Coconino National Forest
Travel Management Route Designation

Cultural Resources Report

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D r a f t
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THE AFFECTED ENVIRONMENT

Introduction

I. Purpose and Need

Assumptions

The Travel Management Rule (TMR) was developed in response to the substantial increase in use of off-highway vehicles (OHV's) on National Forest System lands and related damage to forest resources caused by unmanaged OHV use over the past 30 years. Excecutive Order 11644, signed by President Nixon in 1972, directs federal agencies to ensure that use of off-road vehicles is controlled and directed to protect natural resources, promote safety, and minimize conflicts.

Impacts to forest resources are accelerating as the recreational use of OHV's has increased in popularity. For example, the number of OHV users in the United States has climbed ten-fold in the past 32 years, from approximately 5 million in 1972 to 51 million in 2004. More than 11 million people using OHV's visited National Forests and Grasslands in 2004 (USDA Forest Service 2007:1)

The Chief of the Forest Service has identified unregulated motorized cross-country OHF use as one of the four major impacts adversely effecting National Forest lands.

Motor vehicles are an appropriate use of national forests and grasslands when used in the right places and responsibly managed.

Existing and expected future budgets for road maintenance are inadequate to keep the current road system in suitable condition. It costs about $300/mile to maintain the Forest road system, which contains approximately 8,553 miles of road. Of this 7,509 miles are on lands under the authority of the Forest Service

The purpose of this project is to comply with new regulations and Executive Orders 11644 and 11989 for travel management on National Forest System lands (36 CFR 212, *Travel Management*), commonly referred to as "the Travel Management Rule " (TMR). It requires the designation of roads, trails, and areas that are open to motor vehicle use. Such designations will consider the suitability of roads and motorized trails for various classes of vehicle (passenger car, high-clearance vehicle, four-wheel drive, ATV, etc.) and time of the year roads roads may be open for use – e.g. certain roads may be closed during wet or snowy seasons of the year to preserve road conditions.

"Designations will be made by class of vehicle and, if appropriate, by time of year. Once such roads, motorized trails, and areas are designated, use of motor vehicles off the designated system will be prohibited. Such a clearly designated system will greatly reduce cross-country motorized use and the development of unauthorized roads and trails. Restricting travel to the designated system of roads, motorized trails, and designated areas will

- Protect natural and cultural resources
- Enhance public enjoyment of the National Forests
- Promote the safety of all users
- Minimize conflicts among the various users of National Forest System lands"

(USDA Forest Service 2007:1)

Primary Issues

In order to meet this direction, the Forest must bring current direction in line with the new requirements of the TMR. The purpose of this proposed project is to designate a socially, economically, and environmentally sustainable Forest transportation system that will accommodate motorized access needs on the Coconino National Forest. This involves five major issues:

1. Amend the Forest Plan to prohibit cross-country motorized travel and remove the road density direction given in the Plan

2. Reduce the number of roads across the Forest and close roads that conflict with resource protection goals outlined in the Forest Plan (1987, as amended)

3. Determine whether or not to develop a motorized route system on the Forest

4. Continue providing limited motorized use off of designated routes to existing dispersed camping sites and areas.

5. Decide whether or not to allow limited OHV use to retrieve big game animals during hunting season. Arizona is the only state in the country that has asked for and made this an issue for TMR.

II. Heritage/Cultural Resources Management

"Heritage Resources", also characterized as "Cultural Resources", are the tangible remains of prehistory and history that reflect human uses and activities of the landscape. On the Coconino National Forest they include such diverse remains as:

- an isolated Clovis projectile point found south of Winona, representing the earliest evidence of human activity in the Americas, dating back to 11,500 years ago

- a scatter of stone flakes along Volunteer Canyon, west of Flagstaff, marking a trail head between the Verde Valley and the forests of the Mogollon Rim, used by ancient hunters about the same time the pyramids of Egypt were being constructed.

- Palatki and Honanki, 800 year-old structures near Sedona that are among the most dramatic and highly visited cliff dwellings in the Southwest

- a mile-long stretch of canyon near Blue Ridge campground, where the last official battle of the Apache Wars occurred in 1881

- piles of rusty tin cans, sawdust, and pieces of metal and rail near Bellemont are all that remains of Camp 2, a railroad logging camp from the 1930's

- a group of craters in the cinder field near the Flagstaff landfill, where Apollo astronauts trained for their historic landing on the moon, 40 years ago

- and the snow-clad slopes of the San Francisco Peaks, revered as one of the holiest of places by virtually every Indian tribe in the Southwest

All contribute to understanding and appreciating the history, achievements, and contributions of the many people and cultures who have lived in the region that is now the Coconino National Forest.

