Price

MIS: Management Indicator Species

MIST: Minimum Impact (Wildland fire) Suppression Techniques

ML: Road Maintenance Level (1 through 5)

MMBF: Millions of Board Feet

MOU: Memorandum of Understanding

MP: Milepost

MUTCD: Manual on Uniform Traffic Control Devices

MUVM- Motor Vehicle Use Map

MW: Megawatts

N

NCCP: Natural Community Conservation Planning

NEPA: National Environmental Policy Act

NF: National Forest

NFMA: National Forest Management Act

NFP: National Fire Plan

NFS: National Forest System

NFSR: National Forest System Roads

NFST: National Forest System Trails

NFTS: National Forest Transportation System

NHPA: National Historic Preservation Act

NOAA: National Oceanographic and Atmospheric Administration

NOI: Notice of Intent

NOx: Nitrogen Oxide Gases

NSRE: National Survey of Recreation and the Environment

NVUM: National Visitor Use Monitoring

O

OHMVR: Off-Highway Motor Vehicle Route

OHV: Off-Highway Vehicle

OSHA: Occupational Safety and Health Administration

P

PAC: Protected Activity Centers

PAOT: Persons At One Time (Recreation capacity measurement)

PALS: Planning, Appeals, and Litigation System- web based FS NEPA project documentation

PCH: Pacific Coast Highway (also known as California State Highway 1)

PCT: Pacific Crest Trail (also known as Pacific Crest National Scenic Trail)

PFSR: Public Forest Service Roads

PMx: Particulate Matter less than x Microns

PSW: Pacific Southwest Forest and Range Experiment Station

PURPA: Public Utility Regulatory Policies Act

R

R5- Region 5 of the Forest Service

RACR – Roadless Area Conservation Rule - RCA Riparian Conservation Areas

RAP: Roads Analysis Process (See also TAP)

RCA: Riparian Conservation Areas

RDM: Residual Dry Matter

RFDS: Reasonable Future Development Scenario

RMO: Road Management Objective

RNA: Research Natural Area

ROD: Record of Decision

ROG: Reactive Organic Gases

ROS: Recreation Opportunity Spectrum

RPA: Resource Planning Act

RPS: Renewable Portfolio Standards RVD: Recreation Visitor Day

RW: Recommended Wilderness

S

SAC: Scenic Attractiveness Class

SANDAG: San Diego Association of Governments

SBNF: San Bernardino National Forest

SCAG: Southern California Association of Governments

SCMFA: Southern California Mountains and Foothills Assessment

SEA: Socioeconomic Assessment

SFP: Special Forest Products

SIA: Special Interest Area

SoCal: Southern California (typically refers to ANF, CNF, LPNF, and SBNF)

SOx: Sulphur Oxide

spp.: Species

SRSJMNM: Santa Rosa and San Jacinto Mountains National Monument

SUDS: Special Uses Data System

SUP: Special Use Permit

SUV: Sport Utility Vehicle

T

TAP: Travel Analysis Process

TAR: Travel Analysis Report

T&E: Threatened and Endangered

TEPCS: Threatened, Endangered, Proposed, Candidate and Sensitive Species

TEPS: Threatened, Endangered, Proposed or Sensitive

TES: Threatened, Endangered or Sensitive (see TEPS)

TMP: Temporary Road authorized by permit, not a forest road

U

URI: Urban and Rural Interface, this zone has been combined with Developed Area Intermix to form the current zone Developed Area Interface).

USDA: United States Department of Agriculture

USDI: United States Department of Interior

USFS: United States Forest Service

USFWS: United States Fish and Wildlife Service

USGS: United States Geological Survey

V

VPD: Vehicles per day

W

W: Wilderness

WCC: Watershed Condition Class

WD: Wheel Drive (4WD four wheel drive, 2WD two wheel drive)

WFPR: Wildland Fire Preparedness funds

WFW3: Wildland Fire Restoration funds for roads

WSR: Wild and Scenic Rivers

WRCPP: Western Regional Corridor Planning Partnership

WUI: Wildland/Urban Interface

Appendix C 2011 Collaborative Study SBNF LL, LH, HL, HH NFSR

IRA	Route Number	Access Score	Resource Score	Access Quad	Resource Quad	Quad	Miles
Cactus Springs B	7S14A	1.00	2.60	L	L	LL	0.24
Cactus Springs B	7S14	1.00	2.55	L	L	LL	0.19
Circle Mountain	3N35	1.00	3.04	L	L	LL	0.73
Deep Creek	3N38B	0.00	3.35	L	L	LL	1.67
Deep Creek	3N59A	1.00	3.42	L	L	LL	1.31
Deep Creek	3N59A	1.00	1.75	L	L	LL	0.04
Heartbreak Ridge	2N61YA	1.00	3.06	L	L	LL	0.15
San Sevaine	1N44	1.00	3.26	L	L	LL	0.30
Cactus Springs B	7S05C	1.00	4.75	L	H	LH	0.14
Cactus Springs B	7S05D	1.00	4.57	L	H	LH	0.50
Circle Mountain	3N51	1.00	3.68	L	H	LH	0.58
Cucamonga C	1N35	1.00	5.54	L	H	LH	0.92
Granite Peak	3N03A	1.00	5.25	L	H	LH	0.84
Heartbreak Ridge	2N62Y	1.00	4.16	L	H	LH	0.21
Heartbreak Ridge	1N01	1.00	3.99	L	H	LH	0.34
Heartbreak Ridge	2N64Y	1.00	4.75	L	H	LH	0.31
Sugarloaf	2N93E	0.00	7.82	L	H	LH	0.36
Sugarloaf	2N93G	0.00	5.28	L	H	LH	0.69
City Creek	2N67	4.00	2.23	H	L	HL	0.13
City Creek	2N82	3.00	2.45	H	L	HL	0.02
City Creek	2N14X	4.00	2.52	H	L	HL	0.69
Crystal Creek	1N12C	2.00	2.01	H	L	HL	0.50
Cucamonga B	1N34B	5.00	2.84	H	L	HL	0.27
Deep Creek	3N59B	2.00	3.15	H	L	HL	2.68
Deep Creek	3N34	2.00	3.60	H	L	HL	2.53
Deep Creek	3N34C	2.00	3.38	H	L	HL	0.21
Deep Creek	3N59	2.00	3.50	H	L	HL	3.06
Deep Creek	2N31Y	2.00	2.29	H	L	HL	0.61
Heartbreak Ridge	2N61Y	2.00	3.33	H	L	HL	1.25
Heartbreak Ridge	2N70Y	2.00	3.11	H	L	HL	0.31
Heartbreak Ridge	2N76YB	2.00	2.95	H	L	HL	0.21
Pyramid Peak B	6S53	4.00	3.48	H	L	HL	0.25
Pyramid Peak B	6S53A	3.00	1.37	H	L	HL	0.04
Heartbreak Ridge	2N61YB	2.00	4.04	H	H	HH	0.91
Heartbreak Ridge	2N76YA	2.00	4.03	H	H	HH	0.10
Heartbreak Ridge	2N76Y	2.00	3.94	H	H	HH	0.46

Appendix D GIS Based Risk-Benefit Model Description 2011 Collaborative

The route scoring model is composed of an Excel workbook (IRA_route_scoring_model _4th_draft_7_16_2011.xlsx) with several worksheets. The worksheets are not protected or locked with password control. The following sections describe the individual worksheets.

Summary

The summary page pulls together the key data in a condensed summary, sorted by Forest, IRA, route system group, and resource score. It is dynamically linked to the Model so value updates in the model automatically populate the summary page. Most of the column headings are self explanatory, but the summary includes some unique columns as follows:

Object ID - this is the index field for all the routes, and the value is what links the data between the workbook and the GIS files. **Status Group –** this column lumps the route status into two groups, classified and unclassified.

Access Score – the access score from the model. **Resource Score –** the resource score from the model **Access Quad –** this links to the scatter plot access "quadrant" (see the scatter plot section below). The access quad is either high or low. **Resource Quad -** this links to the scatter plot resource "quadrant" (see the scatter plot section below). The resource quad is either high or low. **Quad –** this links to the scatter plot combined quadrant, and comes in four combinations based on the 50th percentile score:

LL – Low access and Low resource impact LH- Low access and High resource impact HL – High access and Low resource impact HH – High access and High resource impact

Miles – the length of the segment in miles **Access Score %** - this is the access score converted to a % score based on a max score of 100%. **Resource Score %** - this is the resource score converted to a % score based on a max score of 100%. **Absolute Score** – Resource score % - Access score %.

Q75 – this is the quadrant score if high (H) were defined as the 75th percentile. the 50th

Scatter Plots

The scatter plot is a chart that plots the resource scores against the access scores. The plot is then divided into quadrants. For this draft final version the quadrants were divided along the median scores for access and resources for the entire data set. Each quadrant is then described as the combination of the access and resource scores, grouped by Forest and route status group for 12 total scatter plots. This approach can provide a way to focus on routes based on the combined percentile instead of scores. For example, the first priority group of routes may be the routes with low access scores and high resource impact (the LH group).scores. For example, the first priority group of routes may be the routes with low access scores and high resource impact (the LH group).

Model and Data Worksheets

The Model pulls together the access and resource data from the data worksheets on a route basis and scores most elements on a 0 to 1 rating. The first few columns (B to E) are self explanatory, with the remaining attribute columns described below.

Route Status	Description
FDT - Forest Designated Trail	These are non-motorized National Forest System Trails designated by the Forests.
FDT_MOTORIZED	These are motorized National Forest System Trails designated by the Forests.
NFSR - NATIONAL FOREST SYSTEM ROAD	These are National Forest System Roads maintenance level 1-3 in this database.
NOT - NOT NEEDED	These are routes that been determined to be no longer needed through NEPA or other appropriate decision process such as Burn Area Emergency Response (BAER) or fire suppression rehab. Most of these routed have been decommissioned either through natural vegetation recovery restoration projects.
OHV - Non-System	These are routes mapped between 2003-2005 using GPS and identifying ongoing OHV use on routes not previously mapped by the Forests in the Land Management Plan Road Analysis. These routes are not part of the Forest motorized trail system.
OHV - System	These are routes mapped between 2003-2005 using GPS . These routes may be part of the Forest motorized trail system. These need to be

	reviewed to see if they duplicate FDT_Motorized routes.
SBNF_Missing	Apparent routes mapped from digital imagery in 2011 by the San Bernardino National Forest.
TMP - TEMPORARY	These are routes that have been permitted for use by individuals by the Forests, usually by special use authorization (SUA) or other appropriate documents such as easements etc.
UND - UNDETERMINED	These are unauthorized routes that the Forests have not determined a need for their continued use.
UND_Other	These are unauthorized routes (or other features that look like routes) that the Forests have not determined a need for their continued use.
UND_Trail	These are unauthorized routes that appear to be trails or were identified as trails in source data such cartographic feature files (CFF). These are

Access Attribute	**Description of source data**
Access to Dev Rec Area	National Forest Developed Recreation and Recreation Special Use sites were mapped as part of a built area analysis in the LMP revision. This data is part of the LMP planning record. Routes that intersected these developed recreation site polygons were selected and annotated with a “Yes”. Yes = 1
Access to Disp Rec Area	Access to dispersed sites was mapped as part of the analysis in the LMP revision. This data is part of the LMP planning record. Routes that intersected these areas were selected and

	annotated with a “Yes”. Yes = 1
Access to Permits	National Forest Special Use sites were mapped as part of a built area analysis in the LMP revision. This data is part of the LMP planning record. Routes that intersected these special use polygons were selected and annotated with a “Yes”. Yes = 1.
Access to FS Facility	National Forest Facility sites were mapped as part of a built area analysis in the LMP revision. This data is part of the LMP planning record. Routes that intersected these developed site polygons were selected and annotated with a “Yes”. Yes = 1.
Allotments	Allotments were mapped as part of a built area analysis in the LMP revision. This data is part of the LMP planning record. Routes that intersected these developed site polygons were selected and annotated with a “Yes”. Yes = 1.
Through Route	Mapped during the collaborative process. Through routes were selected and annotated with a “Yes”. Yes = 1.
Fuelbreak	Fuel breaks were mapped as part of a built area analysis in the LMP revision. This data is part of the LMP planning record. Routes that intersected these fuelbreak polygons were selected and annotated with a “Yes”. Yes = 1.
WUI	Mapped as part of the LMP revision. Routes in WUI were annotated with a “Yes”. Yes = 1.
WUI Defense	Mapped as part of the LMP revision. Routes in WUI Defense were annotated with a “Yes”. Yes = 1.