Heritage resources are managed under three broad classifications**:** **Isolated Occurrences**, such as an arrowhead or the remains of an abandoned Model-T Ford; **archaeological sites**, such as a prehistoric pueblo or a pioneer's cabin; and **traditional cultural properties**, such as the San Francisco Peaks or the Red Rocks country near Sedona. The Coconino National Forest strives to manage all heritage resources to make the best use of their scientific, educational, recreational, and cultural values for both present and future users of the Forest. Many laws, regulations, rules, and policies protect sites and provide guidelines the Forest Service must follow when determining the potential effects of a proposed project or activity on cultural resources. These include formal consultations with tribes having ancestral connections to the Forest and project reviews by the State Historic Preservation Office and the Advisory Council on Historic Preservation.

Almost 9,000 archaeological sites have been recorded by the Forest, and anywhere from 100 to 300 new sites are added each year. Most of these are found when archaeological surveys are conducted to determine the types and densities of sites that

are present in a proposed project area. Heritage resources require specific consideration in order to evaluate the potential impacts to them by the various uses and projects that take place on the National Forest:

- Cultural resources are fragile – they can be easily damaged when bulldozers or other heavy equipment are used on a project, or through rutting and erosion that results when roads are created by unauthorized OHV use.

- They are unique – archaeological sites can be grouped into categories, such as time or likely function, but no two are exactly alike. Human behavior is much too diverse to be easily pigeon-holed.

- They are non-renewable – with special care and protection, we can grow more rare plants or improve habitat to raise more endangered animal species, but we cannot grow another A.D. 900 field house.

Humans have traversed the land of the Coconino National Forest for millennia. First, on foot, then on horseback, wagon, automobile, and now by OHV's and snowmobiles. With the dramatic population increase Arizona has experienced over the last few decades, the accompanying popularity of OHV's, and the changes they are causing to Forest conditions, there is a need to better manage OHV use on the National Forests than has been done in the past.

III. Existing Conditions

Currently, OHV cross-country travel is unrestricted outside of Wilderness and Inventoried Roadless Areas. This would be changed by the alternatives under consideration which would designate certain Forest roads and areas as suitable for motorized travel while other roads would be closed to travel to reduce effects to natural and cultural resources. Past efforts to close roads by signing, barricading, and obliteration have not been successful at dealing with the issues and impacts of unregulated off-road vehicle use. A multi-year study by the Forest of the East Clear Creek area, for example, found that fully 50% of the roads that had been closed in previous years by the Forest had been re-opened by public use and continue to be used today. (*Dick Fleishman, personal communication)*

Affected Environment

The Travel Management Rule study is examining the potential effects of closing the Forest to off-road vehicle traffic and reducing the number of roads available for every-day public use. It is not an analysis of the entire Forest road system. The current road system is the result of past projects and land management planning efforts that have gone through road management evaluations, NEPA review, and analysis and are

summarized in Forest Plan Amendment 5, which incorporates all RADAM decisions into the Forest Plan.

Existing Motorized Trails and Roads

There are about 7,509 miles of road that have been inventoried on Forest land or land under Forest jurisdiction, and about 921 miles of road that are not on Forest land or under Forest jurisdiction (Forest INFRA GIS analysis, Beyerhelm, Feb., 2008) (Table 1). Only roads on Forest lands, or controlled by the Forest, are being analyzed by TMR.

Road Maintenance Level	Miles of Road on FS land or under FS Jurisdiction	Percent	Non-FS land or Jurisdiction	Total
C - Closed (Levels 0-1)	1,393	18 %	35	1,428
H – Open for high clearance vehicles (Level 2)	4,427	59 %	205	4,632
P –Open, passenger cars (Graded & paved roads. Levels 3-5)	727	10 %	626	1,353
N - User-Created	962	13 %	33+	995+
Grand Total	**7,509**	**100 %**	**899+**	**8,408+**

Table 1 Miles of road by maintenance level and jurisdiction for Alternative 1 - No Action.

The majority of roads are Level 2 roads and comprise 4,407 (59%) of total road miles. User-created routes are the second largest percentage of roads on Forest lands and amount to about 962 miles (13%). It should be noted, though, that only a small portion of user-created routes have been identified. The least extensive road types are those that have been paved (Level 4 and 5 roads). These roads are not proposed for closure.

Archaeological Survey Status of Forest Roads

Of the approximately 7,509 miles of road on Forest Service land or otherwise under Forest Service jurisdiction, about 3,300 miles (43%) have been archaeologically surveyed to some degree. Of these, 1,470 miles (20%) have been surveyed to a distance of 60 ft. on either side of the road and 1,780 miles (24%) have been partially surveyed on at least one side of the road (Table 2).

Miles of Open/Closed Motorized Trails Surveyed by Alternative

	Alternative 1		Alternative 3				Alternative 4			
	Open Miles	%	Open Miles	%	Closed Miles	%	Open Miles	%	Closed Miles	%
No survey	50	43%	6	24%	45	49%	9	32%	43	48%
Some Survey	40	34%	5	20%	34	37%	5	18%	34	38%
Surveyed	27	23%	14	56%	13	14%	14	50%	12	13%
TOTAL:	**117**	**100%**	**25**	**100%**	**92**	**100%**	**28**	**100%**	**89**	100%

Miles of Open/Closed Roads Surveyed by Alternative

	Alternative 1		Alternative 3				Alternative 4			
	Open Miles	%	Open Miles	%	Closed Miles	%	Open Miles	%	Closed Miles	%
No survey	4272	57%	1715	53%	2561	60%	1830	53%	2444	60%
Some Survey	1780	24%	526	16%	771	18%	568	16%	731	18%
Surveyed	1470	20%	990	31%	960	22%	1060	31%	890	22%
TOTAL:	**7522**	**100%**	**3231**	**100%**	**4292**	**100%**	**3458**	**100%**	**4065**	100%

Summary of Trail & Roads Survey Coverage by Alternative

	Alternative 1		Alternative 3				Alternative 4			
	Open Miles	%	Open Miles	%	Closed Miles	%	Open Miles	%	Closed Miles	%
No survey	4322	57%	1721	53%	2606	59%	1839	53%	2487	60%
Some/Survey	3317	43%	1535	47%	1778	41%	1647	47%	1667	40%
TOTAL:	7639	**100%**	3256	**100%**	4384	**100%**	3486	**100%**	4154	**100%**

Table 2. Survey levels by miles for open and closed trails and roads, by alternative

Table 3 shows how those survey miles are distributed throughout the Forest. As can be seen, most roads are located in areas classified as Site Density 2, Low site density, (4,285 miles), or Site Density 5, Very High site density (1,675 miles). In general, very low to low density areas correspond with the high ponderosa pine forest above the Mogollon Rim. The ponderosa zone on the east side of the San Francisco Peaks, northeast of Flagstaff, however, is a high site density area. High to very high density areas occur in the pinyon-juniper zone, particularly in the Verde Valley, along the base of Anderson Mesa, east of Flagstaff, and north of the cinder belt.

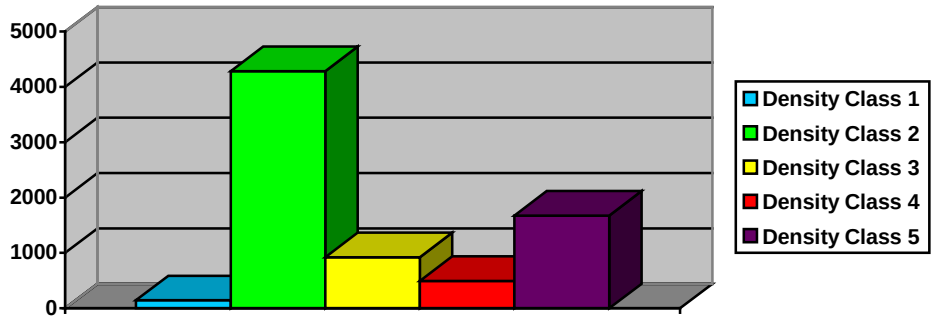

Table 3. Miles of roads surveyed by site density class

Archaeological Site Condition

Information on the condition of archaeological sites is found in the Archaeological Site Log, where condition information is available for 4,668 sites as of Sept. 20, 2008. When sites are recorded, their condition is noted on a 0 to 5 scale, where 0 indicates an undisturbed site and 5 indicates a site that has been completely destroyed. Table 4 shows site conditions in different parts of the Forest, as represented by former Ranger District boundaries, which still form the basis for the designation of sites on the Forest. The table shows that site conditions on the two Verde Valley Districts (Beaver Creek and Sedona) are identical, as is the case for the area around the San Francisco Peaks (the Elden and Flagstaff Districts). The area around the Peaks has the most undisturbed sites, as well as the most highly disturbed sites. The districts in the high pines (Mormon Lake, Long Valley, and Blue Ridge) are dissimilar to one another as well as to the Verde Valley and Peaks areas.