Resource Attributes	
RCA	Riparian Conservation Area (RCA) is described in each southern California LMP and is linked to specific Standards. RCAs are intended to be mapped at the project level however a data layer that represents the approximate extent of the RCA was developed for analysis as part of the FEIS for the LMPs. This data is part of the planning record for the LMP revisions. Yes = 1.
Steelhead_CH	Critical Habitat for all T&E species other than Steelhead. This data is maintained by the US Fish and Wildlife Service and is available at their web site at the following URL:

Access Attribute	**Description of source data**
	http://criticalhabitat.fws.gov/ Yes = 1.
Other CH	Critical Habitat for all T&E species other than Steelhead. This data is maintained by the US Fish and Wildlife Service and is available at their web site at the following URL: http://criticalhabitat.fws.gov/ Yes = 1.
MFA_AHES	Mountain and Foothills Assessment (MFA) Areas of High Ecological Significance (AHES). This areas are described and shown on maps in Chapter 7 of the Southern California Mountains and Foothills Assessment (General Technical Report – PSW-GTR-172, 1999) Routes were hand selected or selected when they intersected vegetation polygons described in the MFA that fell within the mapped area shown in the report. Yes = 1.

MFA_Rare_Communities	Mountain and Foothills Assessment (MFA) Rare Communities. Table 2.16 page 41 of the MFA shows a list of rare communities. The MFA habitat groups were identified a as part of the Ecological Unit Inventory for southern California. Routes that intersected polygons that represented these rare communities were attributed with the community name. Where more site-specific information was available such as vegetation type for Valley and Engelmann oak and Cuyamaca cypress or management area for carbonate outcroppings or pebble plains then this was used as well. No Santa Lucia fir or Sergeant cypress were found to intersect these routes in IRAs. Yes = 1.
WSR	Currently Established Wild and Scenic Rivers (WSR) including type of designation. This data is maintained and available online at the Remote Sensing Lab (RSL) data clearinghouse at the following URL: http://www.fs.fed.us/r5/rsl/clearinghouse/data.shtml. Yes = 1.
Recommended_WSR	Recommended Wild and Scenic Rivers (WSR) including type of designation recommended by the LMP. This data is maintained and available online at the Remote Sensing Lab (RSL) data clearinghouse at the following URL: http://www.fs.fed.us/r5/rsl/clearinghouse/data.shtml. Yes = 1.
RNA	Research Natural Area (RNA) including name. This data is maintained and available online at the Remote Sensing Lab (RSL) data clearinghouse at the following URL: http://www.fs.fed.us/r5/rsl/clearinghouse/data.shtml. Yes = 1.
SIA	Special Interest Area (SIA) including name. This data is maintained and available online at the Remote Sensing Lab (RSL) data clearinghouse at the following URL: http://www.fs.fed.us/r5/rsl/clearinghouse/data.shtml. Yes = 1.
	Pacific Crest Trail - This data is available online at the Remote Sensing Lab (RSL) data clearinghouse at the following URL:

PCT	http://www.fs.fed.us/r5/rsl/clearinghouse/data.shtml

Access Attribute	**Description of source data**
	Routes that occur within 500 feet of the PCT were selected and annotated with a “Yes”. Yes = 1.
Erosion Hazard	This is an attribute of the NRCS Soil Inventory. This layer was compiled for LMP analysis and is part of the planning record. The erosion hazard ratings were scaled on a 0 to 1 basis, with very high = 1, high = .75, moderate = .5. There were no low erosion hazard ratings.
Stream Crossings	NHD data is compiled for all of the watersheds in the province as part of the LMP data, (with the exception of the SBNF east desert side). Stream crossings using a 5 meter buffer were calculated for all but the 6 SBNF IRAs on the east side. The number of crossings was converted to crossings per mile. The score is based on the percentile of the crossings per mile.
Geo Stability	Mapped as part of the LMP revision and rated 1 to 10. The rating was divided by 10 to fit within a 0 to 1 scale.
Gradient	Route gradient was modeled by The Wilderness Society and indexed on a scale of 0 to 1. Higher index scores are steeper routes.
Isolation	Route isolation was modeled by The Wilderness Society and indexed on a scale of 0 to 1. Higher index scores are more isolated routes.

Appendix E 2005 RAP Tables San Bernardino National Forest

Table E1 High Resource Risk Low Importance (HRLI) 2005 RAP

Table E-6 SBNF: Roads with High Risk and Low Importance

ID	NAME	Operational Maintenance Level	Environmental Risk Indicators									PU and AD NEED	Weighted Average RAP SCORE	MILES
			Species Risk Indicators				Watershed Risk Indicators							
			RCA	RP_SCORE	UP_SCORE	XINGS	SPP_SCORE	CONDITION	SLOPE_STAB	EARTHQUAKE HAZARD	WAT_SCORE			
1N65	DUTCH JOHN FLAT	2	1	100	0	0	4	III	7		4	2	8	0.12
	DUTCH JOHN FLAT Total												**8.0**	0.12
4S01A	HALL DECKER SPUR	2	1	100	0	0	4	III	5		3	2	7	0.25
4S01A	HALL DECKER SPUR	2	1	100	0	100	5	III	5		3	2	8	0.04
	HALL DECKER SPUR Total												**7.1**	0.29
3N66A	LITTLE HORSETHIEF	2	1	103	0	0	4	III	5		3	2	7	0.21
3N66A	LITTLE HORSETHIEF	2	1	101	0	0	4	III	5		3	2	7	0.06
3N66A	LITTLE HORSETHIEF	2	1	100	0	0	4	III	5		3	2	7	0.04
	LITTLE HORSETHIEF Total												**7.0**	0.32
3N34D	DEVILS HOLE (OHV)	2	1	103	0	0	4	III	3		3	2	7	0.02
	DEVILS HOLE (OHV) Total												**7.0**	0.02
2N40	CLOUDLAND TRUCK TRAIL (OHV)	2	0	0	100	0	3	III	7	yes	5	2	8	0.45
2N40	CLOUDLAND TRUCK TRAIL (OHV)	2	0	0	100	0	3	III	7		4	2	7	0.24
2N40	CLOUDLAND TRUCK TRAIL (OHV)	2	0	0	0	0	0	III	10		5	2	5	0.15
2N40	CLOUDLAND TRUCK TRAIL (OHV)	2	1	0	0	100	2	III	7		4	2	6	0.08
2N40	CLOUDLAND TRUCK TRAIL (OHV)	2	0	0	0	0	0	III	7	yes	5	2	5	0.04
2N40	CLOUDLAND TRUCK TRAIL (OHV)	2	1	0	0	0	1	III	7		4	2	5	0.03
2N40	CLOUDLAND TRUCK TRAIL (OHV)	2	0	1	100	0	3	III	7	yes	5	2	8	0.02
	CLOUDLAND TRUCK TRAIL (OHV) Total												**7.0**	1.01
1N26	LITTLE SAND CREEK	1	0	0	100	0	3	III	7		4	2	7	2.16
1N26	LITTLE SAND CREEK	1	1	0	100	0	3	III	7		4	2	7	0.18
1N26	LITTLE SAND CREEK	1	1	2	100	0	3	III	7		4	2	7	0.08
1N26	LITTLE SAND CREEK	1	0	0	101	0	3	III	7		4	2	7	0.07
1N26	LITTLE SAND CREEK	1	1	0	0	0	1	III	7		4	2	5	0.07
	LITTLE SAND CREEK Total												**6.9**	2.55
1N38	HEART BAR PEAK	2	1	100	0	0	4	I	7		2	2	6	0.21
1N38	HEART BAR PEAK	2	1	100	0	0	4	I	5		2	2	6	0.10
1N38	HEART BAR PEAK	2	1	100	0	100	5	I	7		2	2	7	0.02
1N38	HEART BAR PEAK	2	1	100	0	100	5	I	5		2	2	7	0.02
	HEART BAR PEAK Total												**6.1**	0.35
1N13	SANTA ANA	2	0	0	0	0	0	III	7	yes	5	2	5	0.45
1N13	SANTA ANA	2	1	103	2	0	4	III	3		3	2	7	0.34
1N13	SANTA ANA	2	1	4	1	0	1	III	7		4	2	5	0.27
1N13	SANTA ANA	2	1	101	1	0	4	III	7		4	2	8	0.22
1N13	SANTA ANA	2	1	4	2	0	1	III	7		4	2	5	0.14
1N13	SANTA ANA	2	1	1	1	0	1	III	7	yes	5	2	6	0.13

Table E-6 SBNF: Roads with High Risk and Low Importance

ID	NAME	Operational Maintenance Level	Environmental Risk Indicators									PU and AD NEED	Weighted Average RAP SCORE	MILES
			Species Risk Indicators					Watershed Risk Indicators						
			RCA	RIP_SCORE	UP_SCORE	XINGS	SPP_SCORE	CONDITION	SLOPE_STAB	EARTHQUAKE HAZARD	WAT_SCORE			
1N13	SANTA ANA	2	1	103	1	0	4	III	7		4	2	8	0.09
1N13	SANTA ANA	2	1	102	2	0	4	III	3		3	2	7	0.09
1N13	SANTA ANA	2	1	104	2	0	4	III	3		3	2	7	0.08
1N13	SANTA ANA	2	1	2	2	0	1	III	3	yes	5	2	6	0.06
1N13	SANTA ANA	2	1	5	2	0	1	III	7		4	2	5	0.06
1N13	SANTA ANA	2	1	101	2	0	4	III	3		3	2	7	0.05
1N13	SANTA ANA	2	1	5	1	0	1	III	7		4	2	5	0.05
1N13	SANTA ANA	2	1	2	1	0	1	III	7	yes	5	2	6	0.04
1N13	SANTA ANA	2	1	1	2	0	1	III	3	yes	5	2	6	0.04
1N13	SANTA ANA	2	1	100	2	0	4	III	3		3	2	7	0.04
1N13	SANTA ANA	2	0	0	1	0	0	III	3	yes	5	2	5	0.04
1N13	SANTA ANA	2	1	1	1	0	1	III	7	no	4	2	5	0.04
1N13	SANTA ANA	2	1	1	2	0	1	III	7		4	2	5	0.03
1N13	SANTA ANA	2	1	2	1	0	1	III	3	yes	5	2	6	0.03
1N13	SANTA ANA	2	1	1	0	0	1	III	7		4	2	5	0.03
1N13	SANTA ANA	2	0	0	1	0	0	III	7	yes	5	2	5	0.03
1N13	SANTA ANA	2	1	1	1	0	1	III	7		4	2	5	0.03
1N13	SANTA ANA	2	1	1	0	0	1	III	7	yes	5	2	6	0.02
1N13	SANTA ANA	2	1	102	1	0	4	III	7		4	2	8	0.02
1N13	SANTA ANA	2	1	2	0	0	1	III	7	yes	5	2	6	0.02
1N13	SANTA ANA	2	1	1	2	0	1	III	7	no	4	2	5	0.01
1N13	SANTA ANA	2	1	100	1	0	4	III	7		4	2	8	0.01
1N13	SANTA ANA	2	1	0	1	0	1	III	7	yes	5	2	6	0.01
1N13	SANTA ANA	2	1	101	2	0	4	III	7		4	2	8	0.01
	SANTA ANA Total												**6.0**	2.48
2S01A	BIG OAKS POWERHOUSE	2	1	1	0	0	1	II	10		5	2	6	0.04
2S01A	BIG OAKS POWERHOUSE	2	1	1	0	100	2	II	10		5	2	7	0.04
2S01A	BIG OAKS POWERHOUSE	2	0	0	0	0	0	II	10		5	2	5	0.03
	BIG OAKS POWERHOUSE Total												**6.0**	0.12
1N03	SUGARLOAF MEADOW	2	1	10	0	0	4	I	5		2	2	6	0.14
1N03	SUGARLOAF MEADOW	2	1	101	1	0	4	I	5		2	2	6	0.05
1N03	SUGARLOAF MEADOW	2	1	100	0	0	4	I	5		2	2	6	0.04
1N03	SUGARLOAF MEADOW	2	1	100	1	0	4	I	5		2	2	6	0.03
1N03	SUGARLOAF MEADOW	2	1	101	1	0	4	I	3		1	2	5	0.02
	SUGARLOAF MEADOW Total												**5.9**	0.29
3N93	HOLCOMB CREEK (4WD)	2	1	2	0	0	1	III	7		4	2	5	0.68