Table 5 shows the various causes of site damage, with roads being the single-most cause of site damage (16%), followed by vandalism and pot hunting (7%). Site condition data, however, has not distinguished between damage due to constructed roads and off-road vehicle use. Other causes of damage, such as logging, juniper eradication, fire suppression, etc., are significantly less.

Although information is available for both the east side of the Verde Valley (Beaver Creek) and the west side of the Valley (Sedona), site condition is virtually identical for both areas, where 14 percent of sites have been disturbed by a road. More sites have been damaged by roads on the west side of the Peaks (Flagstaff) (87%) than on the east side of the Peaks (Elden) (77%). Long Valley corresponds to the high ponderosa pine country, which shows more sites with road damage (41%) than any other part of the Forest. However, this may be because most sites in this area are historic period Euroamerican sites which tend to be located along roads. Blue Ridge contains the remainder of the high ponderosa pine zone along the Mogollon Rim as well as the higher site density area of the pinyon-juniper country northeast of Anderson Mesa.

	Undisturbed	Cond. 1	Cond. 2	Cond. 3	Cond. 4	Cond. 5
Beaver Cr.	16%	20%	18%	18%	16%	9%
Sedona	14%	17%	18%	19%	22%	12%
Elden	23%	17%	23%	19%	20%	33%
Flagstaff	13%	18%	20%	18%	17%	24%
Long Valley	2%	5%	5%	7%	7%	4%
Mormon Lake	11%	9%	6%	8%	13%	11%
Blue Ridge	21%	14%	10%	11%	6%	6%

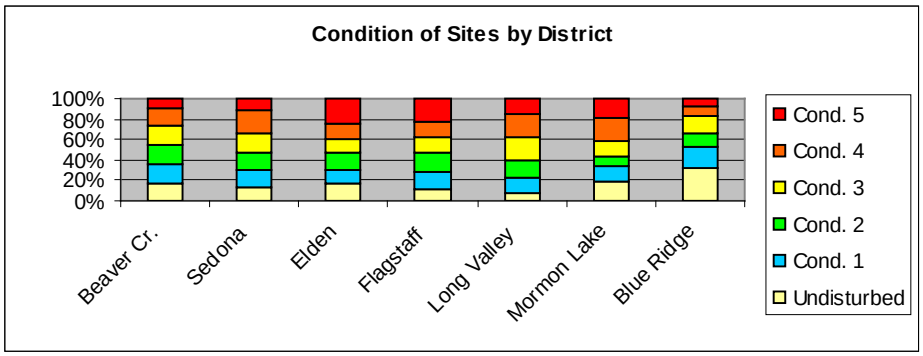

Table 4: Site condition in former Ranger District areas/

Coconino National Forest - Site Condition

Condition	Beaver Creek	Elden	Flagstaff	Long Valley	Mormon Lake	Sedona	Blue Ridge	TOTAL	Percent
Undisturbed	327	480	277	43	221	301	445	2094	51%
Roads	45	142	209	45	50	118	57	666	16%
Pot Hunting & Vandalism	31	102	20	7	14	95	39	308	7%
Recreation	5	25	23	9	12	47	60	181	4%
Burned	1	59	73	1	10	2	21	167	4%
Juniper Eradication	11	62	1	2	2	1	80	159	4%
Logging	1	15	70	32	12	6	26	162	4%
Construction	5	50	34	9	11	24	11	144	3%
Fire Suppression	1	15	45	1	10	7	3	82	2%
Grazing	26	6	23	11	10	15	6	97	2%
Minerals	2	7	4	1	11	1	0	26	1%
Trails	5	11	2	1	2	5	17	43	1%
TOTAL	**460**	**974**	**781**	**162**	**365**	**622**	**765**	**4129**	**100%**

Table 5: Causes of disturbance and site condition by former Ranger District areas.

To summarize site condition, about 51% of all sites on the Forest are undisturbed. Proportions of specific sources of damage vary within each district; Forest-wide, however, roads have had the greatest impact of any single source of damage, effecting about 16% of all recorded sites. Areas that stand out as being different from the norm consist of the area west of the Blue Ridge District, where only 8% of sites have been impacted by roads, and Long Valley District, where 28% of recorded sites have been disturbed by roads.

Issues:

Five visions have been identified by national direction, public scoping, and Forest analysis:

Issue 1: Prohibit cross-country motorized travel

Issue 2: Reduce and close roads that conflict with resource protection goals

Issue 3: Should a motorized trail route system be developed?

Issue 4: How should dispersed camping be managed?

Issue 5: Should ORV's be allowed to be used to retrieve big game animals during hunting season?

Issue 1: Prohibit cross-country motorized travel

Impacts to Sites by OHV Use: Information on the number of sites that have impacted by off-road vehicle activity, as opposed to formal road development, has not been consistently collected. However, some idea of the potential archaeological disturbance caused by OHV's may be obtained from the observations of soil conditions on the Forest. Current evaluation of Forest soil conditions suggests that approximately 38% of the Forest has soils that are impaired, unsatisfactory or unstable (Steinke, 2007b). Poor soil conditions are the result of past management practices and indicate a loss of soil function and soil productivity. These poor conditions are due to a number of causes, such as over-grazing, large-scale juniper chaining In the 1950's and 1960's, poor road and motorized trail design, inadequate erosion controls, etc., but disturbance due to excessive impact from recreation OHV activity is one factor that has been observed in many locations throughout the Forest.

Occasional OHV travel on soils that are in good condition does not generally cause significant damage to the soil but repeated travel over an area can churn up and destroy the protective layer of vegetation and duff, exposing soil and accelerating erosion. The potential for damage by motorized vehicle is greater than human or stock animal impacts. An experiment in Montana found that 200 motorcycle passes removes twice

as much vegetation as the same number of passes by a horse and nine times as much vegetation as 200 hiker passes (Weaver and Dale 1978). Other observations indicate the severity and rapidity of damage also depends upon the type of OHV involved. A 4x4 truck or jeep causes more severe soil damage, and more rapidly, than an ATV (Steinke 2007a).

Issue 2: Reduce and close roads that conflict with resource protection goals

Impacts to Particularly Significant Sites: Among the 16% of Forest sites that have been affected by off-road vehicle use are a number of particularly important archaeological sites. The Winona Village, Ridge Ruin, and Chavez Pass Archaeological Districts, for example, cover about 0.25 to 1 sq. mile each and have been listed on the National Register of Historic Places because of the significant information they have provided for understanding the prehistory of the Southwest. Winona Village has also been designated by Congress as a National Historic Landmark. Each of these districts has been impacted by ORV activity, in some places resulting in a spider-web of roads due to repeated recreational use, dumping of trash, pot hunting, and illegal fuelwood cutting. Repeated efforts to close these roads through signing, barricading, and obliteration have been unsuccessful and these nationally significant sites continue to be impacted by ORV activity.

OHV's Provide Easier Access for Pothunting and Vandalism: Almost every archaeological crime scene investigated by the Forest has involved the use of a four-wheel drive vehicle or pickup truck. In recent years, however, the use of ATV's seem to be on the increase, as illustrated by several cases. In 1994, one investigation involved several sites east of Flagstaff that had been pothunted by someone driving an ATV from one site to the next. In the past three years, the John Heath Ruin, east of Camp Verde, has been repeatedly dug in by people accessing the site in ATV's. In 2000, ATV's as well as two four-wheel drive pickup trucks, were used by pothunters who were caught and convicted of digging in Kinnikinick, a large pueblo site on Anderson Mesa. The ATV's were confiscated by the Forest as part of the sentencing of the case. In 2007, ATV's were used in connection with the theft of an entire petroglyph panel at the Big Foot Site in the Verde Valley.

Over the past several years, there has been a significant increase in illegal fuelwood cutting throughout the Forest, usually in areas with high archaeological site density. These areas are being patrolled by volunteer Site Stewards, who are reporting significant increases of incidents where pothunting is taking place in association with illegal fuelwood cutting.

Issue 3: Develop a Motorized Route System: At present, there are 25 miles of authorized motorized trails on the Forest. In addition, 99 miles of unauthorized motorized trails have been mapped, but many more miles created by public use have yet to be identified. Currently, consideration is being given primarily to linking existing roads to create a designated route system. Unauthorized user-created routes are not

being considered by the Travel Management study, as these have not been designed with consideration for the various resources and design standards the Forest is required to use. Nor have they gone through the Forest planning and public review process. Development of new routes would need to be proposed as new projects that would go through the NEPA and NHPA review processes; however, new project proposals are outside the scope of the present TMR study. By using existing roads, that have been reviewed and approved as part of the Forest planning process, this can be considered during the interdisciplinary review of Issue 2 – reduce the number of roads. Forest analysis has documented that roads have caused significant effects to archaeological sites (See Table 5).