Table E-6 SBNF: Roads with High Risk and Low Importance

ID	NAME	Operational Maintenance Level	Environmental Risk Indicators									PU and AD NEED	Weighted Average RAP SCORE	MILES
			Species Risk Indicators					Watershed Risk Indicators						
			RCA	RIP_SCORE	UP_SCORE	XINGS	SPP_SCORE	CONDITION	SLOPE_STAB	EARTHQUAKE HAZARD	WAT_SCORE			
3N93	HOLCOMB CREEK (4WD)	2	1	101	0	0	4	III	5		3	2	7	0.14
3N93	HOLCOMB CREEK (4WD)	2	1	1	0	0	1	III	7		4	2	5	0.14
3N93	HOLCOMB CREEK (4WD)	2	1	2	0	100	2	III	7		4	2	6	0.10
3N93	HOLCOMB CREEK (4WD)	2	1	100	0	0	4	III	7		4	2	8	0.10
3N93	HOLCOMB CREEK (4WD)	2	1	0	0	0	1	III	7		4	2	5	0.04
3N93	HOLCOMB CREEK (4WD)	2	1	0	0	100	2	III	7		4	2	6	0.04
3N93	HOLCOMB CREEK (4WD)	2	1	101	0	100	5	III	5		3	2	8	0.04
3N93	HOLCOMB CREEK (4WD)	2	1	101	0	0	4	III	7		4	2	8	0.03
3N93	HOLCOMB CREEK (4WD)	2	1	1	0	100	2	III	7		4	2	6	0.01
	HOLCOMB CREEK (4WD) Total												**5.7**	1.32
2N87	CHALK	2	0	0	0	0	0	II	3	yes	5	2	5	0.12
2N87	CHALK	2	1	0	0	0	1	II	3	yes	5	2	6	0.10
2N87	CHALK	2	1	1	0	0	1	II	3	yes	5	2	6	0.09
2N87	CHALK	2	1	3	0	0	1	II	3	yes	5	2	6	0.08
2N87	CHALK	2	1	2	0	0	1	II	3	yes	5	2	6	0.02
	CHALK Total												**5.7**	0.41
2N43	SAWPIT CANYON	2	0	0	0	0	0	III	10		5	2	5	0.25
2N43	SAWPIT CANYON	2	0	0	100	0	3	III	7		4	2	7	0.20
2N43	SAWPIT CANYON	2	1	1	0	0	1	III	7		4	2	5	0.16
2N43	SAWPIT CANYON	2	1	0	1	100	2	III	7		4	2	6	0.08
2N43	SAWPIT CANYON	2	1	0	1	0	1	III	7		4	2	5	0.02
	SAWPIT CANYON Total												**5.7**	0.70
3N11	WRIGHT MINE (OHV)	2	1	0	0	100	2	II	7		4	2	6	0.04
3N11	WRIGHT MINE (OHV)	2	1	0	0	0	1	II	7		4	2	5	0.02
	WRIGHT MINE (OHV) Total												**5.7**	0.06
3N11A	WRIGHT MINE	2	1	0	0	100	2	II	7		4	2	6	0.06
3N11A	WRIGHT MINE	2	1	0	0	0	1	II	7		4	2	5	0.04
3N11A	WRIGHT MINE	2	1	0	1	100	2	II	7		4	2	6	0.04
3N11A	WRIGHT MINE	2	1	0	1	0	1	II	7		4	2	5	0.01
	WRIGHT MINE Total												**5.7**	0.15
1N54A	BELLYACHE SPRINGS	1	1	1	0	0	1	I	10		5	2	6	0.09
1N54A	BELLYACHE SPRINGS	1	0	0	0	0	0	I	10		5	2	5	0.05
	BELLYACHE SPRINGS Total												**5.6**	0.13
1S22	WILSHIRE PEAK (4WD)	2	1	0	0	0	1	II	10	no	5	2	6	0.13
1S22	WILSHIRE PEAK (4WD)	2	0	0	0	0	0	II	10	no	5	2	5	0.09
	WILSHIRE PEAK (4WD) Total												**5.6**	0.22

Table E-6 SBNF: Roads with High Risk and Low Importance

ID	NAME	Operational Maintenance Level	Environmental Risk Indicators									PU and AD NEED	Weighted Average RAP SCORE	MILES
			Species Risk Indicators					Watershed Risk Indicators						
			RCA	RIP_SCORE	UP_SCORE	XINGS	SPP_SCORE	CONDITION	SLOPE_STAB	EARTHQUAKE HAZARD	WAT_SCORE			
2N36	PILOT ROCK RIDGE (OHV	2	1	0	0	100	2	III	7		4	2	6	0.04
2N36	PILOT ROCK RIDGE (OHV	2	1	0	0	0	1	III	7		4	2	5	0.03
	PILOT ROCK RIDGE (OHV Total												**5.6**	0.07
3N06A	COLD WATER CANYON	2	0	0	0	0	0	II	10		5	2	5	0.14
3N06A	COLD WATER CANYON	2	1	1	0	0	1	II	10		5	2	6	0.09
3N06A	COLD WATER CANYON	2	1	0	0	0	1	II	10		5	2	6	0.03
	COLD WATER CANYON Total												**5.5**	0.26
6S18	HOG LAKE	2	0	0	0	0	0	I	7	yes	5	2	5	0.42
6S18	HOG LAKE	2	0	0	0	0	0	I	3	yes	5	2	5	0.32
6S18	HOG LAKE	2	1	1	0	0	1	I	7	yes	5	2	6	0.15
6S18	HOG LAKE	2	1	0	0	0	1	I	7	yes	5	2	6	0.12
6S18	HOG LAKE	2	1	1	0	0	1	I	5	yes	5	2	6	0.08
6S18	HOG LAKE	2	1	0	0	100	2	I	7	yes	5	2	7	0.06
6S18	HOG LAKE	2	1	1	0	100	2	I	7	yes	5	2	7	0.01
	HOG LAKE Total												**5.4**	1.17
1N15	OLD CITY CREEK WAY	1	1	0	0	0	1	III	7		4	2	5	0.06
1N15	OLD CITY CREEK WAY	1	1	0	0	100	2	III	7		4	2	6	0.04
	OLD CITY CREEK WAY Total												**5.4**	0.10
3N06B	PAIUTE	2	0	0	0	0	0	II	10		5	2	5	0.26
3N06B	PAIUTE	2	0	0	0	0	0	II	10	yes	5	2	5	0.18
3N06B	PAIUTE	2	1	1	0	0	1	II	10		5	2	6	0.16
3N06B	PAIUTE	2	1	1	0	0	1	II	10	yes	5	2	6	0.04
3N06B	PAIUTE	2	1	0	0	0	1	II	10	yes	5	2	6	0.02
3N06B	PAIUTE	2	1	1	0	100	2	II	10		5	2	7	0.01
	PAIUTE Total												**5.4**	0.67
1S12	WARM SPRINGS	2	0	0	0	0	0	III	7	yes	5	2	5	1.70
1S12	WARM SPRINGS	2	1	1	0	0	1	III	7	yes	5	2	6	0.18
1S12	WARM SPRINGS	2	1	0	0	0	1	III	7	yes	5	2	6	0.17
1S12	WARM SPRINGS	2	1	1	1	0	1	III	7	yes	5	2	6	0.13
1S12	WARM SPRINGS	2	1	4	0	0	1	III	7	yes	5	2	6	0.12
1S12	WARM SPRINGS	2	1	0	0	100	2	III	7	no	4	2	6	0.06
1S12	WARM SPRINGS	2	1	0	0	100	2	III	7	yes	5	2	7	0.06
1S12	WARM SPRINGS	2	1	0	0	0	1	III	7	no	4	2	5	0.05
1S12	WARM SPRINGS	2	1	2	1	0	1	III	7	yes	5	2	6	0.04
1S12	WARM SPRINGS	2	0	0	1	0	0	III	3	yes	5	2	5	0.04
1S12	WARM SPRINGS	2	1	2	2	0	1	III	3	yes	5	2	6	0.03

Table E-6 SBNF: Roads with High Risk and Low Importance

ID	NAME	Operational Maintenance Level	Environmental Risk Indicators									PU and AD NEED	Weighted Average RAP SCORE	MILES
			Species Risk Indicators					Watershed Risk Indicators						
			RCA	RIP_SCORE	UP_SCORE	XINGS	SPP_SCORE	CONDITION	SLOPE_STAB	EARTHQUAKE HAZARD	WAT_SCORE			
1S12	WARM SPRINGS	2	1	2	1	0	1	III	3	yes	5	2	6	0.03
1S12	WARM SPRINGS	2	1	3	0	0	1	III	7	yes	5	2	6	0.03
1S12	WARM SPRINGS	2	1	2	0	0	1	III	7	yes	5	2	6	0.03
1S12	WARM SPRINGS	2	0	0	1	0	0	III	7	yes	5	2	5	0.03
1S12	WARM SPRINGS	2	1	0	1	0	1	III	7	yes	5	2	6	0.01
1S12	WARM SPRINGS	2	1	1	2	0	1	III	3	yes	5	2	6	0.01
	WARM SPRINGS Total												**5.4**	2.74
2N59	RAINBOW (OHV)	2	1	1	0	0	1	III	7		4	2	5	0.12
2N59	RAINBOW (OHV)	2	1	1	1	0	1	III	7		4	2	5	0.09
2N59	RAINBOW (OHV)	2	1	0	0	100	2	III	7		4	2	6	0.08
2N59	RAINBOW (OHV)	2	1	0	1	100	2	III	7		4	2	6	0.04
2N59	RAINBOW (OHV)	2	1	0	0	0	1	III	7		4	2	5	0.02
	RAINBOW (OHV) Total												**5.3**	0.34
3S08	VISTA GRANDE	2	1	1	0	0	1	II	7		4	2	5	0.09
3S08	VISTA GRANDE	2	1	1	0	100	2	II	7		4	2	6	0.04
	VISTA GRANDE Total												**5.3**	0.13
2S01	RAYWOOD FLAT	2	0	0	0	0	0	II	10		5	2	5	2.99
2S01	RAYWOOD FLAT	2	1	0	0	100	2	II	10		5	2	7	0.39
2S01	RAYWOOD FLAT	2	1	0	0	0	1	II	10		5	2	6	0.15
2S01	RAYWOOD FLAT	2	1	1	0	0	1	II	7		4	2	5	0.15
2S01	RAYWOOD FLAT	2	1	1	0	0	1	II	10		5	2	6	0.14
2S01	RAYWOOD FLAT	2	0	0	0	0	0	I	5	yes	5	2	5	0.10
2S01	RAYWOOD FLAT	2	1	0	0	0	1	II	7		4	2	5	0.04
2S01	RAYWOOD FLAT	2	0	0	0	0	0	I	7	yes	5	2	5	0.03
	RAYWOOD FLAT Total												**5.3**	3.98
1N72	BALD COVE (4WD)	2	1	100	0	0	4	I	3		1	2	5	0.09
1N72	BALD COVE (4WD)	2	1	100	0	0	4	I	7		2	2	6	0.03
	BALD COVE (4WD) Total												**5.2**	0.12
1N45A	CAMP RIVER GLEN	2	1	101	1	0	4	I	3		1	2	5	0.27
1N45A	CAMP RIVER GLEN	2	1	101	1	100	5	I	3		1	2	6	0.08
	CAMP RIVER GLEN Total												**5.2**	0.34
2N63	4000 FOOT	2	1	3	0	0	1	III	7		4	2	5	0.12
2N63	4000 FOOT	2	1	0	1	100	2	III	7		4	2	6	0.04
2N63	4000 FOOT	2	1	0	1	0	1	III	7		4	2	5	0.03
2N63	4000 FOOT	2	1	1	0	0	1	III	7		4	2	5	0.02
	4000 FOOT Total												**5.2**	0.21

Table E-6 SBNF: Roads with High Risk and Low Importance

ID	NAME	Operational Maintenance Level	Environmental Risk Indicators									PU and AD NEED	Weighted Average RAP SCORE	MILES
			Species Risk Indicators					Watershed Risk Indicators						
			RCA	RIP_SCORE	UP_SCORE	XINGS	SPP_SCORE	CONDITION	SLOPE_STAB	EARTHQUAKE HAZARD	WAT_SCORE			
3N54	FURNACE	1	0	0	1	0	0	II	10		5	2	5	2.53
3N54	FURNACE	2	0	0	1	0	0	II	10		5	2	5	0.95
3N54	FURNACE	1	1	0	1	100	2	II	10		5	2	7	0.26
3N54	FURNACE	1	1	0	1	0	1	II	10		5	2	6	0.23
3N54	FURNACE	2	1	0	1	100	2	II	10		5	2	7	0.01
3N54	FURNACE	2	1	0	1	0	1	II	10		5	2	6	0.01
	FURNACE Total												**5.2**	3.98
1N04	RADFORD FRONT LINE	2	1	100	0	0	4	I	3		1	2	5	0.97
1N04	RADFORD FRONT LINE	2	1	101	1	0	4	I	3		1	2	5	0.76
1N04	RADFORD FRONT LINE	3	1	100	0	0	4	I	3		1	2	5	0.22
1N04	RADFORD FRONT LINE	2	1	101	0	0	4	I	5		2	2	6	0.20
1N04	RADFORD FRONT LINE	2	1	101	0	0	4	I	3		1	2	5	0.18
1N04	RADFORD FRONT LINE	2	1	100	0	0	4	I	5		2	2	6	0.12
1N04	RADFORD FRONT LINE	2	1	100	1	0	4	I	3		1	2	5	0.12
1N04	RADFORD FRONT LINE	2	1	100	0	100	5	I	3		1	2	6	0.04
1N04	RADFORD FRONT LINE	3	1	100	0	100	5	I	3		1	2	6	0.04
1N04	RADFORD FRONT LINE	2	1	100	0	100	5	I	5		2	2	7	0.04
1N04	RADFORD FRONT LINE	2	1	100	1	100	5	I	3		1	2	6	0.03
1N04	RADFORD FRONT LINE	2	1	100	1	0	4	I	5		2	2	6	0.01
1N04	RADFORD FRONT LINE	2	1	101	1	100	5	I	3		1	2	6	0.01
1N04	RADFORD FRONT LINE	2	1	101	1	0	4	I	5		2	2	6	0.01
	RADFORD FRONT LINE Total												**5.2**	2.75
2N50	PERDEW CANYON	2	0	0	0	0	0	II	7	yes	5	2	5	0.88
2N50	PERDEW CANYON	2	1	1	0	0	1	II	7	yes	5	2	6	0.12
2N50	PERDEW CANYON	2	1	1	0	0	1	II	3	yes	5	2	6	0.10
2N50	PERDEW CANYON	2	0	0	0	0	0	II	3	yes	5	2	5	0.06
	PERDEW CANYON Total												**5.2**	1.16
2S01B	PENSTOCK WATER TANK	2	0	0	0	0	0	II	10		5	2	5	0.42
2S01B	PENSTOCK WATER TANK	2	1	1	0	0	1	II	10		5	2	6	0.10
	PENSTOCK WATER TANK Total												**5.2**	0.52
2N58A	MIDDLE FORK SPUR	2	0	0	0	0	0	II	10		5	2	5	0.09
2N58A	MIDDLE FORK SPUR	2	1	1	0	0	1	II	10		5	2	6	0.02
	MIDDLE FORK SPUR Total												**5.2**	0.11
2S06	MILE HIGH	2	1	2	0	0	1	II	7		4	2	5	0.17
2S06	MILE HIGH	2	1	1	0	0	1	II	7		4	2	5	0.05
2S06	MILE HIGH	2	1	2	0	100	2	II	7		4	2	6	0.05

Table E-6 SBNF: Roads with High Risk and Low Importance

ID	NAME	Operational Maintenance Level	Environmental Risk Indicators									PU and AD NEED	Weighted Average RAP SCORE	MILES
			Species Risk Indicators					Watershed Risk Indicators						
			RCA	RIP_SCORE	UP_SCORE	XINGS	SPP_SCORE	CONDITION	SLOPE_STAB	EARTHQUAKE HAZARD	WAT_SCORE			
2S06	MILE HIGH	2	1	0	0	0	1	II	7		4	2	5	0.03
	MILE HIGH Total												**5.2**	0.30
2N13D	CRAFTS PEAK	2	1	0	0	0	1	III	7		4	2	5	0.20
2N13D	CRAFTS PEAK	2	1	0	0	100	2	III	7		4	2	6	0.04
	CRAFTS PEAK Total												**5.2**	0.24
2N93	WILDHORSE MEADOW	2	1	1	0	0	1	III	7		4	2	5	0.21
2N93	WILDHORSE MEADOW	2	1	1	0	100	2	III	7		4	2	6	0.04
	WILDHORSE MEADOW Total												**5.2**	0.25
1S14	MORTON FRONT LINE	2	0	0	0	0	0	III	5	yes	5	2	5	0.72
1S14	MORTON FRONT LINE	2	1	0	0	0	1	III	5	yes	5	2	6	0.04
1S14	MORTON FRONT LINE	2	1	0	0	100	2	III	5	yes	5	2	7	0.04
1S14	MORTON FRONT LINE	2	0	0	1	0	0	III	5	yes	5	2	5	0.02
	MORTON FRONT LINE Total												**5.1**	0.82
2N55A	LYTLE CREEK RS SPUR A	2	0	0	0	0	0	II	3	yes	5	2	5	0.54
2N55A	LYTLE CREEK RS SPUR A	2	1	1	0	0	1	II	3	yes	5	2	6	0.09
2N55A	LYTLE CREEK RS SPUR A	2	0	0	0	0	0	II	7	yes	5	2	5	0.06
	LYTLE CREEK RS SPUR A Total												**5.1**	0.70
1N39A	BIG MEADOWS	1	1	100	0	0	4	I	3		1	2	5	0.11
1N39A	BIG MEADOWS	1	1	101	0	0	4	I	3		1	2	5	0.10
1N39A	BIG MEADOWS	1	1	101	1	0	4	I	3		1	2	5	0.05
1N39A	BIG MEADOWS	1	1	101	1	100	5	I	3		1	2	6	0.04
	BIG MEADOWS Total												**5.1**	0.29
1N86	HILL RANCH	2	1	101	0	0	4	I	3		1	2	5	0.24
1N86	HILL RANCH	2	1	100	0	0	4	I	3		1	2	5	0.14
1N86	HILL RANCH	2	1	101	0	100	5	I	3		1	2	6	0.04
	HILL RANCH Total												**5.1**	0.42
1N21	PLUNGE CREEK	1	0	0	1	0	0	III	5	yes	5	2	5	0.47
1N21	PLUNGE CREEK	1	1	1	0	0	1	III	7		4	2	5	0.31
1N21	PLUNGE CREEK	1	0	0	0	0	0	III	7	yes	5	2	5	0.27
1N21	PLUNGE CREEK	1	1	0	0	0	1	III	7		4	2	5	0.13
1N21	PLUNGE CREEK	1	0	0	0	0	0	III	5	yes	5	2	5	0.11
1N21	PLUNGE CREEK	1	1	0	0	100	2	III	7		4	2	6	0.08
1N21	PLUNGE CREEK	1	1	2	0	0	1	III	7		4	2	5	0.06
1N21	PLUNGE CREEK	1	0	0	1	0	0	III	7	yes	5	2	5	0.03
1N21	PLUNGE CREEK	1	1	4	0	100	2	III	7		4	2	6	0.03
1N21	PLUNGE CREEK	1	1	3	0	0	1	III	7		4	2	5	0.02