Issue 4: Dispersed Camping: Camping is a major aspect of recreational use of the Forest, and activities related to camping have been identified as one of the third highest cause of damage to archaeological sites (Table 5). TMR recognizes three categories of dispersed camping: 1) Roadside parking along all open roads for the length of one-vehicle, 2) Unrestricted camping within designated corridors, 3) Designated camping areas accessed by a designated route. The Coconino National Forest has decided to use roadside parking and designated camping within 300 ft. wide corridors, measured from the edge of a road. In designating these corridors, efforts will be made to locate them in areas that have historically been popular camping locations.

As part of this Travel Management study, various Forest specialists have been monitoring camping behavior throughout the Forest to obtain current information about camping densities, camper behaviors, and the nature of impacts resulting from dispersed camping. Particular attention has been paid to patterns of camping and those time periods when camping is most popular. Impacts to soil and vegetation have been most closely monitored and can be considered most similar to potential impacts to archaeological sites. The following discussion of impacts incorporates pertinent sections from Steinke's (2007a) report as they relate to archaeological sites.

Dispersed camping takes place throughout the entire Forest but the most popular areas, with the highest densities of campers, is along the edges of meadows, riparian areas, wetlands, and in the ponderosa pine and aspen forest zones. Current monitoring activities of camping patterns and impacts indicates that soil and vegetation within meadows, wetlands, and riparian areas are being negatively impacted, while impacts within the ponderosa pine and aspen forests are considerably less. Ease of vehicle access is an important factor in determining the severity of impacts.

Camping Patterns: The most common pattern of dispersed camping noticed during Forest monitoring is that most camping takes place within 300 ft. of existing roads that are located within 1-2 miles of paved roads. It is estimated that 80% of our camping public are using recreational vehicles or trailers in large clusters of multiple vehicles, so most dispersed camping impacts are along Level 2 and 3 roads (Brian Poturalski, personal communication). Outside of these concentrated clusters, Forest studies of existing dispersed camp sites along roads suggest there is an average of about 1.6

camping spots per mile along existing roads (Beard, 2008). Ease of access to desirable camping locations is a major factor in camping density as few camps were observed in less accessible areas. As expected, the most popular period for camping is during holiday week ends, followed next in popularity during hunting season. The most popular locations are concentrated along the edges of meadow within the ponderosa and aspen forest zones, where trees provide shade and protection from wind and rain. However, these are the same locations where ancient hunting sites are typically found, so impacts to archaeological sites may be greater here than in other forest locations.

Once situated, trailers and vehicle parking does not impact soil and vegetation very much. However, activities associated with camping, particularly cross-country OHV travel, can be fairly extensive. Depending on soil and slope situations, repeated travel can both compact soil as well as rip out vegetation and cause rutting. In either case, this results in both horizontal and vertical displacement of artifacts, as well as crushing and edge damage to artifacts.

The ponderosa and aspen forests attracts the vast majority of campers who come to the Forest to escape the heat and congestion of Phoenix and the Salt River Valley. This is fortunate, from a Heritage perspective, since the high pines have a very low archaeological site density. When sites are present, they are mostly historic period sites or low-density flake scatters. Unfortunately, historic period sites are most susceptible to disturbance from people who are curious to see what they can find in historic sites, and from bottle collectors who root through or dig up trash dumps in a search for old bottles and well-preserved beer and Log Cabin syrup cans. Further damage has been documented where the remains of log cabins have been sawn up and used for firewood. Outside of meadows, camping in the ponderosa pine forest is highly dispersed but is localized to flat areas. Ground-disturbance in these locations is considered minor because the soil and vegetation types in this zone have a low erosion potential. Camping in aspen forests is much more concentrated than in the ponderosa zone, but impacts are minor in extent since there are very few sites in the aspen zone.

Prehistoric people were attracted to riparian areas along perennial streams because of the diversity of resources found in riparian zones. Consequently, riparian areas tend to have high archaeological site densities and are particularly sensitive for negative impacts resulting from camping activities. Activities that take place as part of camping can adversely effect archaeological sites by causing accelerated soil erosion, break-down of stream bank stability, and loss of vegetation. Direct negative impacts can result from trampling, crushing, and displacement of artifacts; displacement of wall stones when small trees or brush are broken up or pulled out of the ground for use as firewood. The most extreme impacts occur from illegal activities, such as removal of artifacts or actual digging in sites.