Table E-6 SBNF: Roads with High Risk and Low Importance

ID	NAME	Operational Maintenance Level	Environmental Risk Indicators									PU and AD NEED	Weighted Average RAP SCORE	MILES
			Species Risk Indicators					Watershed Risk Indicators						
			RCA	RIP_SCORE	UP_SCORE	XINGS	SPP_SCORE	CONDITION	SLOPE_STAB	EARTHQUAKE HAZARD	WAT_SCORE			
1N21	PLUNGE CREEK	1	1	3	0	100	2	III	7		4	2	6	0.01
	PLUNGE CREEK Total												**5.1**	1.54
6S16	COTTONWOOD	2	0	0	0	0	0	I	5	yes	5	2	5	1.37
6S16	COTTONWOOD	2	1	0	0	0	1	I	7	yes	5	2	6	0.05
6S16	COTTONWOOD	2	1	0	0	100	2	I	7	yes	5	2	7	0.03
6S16	COTTONWOOD	2	0	0	0	0	0	I	7	yes	5	2	5	0.03
	COTTONWOOD Total												**5.1**	1.48
1N54	CLARKS GRADE	2	0	0	0	0	0	I	10		5	2	5	3.73
1N54	CLARKS GRADE	2	1	1	0	0	1	I	10		5	2	6	0.14
1N54	CLARKS GRADE	2	1	1	0	100	2	I	10		5	2	7	0.04
	CLARKS GRADE Total												**5.1**	3.91
1N16	ALDER CREEK	2	0	0	0	0	0	III	7	yes	5	2	5	0.77
1N16	ALDER CREEK	2	0	0	0	0	0	III	10		5	2	5	0.25
1N16	ALDER CREEK	4	0	0	100	0	3	III	7	no	4	2	7	0.03
	ALDER CREEK Total												**5.0**	1.04
6S17	BLACKBURN RIDGE	2	0	0	0	0	0	I	5	yes	5	2	5	0.66
6S17	BLACKBURN RIDGE	2	0	0	1	0	0	I	5	yes	5	2	5	0.24
6S17	BLACKBURN RIDGE	2	1	14	2	0	4	I	5		2	2	6	0.03
6S17	BLACKBURN RIDGE	2	1	11	2	0	4	I	5		2	2	6	0.01
	BLACKBURN RIDGE Total												**5.0**	0.95
1N12	THOMAS HUNTING GROUNDS	2	0	0	0	0	0	III	7	yes	5	2	5	0.91
1N12	THOMAS HUNTING GROUNDS	2	1	1	0	0	1	III	7		4	2	5	0.24
1N12	THOMAS HUNTING GROUNDS	2	1	0	0	0	1	III	7		4	2	5	0.21
1N12	THOMAS HUNTING GROUNDS	2	1	0	0	0	1	III	7	yes	5	2	6	0.01
	THOMAS HUNTING GROUNDS Total												**5.0**	1.38
3N88	CRYSTAL CREEK	2	0	0	1	0	0	II	10		5	2	5	2.52
	CRYSTAL CREEK Total												**5.0**	2.52
2N45	NORTH SPUR	2	0	0	0	0	0	III	10		5	2	5	1.35
2N45	NORTH SPUR	2	1	1	0	0	1	III	7		4	2	5	0.03
	NORTH SPUR Total												**5.0**	1.38
1N09C	KELLER RIDGE	2	0	0	0	0	0	III	10		5	2	5	0.85
	KELLER RIDGE Total												**5.0**	0.85
2N47	CLEGHORN RIDGE (OHV)	2	0	0	0	0	0	II	10		5	2	5	0.57
2N47	CLEGHORN RIDGE (OHV)	2	0	0	0	0	0	III	10		5	2	5	0.19
	CLEGHORN RIDGE (OHV) Total												**5.0**	0.77
2N61	BLUE CUT	1	0	0	0	0	0	II	7	yes	5	2	5	0.39

Table E-6 SBNF: Roads with High Risk and Low Importance

ID	NAME	Operational Maintenance Level	Environmental Risk Indicators									PU and AD NEED	Weighted Average RAP SCORE	MILES
			Species Risk Indicators					Watershed Risk Indicators						
			RCA	RIP_SCORE	UP_SCORE	XINGS	SPP_SCORE	CONDITION	SLOPE_STAB	EARTHQUAKE HAZARD	WAT_SCORE			
2N61	BLUE CUT	1	0	0	0	0	0	II	5	yes	5	2	5	0.25
2N61	BLUE CUT	1	0	0	0	0	0	II	3	yes	5	2	5	0.11
	BLUE CUT Total												**5.0**	0.75
2N52	B P & L	2	0	0	0	0	0	II	7	yes	5	2	5	0.48
2N52	B P & L	2	0	0	1	0	0	II	7	yes	5	2	5	0.21
	B P & L Total												**5.0**	0.69
2N13B	BUTLER PEAK	2	0	0	0	0	0	III	10		5	2	5	0.66
	BUTLER PEAK Total												**5.0**	0.66
3N77	DRY CANYON SPUR (OHV)	0	0	0	0	0	0	II	10		5	1	5	0.37
3N77	DRY CANYON SPUR (OHV)	0	0	0	1	0	0	II	10		5	1	5	0.27
	DRY CANYON SPUR (OHV) Total												**5.0**	0.64
3N36	MONARCH FLAT (4WD)	2	1	0	1	0	1	II	7		4	2	5	0.37
3N36	MONARCH FLAT (4WD)	2	1	1	1	0	1	II	7		4	2	5	0.14
3N36	MONARCH FLAT (4WD)	2	0	0	1	0	0	II	10		5	2	5	0.10
	MONARCH FLAT (4WD) Total												**5.0**	0.60
2N97	SIBERIA CREEK	2	0	0	0	0	0	III	10		5	2	5	0.32
	SIBERIA CREEK Total												**5.0**	0.32
2N79	PENSTOCK RIDGE	2	0	0	0	0	0	II	7	yes	5	2	5	0.29
	PENSTOCK RIDGE Total												**5.0**	0.29
2N15	GLORY RIDGE	4	0	0	0	0	0	III	10		5	1	5	0.12
2N15	GLORY RIDGE	2	0	0	0	0	0	III	10		5	1	5	0.08
	GLORY RIDGE Total												**5.0**	0.20
3N77A	3N77A	2	0	0	0	0	0	II	10		5	2	5	0.20
	3N77A Total												**5.0**	0.20
2N49B	PINE FLAT	2	0	0	0	0	0	III	10		5	2	5	0.20
	PINE FLAT Total												**5.0**	0.20
1N90	RESORT TS	2	1	103	1	0	4	I	3		1	2	5	0.17
1N90	RESORT TS	2	1	103	0	0	4	I	3		1	2	5	0.02
	RESORT TS Total												**5.0**	0.19
2N49C	SUGARPINE SPUR	2	0	0	0	0	0	III	10		5	2	5	0.16
	SUGARPINE SPUR Total												**5.0**	0.16
2N48Y	2N48Y	2	1	1	0	0	1	III	7		4	2	5	0.13
2N48Y	2N48Y	2	1	0	0	0	1	III	7		4	2	5	0.03
	2N48Y Total												**5.0**	0.16
3N88A	CRYSTAL CREEK SPUR A	2	0	0	1	0	0	II	10		5	2	5	0.15
	CRYSTAL CREEK SPUR A Total												**5.0**	0.15

Table E-6 SBNF: Roads with High Risk and Low Importance

ID	NAME	Operational Maintenance Level	Environmental Risk Indicators									PU and AD NEED	Weighted Average RAP SCORE	MILES
			Species Risk Indicators					Watershed Risk Indicators						
			RCA	RIP_SCORE	UP_SCORE	XINGS	SPP_SCORE	CONDITION	SLOPE_STAB	EARTHQUAKE HAZARD	WAT_SCORE			
1N44	DEER CANYON	1	0	0	1	0	0	I	10		5	2	5	0.11
1N44	DEER CANYON	1	0	0	2	0	0	I	10		5	2	5	0.04
	DEER CANYON Total												**5.0**	0.14
2N18	FISHERMANS CAMP	2	1	2	0	0	1	III	7		4	2	5	0.12
2N18	FISHERMANS CAMP	2	1	1	0	0	1	III	7		4	2	5	0.01
	FISHERMANS CAMP Total												**5.0**	0.13
1N42	MILL PEAK	2	0	0	0	0	0	III	10		5	2	5	0.09
	MILL PEAK Total												**5.0**	0.09
3N17	WHITE MOUNTAIN	0	0	0	0	0	0	II	10		5	1	5	0.08
	WHITE MOUNTAIN Total												**5.0**	0.08
1N17A	LOST CREEK TRACT	2	1	100	0	0	4	I	3		1	2	5	0.06
1N17A	LOST CREEK TRACT	2	1	101	1	0	4	I	3		1	2	5	0.01
	LOST CREEK TRACT Total												**5.0**	0.07
2N46	SUGARPINE SPRINGS	2	0	0	0	0	0	III	10		5	2	5	0.07
	SUGARPINE SPRINGS Total												**5.0**	0.07
3N57	WHISKY SPRINGS	2	0	0	1	0	0	II	10		5	2	5	0.05
	WHISKY SPRINGS Total												**5.0**	0.05
1N34A	ETIWANDA RIDGE	0	0	0	0	0	0	I	10		5	1	5	0.05
	ETIWANDA RIDGE Total												**5.0**	0.05
3N46	WARM SPRINGS CUTOFF	1	1	1	0	0	1	III	7		4	2	5	0.05
	WARM SPRINGS CUTOFF Total												**5.0**	0.05
3N16R	GREEN VALLEY CREEK	1	1	1	0	0	1	III	7		4	2	5	0.04
	GREEN VALLEY CREEK Total												**5.0**	0.04
5S08	BALDY MOUNTAIN	2	0	0	0	0	0	III	3	yes	5	2	5	0.03
	BALDY MOUNTAIN Total												**5.0**	0.03
3N88B	CRYSTAL CREEK SPUR B	2	0	0	0	0	0	III	10		5	2	5	0.03
	CRYSTAL CREEK SPUR B Total												**5.0**	0.03
2N01X	PARALLEL	1	1	1	0	0	1	III	7		4	2	5	0.02
	PARALLEL Total												**5.0**	0.02
3N14P	HANNA FLAT SPUR	1	1	0	0	0	1	III	7		4	2	5	0.02
	HANNA FLAT SPUR Total												**5.0**	0.02
1S09	YUCAIPA RIDGE	2	0	0	0	0	0	II	10	no	5	2	5	2.07
1S09	YUCAIPA RIDGE	2	0	0	0	0	0	III	10	no	5	2	5	0.68
1S09	YUCAIPA RIDGE	2	0	0	0	0	0	II	10	yes	5	2	5	0.36
1S09	YUCAIPA RIDGE	2	0	0	0	0	0	III	3	yes	5	2	5	0.26
1S09	YUCAIPA RIDGE	2	0	0	0	0	0	III	10	yes	5	2	5	0.20

Table E-6 SBNF: Roads with High Risk and Low Importance

ID	NAME	Operational Maintenance Level	Environmental Risk Indicators									PU and AD NEED	Weighted Average RAP SCORE	MILES
			Species Risk Indicators					Watershed Risk Indicators						
			RCA	RIP_SCORE	UP_SCORE	XINGS	SPP_SCORE	CONDITION	SLOPE_STAB	EARTHQUAKE HAZARD	WAT_SCORE			
1S09	YUCAIPA RIDGE	2	0	0	0	0	0	II	7	yes	5	2	5	0.04
	YUCAIPA RIDGE Total												**5.0**	3.62
2S23	WILLIAMS RANCH	2	0	0	0	0	0	II	3	yes	5	2	5	0.79
2S23	WILLIAMS RANCH	2	0	0	0	0	0	II	10	yes	5	2	5	0.04
	WILLIAMS RANCH Total												**5.0**	0.83
2S03	KITCHING PEAK	2	1	1	0	0	1	II	7		4	2	5	0.30
2S03	KITCHING PEAK	2	1	0	0	0	1	II	7		4	2	5	0.25
2S03	KITCHING PEAK	2	1	4	0	0	1	II	7		4	2	5	0.16
2S03	KITCHING PEAK	2	1	3	0	0	1	II	7		4	2	5	0.02
	KITCHING PEAK Total												**5.0**	0.73
	Grand Total													59.29

Table E2 SBNF High Priority for Mitigation (HPM) 2005 RAP

NAME	RAP SCORE	MILES
DALEY Total	6.3	2.26
HEART BAR PEAK Total	6.1	0.35
SANTA ANA Total	6.0	2.48
HOLCOMB CREEK (4WD) Total	5.7	1.32
OLD CC SPUR Total	5.4	2.14
MEYERS CANYON Total	5.4	0.56
SHEEP CANYON Total	5.4	1.64
CITY CREEK Total	5.4	3.94
BAILEY CANYON Total	5.2	6.21
APPLEWHITE Total	5.2	1.52
BIG TREE CUCAMONGA Total	5.1	10.21
HOLCOMB VALLEY Total	5.1	0.50
SNOW SLIDE Total	5.0	0.04
Grand Total		33.14

Table E3 SBNF Low Priority for Mitigation (LPM) 2005 RAP

LPM - NAME	RAP SCORE	MILES
ALDER CREEK Total	5	1.04
BALD COVE (4WD) Total	5.2	0.12
BIG MEADOWS Total	5.1	0.29
CAMP RIVER GLEN Total	5.2	0.34
CLARKS GRADE Total	5.1	3.91
DUTCH JOHN FLAT Total	8	0.12
FURNACE Total	5.2	3.98
HALL DECKER SPUR Total	7.1	0.29
HILL RANCH Total	5.1	0.42
KELLER RIDGE Total	5	0.85

LITTLE HORSETHIEF Total	7	0.32
LITTLE SAND CREEK Total	6.9	2.55
MILE HIGH Total	5.2	0.3
PILOT ROCK RIDGE (OHV Total	5.6	0.07
RADFORD FRONT LINE Total	5.2	2.75
RAINBOW (OHV) Total	5.3	0.34
RAYWOOD FLAT Total	5.3	3.98
ROUSE HILL Total	5.1	0.14
SHARPLESS RANCH Total	5.4	0.6
SOUTHERN PACIFIC Total	6.3	0.99
SUGARLOAF MEADOW Total	5.9	0.29
VISTA GRANDE Total	5.3	0.13
WARM SPRINGS Total	5.4	2.74

Appendix F RAP 2005 GIS-Based Risk-Benefit Model

The purpose of this step is to:

- Assess the various benefits, problems, and risks of the current road system and whether the objectives of Forest Service policy reform and forest plans are being met.

The products of this step are:

- A synthesis of the benefits, problems, and risks of the current road system
- An assessment of the ability of the road system to meet objectives.

Model Description Risks

A process for assigning environmental risk scores to road segments was developed by the ID team in order to measure a road's impact on threatened, endangered and sensitive species and the watershed in which it is located. A full description of the risk assessment process, including elements and criteria, is located in Appendix C. Two types of risk scores were generated – a species risk score *(*SPP_SCORE) and a watershed risk score (WAT_SCORE). These two types were combined into a total risk score (RAP_SCORE), which can have a maximum value of "10".

Watershed Risk Rating Components:

- Watershed Condition Class (Condition)
- Slope Stability Hazard (Slope_Stab)
- Earthquake Hazard Rating (Alq_pri)

Species Risk Rating Components:

- Riparian Species – Key, Modeled or Occupied habitat (RIP_Score)
- Stream Crossings (X_ings)
- Key, modeled or occupied habitat for Threatened, Endangered or Sensitive (TES) Species outside of riparian areas (Up_Score)
- Riparian Conservation Areas (RCA)

Benefit Components:

The benefit of a NFS road was gauged by both its public and administrative importance. The process used to assign importance scores is discussed in *Appendix C,* Risk Assessment Process. Scores for importance, as well as for risk, were measured on a scale of 1 to 5 (See Table 4.1).

Table F.1 Environmental Risk and Benefit Rating Scale

Risk Rating	Definition
0	No Effect
1	Low
2	Low to moderate
3	Moderate
4	Moderate to High
5	High

Various environmental indicators were used to evaluate the "risk" associated with a road segment. The indicators chosen to evaluate "risk" were based upon the questions provided in *Roads Analysis: Informing Decisions About Managing the National Forest Transportation System* (Forest Service, 1999). A complete list of these questions, along with the indictors used to address them can be found in *Appendix D,* Questions, Issues, and Indicators.

Using GIS, each Forest's existing travel routes road layer was intersected with numerous layers containing spatial distributions of species, riparian habitats, watersheds, etc. These intersections produced thousands of discrete road segments, each with a unique value for the various risk indicators. Risk indicators, as mentioned previously, were grouped into two types - species and watershed indicators. The types of risks analyzed by the value of each indictor are summarized below.

The slope stability indicator measures the geomorphic effects of roads. The effects range from chronic and long-term contributions of fine sediment into streams to catastrophic mass failures of road cuts and fills during large storms. Roads may alter channel morphology directly or may modify channel flowpaths and extend the drainage network into previously unchannelized portions of the hillslope. The magnitude of road-related geomorphic effects varies by climate, geology, road age, construction practices, and storm history (USDA Forest Service, 2000).

The "stream crossings" and "condition class" indicators measure the three main effects roads have on hydrologic processes: they intercept rainfall directly on the road surface, road cutbanks, and subsurface water moving down the hillslope; they concentrate flow, either on the surface or in an adjacent ditch or channel; and they divert or reroute water from flowpaths that it would otherwise take if the road were not present. Problems of road drainage and transport of water and debris--especially during floods--are a primary reason roads fail, often with major structural, ecologic, economic, or other social consequences. The effect of roads on peak streamflow depends strongly on the size of the watershed. For example, capture and re-routing of water can dewater one small stream while causing major

channel adjustments in the stream receiving the additional water. In large watersheds, roads constitute a small proportion of the land surface and have relatively insignificant effects on peak flow. Roads do not appear to change annual water yields, and no studies have evaluated their effect on low flows (USDA Forest Service, 2000).

The proximity of roads to TES habitat was measured by "RCA", "Rip_Score", and "Up_ Score" indicators, as referenced in Appendix C. One of the risks roads pose to TES species is habitat fragmentation. Natural populations of animal species are affected by habitat fragmentation caused by roads. Fragmented populations can produce increased demographic fluctuation, inbreeding, loss of genetic variability, and local extinctions. Roads fragment habitat by changing landscape structure, dissecting vegetation patches, increasing the amount of edge, decreasing interior area, and increasing the uniformity of patch characteristics. (USDA Forest Service, 2000)

Roads impose risk to aquatic habitats. At the landscape scale, correlative evidence suggests that roads are likely to influence the frequency, timing, and magnitude of disturbance to aquatic habitat. Increased fine-sediment composition in stream gravel—a common consequence of road-derived sediments entering streams--has been linked to decreased fry emergence, decreased juvenile densities, loss of winter carrying capacity, and increased predation of fishes, and can reduce benthic organism populations and algal production. Roads can act as barriers to aquatic organism migration, lead to water temperature changes, and alter streamflow regimes. Improper culvert sizing and placement at -*road-stream crossings can limit or eliminate fish passage.

Roads greatly increase the frequency of landslides, debris flow, and other mass movement that introduce sediment into the watercourses, degrading habitat. Roads can cause a wide variety of effects to terrestrial wildlife. Roads can increase harassment, poaching, collisions with vehicles, and displacement of terrestrial vertebrates, affecting a variety of large mammals such as, bighorn sheep and mountain goat, Direct mortality of large mammals on forest roads is usually low, except for those with a home range that straddles a road. Forest roads pose a greater hazard to slow-moving migratory amphibians than to mammals. Nearly all species of reptiles seek roads for cooling and heating. Vehicles kill many of them. Chemicals applied to and adjacent to roads can enter streams by a various pathways. The effect on water quality depends on how much chemical is applied, the proximity of the road to a stream, and the weather and runoff events that move chemicals and sediments. Dust produced by vehicles moving on unpaved roads reduces visibility and generates airborne particulates that can pose health hazards, such as in areas with soils containing asbestiform minerals (USDA Forest Service, 2000).

Benefits

The benefits pertaining to each road in a forest's transportation system were gauged by specialists working on that forest. Generally, benefits can be classified as "administrative" or "public". Examples of each type of benefit are given below:

Administrative Benefits

- Fire suppression, prevention, and prescribed fire
- Vegetation management, resource evaluation and management
- Special use access and administration
- Law enforcement
- Mining, oil and gas, grazing
- Any other roaded access needed to manage the forest

Public Benefits

- Access to developed recreation sites and campgrounds
- Driving for pleasure
- Access to recreational special uses (including Recreational Residences)
- Access to local surrounding communities

Weighing Benefits and Risks

The risks and the benefits of each road on the four Forests were compared, resulting in two classifications of roads. The first group of roads identified contains those that may require mitigation. "*High Priority for Mitigation*" roads are those roads (or segments) that were found to have both higher risk scores and a high level of public or administrative importance. The following criteria were used in their identification:

1. Watershed Risk Score is greater than or equal to 4; OR Species Risk Score is greater than or equal 4.
2. Public Importance Score is greater than or equal 3; OR Administrative Importance Score is greater than or equal 3.
3. Combined Rap Score is greater than or equal 5 (highest possible is "10")

The second group of roads requiring further study is those with "*High Risk and Low Importance*". Roads that fall into this group pose significant risk to either species or watersheds and are of low importance to the public, forest personnel, and special use permittees. The following criteria were used to identify these roads or segments:

1. Watershed Risk Score is greater than or equal 4; OR Species Risk Score is greater than or equal 4.
2. Public Importance Score is less than or equal to 2, AND Administrative Importance Score is less than or equal 2.
3. Combined Rap Score is greater than or equal 5 (highest possible is "10").

Roads identified in chapter 4 as having "High Priority for Mitigation" (HPM) or "High Risk/Low Importance" (HRLI) were further reviewed by road management specialists on each of the four Forests. Mitigation includes site specific repairs, improvements and operational procedures such as: seasonal

closures, species exclosures, crossing improvements, rerouting roads and trails out of the riparian areas, surfacing, storm water runoff protection, and scour protection. These specialists applied local knowledge of individual roads and road issues in refinement of the preliminary lists. Based on their recommendations, roads were regrouped into three, instead of two, implementation categories: “High Priority for Mitigation”, “Low Priority for Mitigation”.

Appendix G – Summary of Previous Work

Roads Analysis RAP 2005 Southern California National Forests

The Roads Analysis process was conducted from 2002 to 2004 using an interdisciplinary, science based process described in FS-643 Roads Analysis for the four southern California National Forests.[1] The public was involved during the LMP Revision process, which incorporated the Road Analysis process. Tens of thousands of comments were received from the public related to travel through five rounds of public involvement.[2] The need for the NFSR roads to provide access to protect resources, permitted activities, fire suppression, and hazardous fuels reduction and to provide recreation opportunities for the public was evaluated and measured and compared to the economic costs of the system and the effects to the natural and heritage resources affected by the system. Ranked lists and maps showing natural resource risks and road importance (benefits) were prepared to help Line Officers make informed decisions. All NFSR Levels 1 through 5 were evaluated and ranked in order to support the concurrent Land Management Plan Revision Process. The analysis yielded lists for each Forest of High Priority for Mitigation, Low Priority for Mitigation and High Risk Low Importance. It was further mapped to show ML 3, 4, 5 passenger car roads and ML 2 high clearance vehicle roads, and ML 1 closed roads. Each Forest verified the RAP lists and maps, and the documents were subject to several rounds of public involvement during the Plan Revision process. 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 Regional Forester signed the Records of Decision and Final Environmental Impact Statement on September 20, 2005. “Most of the development (such as roads, developed recreation sites, and administrative structures) that might be expected to occur on the national forest has occurred. The Forest transportation systems (roads) have been built and much expansion should not occur. The

[1] The electronic links to the 2005 Southern California Plans EIS, including the Roads Analysis and its maps are posted on the San Bernardino National Forest Web site. Reading Room. The Roads Analysis completed for the Plan Revision was multi-Forest scale and covered the Angeles (ANF), Cleveland (CNF), Los Padres (LPNF), and San Bernardino National Forests (SBNF):

- Southern California Plans: http://a123.g.akamai.net/7/123/11558/abc123/forestservic.download.akamai.com/11558/www/nepa/76364_FSPLT2_124421.pdf
- Roads Analysis (Maps not on Web now): http://a123.g.akamai.net/7/123/11558/abc123/forestservic.download.akamai.com/11558/www/nepa/76364_FSPLT2_123928.pdf

[2] USDA Forest Service Final Environmental Impact Statement, Volume 1 Land Management Plans Angeles, Cleveland, Los Padres, and San Bernardino National Forests R5-MB-074-A September 2005. Pages seven-nine. See link above. Also FEIS Volume 2, Appendix M pages 548-553 Response to Public Comments.

decision is based on the concept of gradual change over time, expanding or improving the capacity of existing facilities before building new ones."[3]

Under 36 CFR 212.5 (b) (1): the National Forests will "…identify the minimum road system needed for safe and efficient travel and for the administration, utilization, and protection of National Forest System lands." The FEIS confirmed the need for the existing system, and the RODs specifically mentioned that the NFSR is the minimum system needed, (minus any roads listed or determined in the future to be High Risk and Low Importance, or High Risk, Low Benefit, and likely not needed for future use). This list will help to inform Line Officers of opportunities for road system reduction as future projects are analyzed with site - specific watershed level analysis. The system can be further evaluated to remedy essential road- endangered species-watershed-density-archaeology impacts. (Which are studied annually during LMP compliance reviews and Best Management Practice Reviews). The general plan direction, the RMOs, compliance reviews and needs for public and administrative access are evaluated in the development of each Forest's Road Maintenance Plan.