In sum, from a Forest-wide perspective, although recreational activities are among the third highest class of damage to archaeological sites (Table 5), camping, by itself, does not cause appreciable damage to the Forest's archaeological sites. This is largely due

to the fact that the majority of camping is done in the high ponderosa pine and aspen forests, where there are very few archaeological sites that could be effected by camping. However, in other popular camping areas, adjacent to meadows and riparian areas, archaeological sites are more numerous and can suffer from camping-related impacts. The most common such impact results from repeated cross-country travel, where compaction from continued travel, and rutting in wet soils, results in artifact breakage and displacement – destroying artifact patterns that might otherwise reveal patterns of prehistoric use. At the other extreme, illegal collecting of artifacts, such as painted pot sherds and projectile points, or digging in sites in search of artifacts and historic collectibles, can be an indirect source of damage to archaeological sites.

Issue 5: Effects to Cultural Resources from Motorized Retrieval of Big Game Animals during Hunting Season: There is no documentation of effects to cultural resources resulting from the use of motorized ORVs to retrieve big game animals killed during hunting season. From an archaeological perspective, this issue can be considered a subset of Issue 1 – unregulated cross-country driving, which effects sites when they are driven over. However, unless ground conditions are wet, or particularly knobby tires that dig into the ground are in use, one-time travel across an archaeological site has limited effect to sites and that would be the physical damage and displacement of artifacts. If anything, cross-country driving for big game retrieval likely has less of an effect than unregulated cross-country driving for recreational purposes, since big game retrieval is focused on a one-time access to a specific spot by rubber-tired vehicles. In sum, we have no data pertaining to effects big game retrieval may have on sites. However, effects directly attributable to big game retrieval are considered low to non-existent.

IV. Desired Future Conditions

Coconino National Forest Plan: Heritage Resources Direction

The management direction to provide desired future conditions for the Heritage resources of the Coconino National Forest is given in the Coconino National Forest Plan (USDA FS 1987a:52-3 to 55) and in subsequent area planning documents. Collectively, they provide the criteria that have been used to evaluate the need for future closures or restrictions, and were among the guidelines used by the Forest's interdisciplinary TMR teams. The following excerpts are the pertinent criteria that apply to Heritage resources protection:

Coconino National Forest Plan

● [Consider closure or restrictions where there are] Areas of important cultural resource sites vulnerable to damage that are being threatened or damaged (Coconino National Forest Plan, USDAFS 1987a:59).

Sedona/Oak Creek Ecosystem-Wide Management Direction

● Eliminate unneeded roads and redesign or relocate poorly located roads and trails to lessen impacts on such resources as cultural sites, soil, water and wildlife and to reduce user conflicts (Sedona/Oak Creek Ecosystem-Wide Management Direction, Coconino National Forest Plan, USDAFS 1987a:206-10)**.**

FLEA Area Wide Goals, Pages 206-70 to 206-71

● Areas of important cultural resource sites vulnerable to damage that are being threatened or damaged (FLEA Area Wide Goals, Pages 206-70 to 206-71, USDA FS)

Reasons for maintaining roads open may include, but are not limited to:
(FLEA Area Wide Goals, Coconino National Forest Plan, USDAFS 1987a:206-72.)

● Roads that provide access to recreation use sites or areas

● Roads that provide access needs for research, inventory, and monitoring

● Roads necessary to meet people's needs and values for roads, such as Native Americans to gather traditional plants and access to traditional sites.

● Roads necessary to manage special use sites

<u>Desired Future Condition for the Affected Area :</u>

- Reduced pothunting and vandalism of archaeological and other cultural sites by minimizing motorized vehicle access to non-developed sites and prohibiting travel off authorized routes.

- Reduced pothunting and vandalism of archaeological and cultural sites by reducing the present road system density in areas of known and predicted high archaeological site density and traditional cultural importance.

- Reduced camping along the edges of meadows, especially in the pinyon-juniper and ponderosa pine/pinyon-juniper transition zone, by minimizing dispersed

camping corridors in areas of high archaeological density and in areas of traditional cultural importance.

- Reduced potential for disturbance of archaeological sites in streamside and riparian areas by minimizing dispersed camping areas along those locations in areas of high archaeological site potential

- Reduction of pothunting in association with illegal fuelwood cutting by requiring permits for all fuelwood cutting, limiting fuelwood cutting to designated areas, and increased monitoring within the pinyon-juniper zone as well as within designated fuelwood cutting areas.

- Eliminate road-related effects to sites and provide a more natural setting within National Register sites and Districts (e.g. Winona Village, Ridge Ruin, Chavez Pass, etc.) by permanently closing unnecessary roads and relocating segments of necessary roads that cut through sites.