Summary of Important 2005 ANF, CNF, LPNF, and SBNF RAP Findings

1. NFSR roads provide access for fire suppression, community protection, recreation, landowners, and permittees. Demand is increasing as road conditions deteriorate, while public access is diminishing.

2. Of 1,419 NFSR roads (3,780 miles), 279 very important roads (214 miles) and 177 low importance roads (140 miles) have portions in locations of high environmental risk.

3. 1,128 miles of State and County roads occupy 23,400 acres of NF land, while 3,780 miles of NFSR occupy 21,000 acres.

4. Southern California NFSR road density is 0.69 miles / square mile; the density throughout the rest of Region 5 is 1.61 miles / square mile.

5. 25% of Level 2 roads (670 miles) have pinch points that restrict fire engines.

Land Management Plan

Road System Objectives from the Forest Plan

TRANS 1 - Transportation Management

Plan, design, construct and maintain the National Forest System roads and trails to meet plan objectives, to promote sustainable resource conditions and to safely accommodate anticipated levels and types of use. Reduce the number of unnecessary unclassified roads and restore landscapes:

[3] USDA Forest Service Final Environmental Impact Statement Land Management Plan Revision SBNF Record of Decision, September 2005, page 1 (wording similar in ANF, CNF, LPNF, and RODs). See also FEIS Alternative 4a selected pages 46-48, 275-281,and pages 311, 536-537, and 542-543.

• Enhance user safety and provide adequate parking at popular destinations on high traffic passenger car roads, while also minimizing adverse resource effects.

• Using priorities identified in the Roads Analysis Process, reduce the road maintenance backlog to provide safe, efficient routes for recreationists and through-traveling public and to safely accommodate fire protection equipment and other high-clearance vehicles.

• Implement landscape scale transportation system analysis on a priority basis. Coordinate with state, county, local and regional government entities, municipalities, tribal governments, other agencies and the public.

• Add unclassified roads to the National Forest System roads or trails when site-specific road analysis determines there is a public need.

• Decommission roads and trails that have been determined to be unnecessary and establish level of restoration during project planning.

Motorized Travel Management Feb 2009 San Bernardino National Forest

The Land Management Plan identifies the need to conduct travel management planning on the Forest scale (679,380 acres), and to begin to address the class of roads and trails then known as “unclassified” now referred to as “undetermined” or “unauthorized” on a site-specific basis. Following the Subpart A analysis of all ML 1 – 5 roads (RAP, Sep 2005) which was used to inform the next phase, Subpart B analysis occurred during the period 2007 through 2009, Motorized Travel Management Analyses, including roads and trails to be open for motorized public use, were conducted on the four southern California National Forests with the objective of issuing Motorized Vehicle Use Maps (MVUMs) for each Forest. In advance of the analysis, Infra Travel Routes was updated, and updated Road Management Objectives developed.

The San Bernardino conducted significant public involvement form 2006 – 2008, and evaluated existing systems of designated roads and trails, and analyzed some additions and deletions. Environmental Analysis (October 2008) was conducted and resulted in a decision notice and finding of no significant impacts (DNFONSI) (Evans, Feb 6, 2009). The DNFONSI decided that 888 miles of 1,191 NFS road miles will be open to public highway legal vehicles, decommissioning of 17.5 miles of existing NFS roads and 3.3 miles of NFS Trails, and restoration of 45.1 miles of unauthorized roads. Additions to the road system include adding 5.6 miles of existing undetermined roads that provide access to the Yellow Post campsites and adding 8.9 miles of motorized trails. Based upon Motorized Mixed Use analysis, an additional 30.4 miles of NFS roads were also designated for non-highway legal use. Complete environmental analysis background information, documentation and maps may be found for the San Bernardino National Forest:

http://www.fs.fed.us/r5/sanbernardino/projects/ohv.shtml

Decision Memo for Habitat Protection Mountaintop Ranger District April 2009 232,090 acres

To protect special status plant and wildlife species and habitat, as well as, cultural resources through simple restoration methods and placement of vegetative camouflage and barriers to clean up and prevent unauthorized off-road vehicular travel, camping and dumping of trash.

SoCal Collaborative for Roads in and adjacent to IRAs June 2011

Risk-Benefit GIS Based Process with Collaborative Group

Developed and applied a Risk – Benefit GIS based process to existing NFS roads, temporary roads, undetermined roads and trails within and adjacent to the Inventoried Roadless Areas on the four Southern California National Forests as a collaborative process with public and private interest groups. http://www.fs.usda.gov/detail/cleveland/landmanagement/?cid=stelprdb5304738

The Cleveland, Angeles, Los Padres, and San Bernardino National Forests (collectively the Southern California National Forests) convened an Inventoried Roadless Area (IRA) Road and Trail Analysis Collaborative Group to develop criteria for decommissioning roads and trails in IRAs. The group will also identify project priorities based on those criteria. The group was formed in compliance with the Settlement Agreement approved for California Resources Agency, et al vs. United States Department of Agriculture, and Center for Biological Diversity, et al vs. United States Department of Agriculture. The primary purpose of the collaborative group is to develop a mutually acceptable set of criteria and a list of priority road and trail projects for the Forest Service to implement as funding allows. The proposal, or proposals, will be developed through collaboration, recognizing the diverse interests of the settlement parties while trying to address all interests within the constraints of the Forest Service's regulatory and administrative responsibilities. The results of the model for San Bernardino National Forest categorized 12 roads from 0.1 to 0.9 miles in length totaling 4.9 miles in Low Importance High Resource Risk (LH), 7 roads from 0.04 to 1.67 miles totaling 4.6 miles in Low Importance Low Risk (LL), 3 roads 0.1 to 0.9 miles for 1.5 miles in High Importance High Risk (HH), and 15 roads 0.02 to 3.1 miles for 12.8 miles in High Importance Low Resource Risk (HL). The LH and LL roads may be considered for the SBNF Likely Not Needed for Future Use list and map.

Bluff Mesa Hazardous Fuels Reduction EA, DN Oct 2011 1,600 Acres

Public involvement occurred from 2009-2011. As part of the Hazardous Fuels project, two NFS roads are to be decommissioned totaling 1.0 miles including 1N54A Bellyache Springs on the 2005 RAP High Risk Low Importance list. Administrative only roads totaling 2.1 miles are to be added to the NFS to facilitate community protection. All remaining unauthorized roads are to be decommissioned and restored.

Big Bear Watershed Decision Memo DM 20,000 acres Sep 2012

"Public scoping occurred in July and August of 2012, after the DM was published appeals were received and ultimately dismissed. A scoping notice was published in the Big Bear Grizzly on *7/18/2012* and in the

San Bernardino Sun on *8/4/2012.* Fifteen responses were received. Comments included concerns about a restriction of motorized access to public lands, support for designation of non-motorized trails, support for decommission to non-motorized trails, support for reducing impacts to water quality, and support for restoration of habitats.

Because the routes that are going to be decommissioned and restored are in areas that are generally well-roaded with high levels of motorized access and with the exclusions described in this decision, I conclude that the project would not result in a significant restriction of public access by motorized vehicles. I also conclude that the reduction of roads and routes would result in an improvement to watershed and wildlife habitat conditions by reducing point sources of sediment and road densities in general."

This decision balances risks to the natural resources and benefits to the public and administrative needs of the San Bernardino National Forest in a 20,000 acre priority watershed. The decision authorizes 26 NFS roads to be decommissioned: 10.1 miles are closed; 0.6 miles are open. Non-system routes to be closed and restored total 32.6 miles. Finally, 1.7 miles are to be re-designated from open to closed.

Baldwin Lake Hazardous Fuels Reduction EA, DN Mar 2013, 5,300 acres

Based on an analysis of existing system and unauthorized roads and trails in the project area, their levels of use by off-road vehicles, their potential for use after project implementation for fire-fighting and for recreation, and the potential for resource damage associated with their existence and use, the project would include the following actions related to roads: 1 former NFS road will be put back in the system 4.0 miles, 6 NFS roads totaling 2 miles and 2 miles of unauthorized roads will be decommissioned.

Land Management Plan Amendment ROD October 28, 2014

http://www.fs.usda.gov/main/sbnf/home

The Southern California National Forests Land Management Plan link contains all related documents and maps.

The Southern California National Forests (the Angeles, Cleveland, Los Padres, and San Bernardino National Forests) completed an amendment for the Land Management Plans (LMPs) adopted in 2006. The amendment revised land use zone allocations for select Inventoried Roadless Areas (IRAs) within the four forests and adjusted LMP monitoring protocols. The LMP amendment is a result of the Settlement Agreement approved January 3, 2011 for California Resources Agency, et al vs. United States Department of Agriculture, and Center for Biological Diversity, et al vs. United States Department of Agriculture. Public scoping began on April 27, 2012 and closed on June 11, 2012. One FSEIS was prepared for the four national forests with a ROD for each, including one for the San Bernardino Land Management Plan.

The plan level decision did not change the status of any existing road or trail, did not change public motorized access, did not authorize any specific project activities such as vegetation management, does not amend any permits or contracts or authorize any activity allowed by permit or contract, and does not modify any prohibitions, known as "Forest Orders", issued under 36 CFR § 261 Subpart B. The

amendment maintained the current zoning within 200 feet wide corridors (100 feet on either side of the road remains unchanged) for the Forest Service roads and motorized trails shown as open on the MVUM. The decision is consistent with the requirements of 36 CFR § 294 Subpart B, Protection of Inventoried Roadless Areas, also referred to as the Roadless Area Conservation Rule (RACR), which prohibits the construction of new roads in IRAs unless the proposed road meets one of the exceptions provided by the rule.

From Key Issues (page 3 ROD October, 2014):

Roads and Motorized Trails (page 4 ROD October, 2014)

This amendment maintains the current zoning within 200 feet-wide corridors (100 feet on either side of the road remains unchanged) for the Forest Service roads and motorized trails shown as open on the Motor Vehicle Use Maps. As described in Chapter 4 of the Final SEIS, there will be no change in public motorized access as a result of the amendment.

Road and Motorized Trail Opportunities (page 4 ROD October, 2014)

The RACR prohibits the construction of new roads in IRAs unless the proposed road meets one of the exceptions provided by the rule. Implementation of the RACR is described in more detail in Chapter 2 of the Final SEIS and the effects of the RACR on road and trail opportunities are described in Chapter 4. Road and motorized trail opportunities are also guided by travel management decisions. In addition to the requirements of the RACR and travel management, road construction is not suitable in areas zoned as BCNM.

Public Involvement (page 6, ROD October 2014)

A notice of intent (NOI) to prepare an EIS was published on Friday, April 27, 2012 (77 FR 25128), and direct notice was sent to over 2,500 stakeholders. In addition to these notices, people were invited to review and comment on the proposed action through news releases and public meetings.

The planning team used the comments on the proposed action to identify the relevant issues used to determine the scope of the analysis. The planning team also identified issues that were outside the scope of the analysis, including travel management, IRA boundary issues, wild and scenic river suitability studies, and several others. A full description of the issues found to be outside the scope of the analysis appears in the Final SEIS in Table 3.

Direct notice of the Draft SEIS was mailed to over 2,500 contacts and emailed to over 8,000 contacts. A legal notice was also published in the newspaper on February 20, 2013. The Forest Service held seven public meetings throughout the planning area between March 26 and April 10, 2013.

Over 10,000 emails, letters, and post cards were received during the comment period. Because of the exceptionally voluminous response to the Draft SEIS, the Final SEIS Appendix 4 presents a summary of the substantive comments and the Forest Service response. Appendix 4 also includes copies of all letters received from elected officials or government agencies.

The Reviewing Officer noted that roads shown on the Motor Vehicle Use Map (MVUM) were retained with 200' corridors. The 200' corridor was selected to allow for flexibility of road management and maintenance and in some areas wider corridors were retained to address route problems. The roads and trails that are shown in Appendix 1G of the FSEIS are currently part of the NFTS and buffers are established along the existing managed route system. While reroutes may be needed, it is not prudent to assume that a reroute would occur or the location of the reroute known until NEPA analysis has been completed and a decision made. Project specific analysis would include any required plan amendments to adjust zone boundaries, MVUM updates, Travel Analysis, and resource analysis as required by NEPA. As noted in the response to comment #77, (FSEIS, Appendix 4, comment #77, pg. 84-88) "The best approach in our view is to work through any site specific issues, relocation proposals, or other new opportunities through the normal project level planning and analysis process. Any project would need to be consistent with the Roadless Area Conservation Rule (RACR), which does allow relocation of roads for resource protection under conditions outlined in the RACR (see 36 CFR 294.12)."

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Roads and Trails (from Page 301 FSEIS 2013)

The overall public transportation system will remain fairly static within the four national forests due to limited funding for new road and trail construction. The public demand for access to National Forest System lands will increase in the future with increasing local and regional population. Conflicts between user groups would also increase as users overlap within a relatively fixed system. Future motorized road opportunities in IRAs are restricted throughout the forests by the RACR.

Excerpt from Table 3: Summary of Issues not Considered in the Analysis (page 10 FSEIS)

ISSUE	REASON ISSUE IS OUT OF SCOPE
Travel Management – Many comments noted that the Forest Service has closed and gated many roads, restricting access to the public. Other routes are closed on the motor vehicle use map. Many user created routes were also closed and the decommissioning status is unknown. Numerous commenters requested that those routes be opened as part of this amendment.	These route level decisions are made through the travel management process governed by 36 CFR 212 Subpart B or in subsequent project specific decisions implementing travel management closures. The decisions made as part of the LMP amendment will not include route level decisions, but access to the IRAs is evaluated in the LMP amendment analysis.
IRA Boundary Issues – The IRAs were mapped over several generations of Roadless Area	The Roadless Area Conservation Rule (RACR) defines the scope of the IRAs (36 CFR § 294.11).

Review and Evaluations starting in the mid 1970s. The current IRA boundaries were established by regulation with the publication of the Roadless Area Conservation Rule in 2001. The 2001 IRAs occasionally overlap Forest Service system roads, communication sites, and other permitted facilities. Some commenters see this amendment as an opportunity to "clean up" those mapping issues.	Although the rule suggests that updates and revisions to the IRAs are possible, no process is specified. The rule specifically prohibits changes in the scope of the rule through the Land Management Plan amendment process (36 CFR § 294.14(e)). Until the Forest Service develops additional direction, changing the IRA boundaries is outside the scope of this amendment.

Projects currently under NEPA evaluation may be reviewed at:

http://data.ecosystem-management.org/nepaweb/project_list.php?forest=110512

Appendix H – Summary of Public Involvement

To adequately identify issues the RAP interdisciplinary team needed to conduct public involvement. Under the 2005 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 Motorized Travel Management 2009 interdisciplinary team developed a specific public involvement package in order to identify the significant issues. As noted earlier all NEPA studies that involved roads conducted public involvement for the hazardous fuels reduction projects and the watershed protection and restoration projects.

RAP 2005 Public Involvement Subpart A

Public Involvement (See Appendix M pp 520-568 Final EIS Vol 2 Land Management Plans Sept 2005)

Since the RAP Process was conducted simultaneously with the revision effort, no separate public involvement process was initiated for the roads analysis. Comments received during formal and informal scoping periods and public meetings for the revision, were categorized and entered into a database. Over 10,000 comments were received pertaining specifically to "access", which were then analyzed and reviewed for issue identification prior to the RAP. Internal comments from specialists on each Forest were also documented and considered during the analysis process.

Formal public scoping for the Plan Revision was initiated with the publishing of "the Notice of Intent (NOI) to prepare Environmental Impact Statement for the Forest Plan Revisions" in the Federal Register on September 24, 2001. The NOI asked for public comment on the proposal from September 24 through December 31, 2001. Comments have also been accepted throughout the process and requested at the public meetings and workshops.

Four rounds of public meetings and open houses were held in various locations across southern California. The first series were held from January through March of 2001, and the public was asked to develop a list of values and visions for the Forests. A second round of public meetings ran from March through May of 2001. At these meetings the public was presented with our preliminary significant issues and a range of background data and information. The third round of public meetings was held from October through December 2001. At that time, the public was asked for comments on the proposed action. A fourth round of public workshops held in February and March 2003, showed the public the range of alternatives being considered to address the issues and asked if their concerns were addressed by at least one of the alternatives. In addition, newsletters and information posted on the forest planning website kept the public informed and involved in the planning process.

Other than members of the general public, specific stakeholder groups were invited to participate in the process, including: other federal, state, county, and city agencies; nearby private landowners; Native American tribes; numerous local and national interest groups and community associations.

The main issues associated with roads on the San Bernardino National Forest:

- 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 endangered and sensitive 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 that motorized use roads for 4WD/OHV 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 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.

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.

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 2005 San Bernardino Forest Plan Amendment (USDA 2005). The other constraint at this time is the budgeted road maintenance allocation.

2009 Motorized Travel Management EA, DN-FONSI Public Involvement

The proposal was first listed in the San Bernardino National Forest Schedule of Proposed Actions on October 1, 2006. A scoping letter dated January 30, 2007 was sent to approximately 900 individuals, permit holder organizations, agencies and Tribes who have shown an interest in the San Bernardino National Forest route inventory or land management actions. The letter requested comments on the proposed action be made between January 30 and February 23, 2007. The comment period was extended on February 22, 2007, by 15 days to March 9, 2007. Comments were also accepted after the end of the comment period. During the scoping phase, 185 written letters and emails and 8 verbal comments were received.

A detailed description of the proposed action and maps were posted on the San Bernardino National Forest website on February 6, 2007 at www.fs.fed.us/r5/sanbernardino/projects/ohv.shtml.

Four open house meetings were held for the public to learn more about the project and see detailed maps of the proposed routes. Meetings were held in San Bernardino (February 15, 2007), Hesperia (February 20), Idyllwild (February 21) and Running Springs (February 22). The public house meetings were announced in the scoping letter and 89 people attended the meetings.

Using the comments received during the 40-day public scoping period, the interdisciplinary team (IDT) determined whether the comments were significant or non-significant issues. This list of issues is addressed in the following section.

Issues

Comments from the public and other agencies were used to formulate issues concerning the proposed action. An issue is a matter of public concern regarding the proposed action and its environmental impacts. The Forest Service separated the issues into two groups: significant and non-significant. Significant issues were defined as those directly or indirectly caused by

Implementing the proposed action. Non-significant issues were identified as those: 1) outside the scope of the proposed action; 2) already decided by law, regulation, Forest Plan or other higher level decision; 3) irrelevant to the decision to be made; or 4) conjectural and not supported by scientific or factual evidence. The Council on Environmental Quality (CEQ) NEPA regulations explain this delineation in Sec. 1501.7, "...identify and eliminate from detailed study the issues which are not significant or which have been covered by prior environmental review (Sec. 1506.3)..." A list of non-significant issues and reasons why they were found non-significant may be found in the project record located at the San Bernardino National Forest Supervisor's Office.

Significant Issues

The proposed action was modified in this EA to address some of the significant issues expressed in public comments received during scoping. The proposed action (alternative 1) does not include the addition of new staging areas because they are outside the scope of this project. Due to the potential for resource impacts in the Deep Creek area and the interest of the motorized recreation community to maintain this as a 20-inch motorcycle trail, the project will not evaluate widening of 2W01. Safety and land use concerns raised during scoping eliminated the addition of a non- highway legal designation to 2N02 from its junction with 2N61Y to the San Bernardino National Forest boundary (approximately 1.7 miles).

Issue 1. Access to a diversity of riding experiences for motorized travel

Concerns were raised that restricting motorized access severely impacts motorized recreation opportunities. Additional options for motorized travel are needed to provide greater access and diversity of motorized riding experiences.

Issue 2. Access to dispersed camping

The proposed action would limit motorized users access to dispersed camping sites by decommissioning or closing public access to some short spur roads and by restoring unauthorized spur routes.

Issue 3. Restricting access for motorized travel

The proposal does not reduce or eliminate motorized access on certain routes and this would create user conflicts and cause impacts to soil and water, wildlife and plant resources.

Non-significant Issues

There were several issues raised by the public that did not rise to the level of significant issues. These include the following proposals that were raised in numerous comments. However, they are outside the scope of this project because they would require an amendment to the Forest Plan, and thus they cannot be considered.

1. Designate highway legal vehicle access on 2N61Y to Heartbreak Ridge and Pontiac Sluice in the Onyx Peak area. This route is in an area that is proposed for wilderness in the Forest Plan. The Forest Plan requires that such areas be managed as if it is wilderness, and this precludes designating street legal access on 2N61Y. An amendment to the Forest Plan is outside the scope of this project. Thus, this project is making no changes to the current management of 2N61Y.

2. Designate 3N69A (Rock Garden spur off of the Gold Mountain Trail) for highway legal vehicle use. Under the Forest Plan, the short spur to 3N69A, popularly known as the "Rock Garden", is zoned as Back Country Non-motorized, so it is not open for highway legal vehicles.

An amendment to the Forest Plan is outside the scope of this project. Thus, this project is making no changes to the current management of 3N69A. Furthermore, there is no change to the management of 3N69 (Gold Mountain Trail) which is currently designated for street legal use.

3. Designate non-highway legal vehicle use on the entire unauthorized route X2W47 along the Cleghorn Ridge Trail, instead of just portions of it. Portions of X2W47 are being analyzed for non-highway legal designation. However, the portions of X2W47 that are proposed for rehabilitation are zoned as Back Country Non-motorized in the Forest Plan, so they are not eligible for consideration as non-highway legal routes. An amendment to the Forest Plan is outside the scope of this project.

Opportunities, Risks, and Benefits Assessment

All topics required by the FS-643 report were incorporated in the 2005 Four Forest RAP prepared in conjunction with the Land Management Plan Revision. 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; social issues; and civil rights and environmental justice. The Socal Multi - National Forest RAP was conducted at a broad, multi - forest scale to identify overall trends and to identify priorities for potential future projects. RAP 2005 Chapter 4 documents the assessment of problems, risks and benefits.

Some topic areas are best evaluated at the more site-specific scale than at the multi - 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 as has been accomplished successfully at the watershed, sub watershed, and hazardous fuels project levels on studies from 20,000 acres to 1,600 acres.

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 designated Monuments 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 designated Monument and non-monument forest.