V. Alternatives Under Consideration

In developing alternatives to comply with the Travel Management Rule, an interdisciplinary team consisting of District Rangers; District Recreation, Fire, Range, and Timber staffs; the Forest Staff Officers responsible for recreation, fire, range, timber, wildlife, botany, fisheries, soils, and water; the Forest landscape architect, land use planners, traffic engineers, and National Environmental Policy Act (NEPA) coordinators; and Forest resource specialists in wildlife, botany, fisheries, soils and watershed, and cultural resources, examined maps of the Forest to identify a minimal transportation system that would meet Forest management needs as perceived from all resource perspectives. An initial review was conducted on a road by road basis by a core interdisciplinary team. Their review was examined by an expanded team, consisting of more District-focused personnel, followed by additional meetings by members of both teams to resolve differences.

From this interdisciplinary analysis, six alternatives, including the legally required “No Action” alternative, were developed (Table 6) and approved by the Forest Leadership Team for additional analysis.

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ALTERNATIVE 1 No Action	***ALTERNATIVE 2***	***ALTERNATIVE 3***
Existing open Forest Rd.(FR) mileage remains the same = **5,154 miles**	Open FR mileage = **3,238 mi.**	Open FR mileage = **3,217 mi.**
Existing closed FR mileage remains the same = **1,393 miles**	Closed FR mileage = **3,309 mi.**	Closed FR mileage = **3,330 mi.**
Net change in mileage of open Forest Road = **0 miles**	*Net change* in mileage of open Forest Road = **1,916 mi**.	*Net change i*n mileage of open Forest Road = **-1,937 mi**
Continue to allow cross-country motorized travel	Prohibit cross-country motorized travel	Prohibit cross-country motorized travel
No change to existing NFS motorized trail system	No change to existing NFS motorized trail system	No change to existing NFS motorized trail system
Unrestricted motorized big game retrieval (MBGR)	No MBGR	No MBGR except where majority of shared game unit is on Kaibab NF (defer to KNF policy)
No restriction for dispersed camping	Allow motorized travel up to 300' off some FRs for dispersed camping (may be less in areas where specific resource protection needed)	Allow motorized travel up to 300' off some FRs for dispersed camping (may be less in areas where specific resource protection needed)

ALTERNATIVE 4	***ALTERNATIVE 5***	***ALTERNATIVE 6***
Open FR mileage = **3,444 mi.**	Open FR mileage = **3,813 mi**.	Open FR mileage = **602 mi.**
Closed FR mileage = **3,103 mi.**	Closed FR mileage = **2,734 mi.**	Closed FR mileage = **5,845 mi.**
Net change in mileage of open Forest Road = **-1,710 mi.**	*Net change* in mileage of open Forest Road = -**1,341 mi.**	*Net change* in mileage of open Forest Road = **-4,552 mi.**
Prohibit cross-country motorized travel	Prohibit cross-country motorized travel	Prohibit cross-country motorized travel
Includes Smasher Canyon Trail and Long Route	Includes Upper & Lower Smasher Canyon Trails, Long Route, Challenger Tr. & Wing Mtn. OHV Area	No motorized trails
MBGR for any legal elk harvest before Oct. 10 MBGR except where majority of shared game unit is on Kaibab NF (defer to KNF policy)	Unrestricted MBGR except where majority of shared game unit is on Kaibab NF (defer to KNF policy)	MBGR for any legal elk harvest before Oct. 10 MBGR except where majority of shared game unit is on Kaibab NF (defer to KNF policy)
Allow motorized travel up to 300' off some FRs for dispersed camping (may be less in areas where specific resource protection needed)	Allow motorized travel up to 300' off some FRs for dispersed camping (may be less in areas where specific resource protection needed)	Allow motorized travel up to 300' off some FRs for dispersed camping (may be less in areas where specific resource protection needed)

Table 6. The original six alternatives for the TMR road system submitted for public comments and before modifications made by Forest interdisciplinary team into final three Action Alternatives.

These six alternatives were analyzed in greater detail by the interdisciplinary core and analysis teams. Those results were reviewed by the Forest Leadership Team and resulted in the decision of the Forest Supervisor to eliminate Alternatives 2, 5, and 6 from further detailed consideration. Comments from the public and revised Regional Office direction indicated a need to provide motorized access for camping in a different manner than originally proposed. Alternative 5, while responding to the many motorized requests, contained new motorized trails which were beyond the current capacity of the Forest to analyze and it retained routes in excess of what was needed to provide a reasonable degree of access to the Forest. Alternative 6 did not provide adequate access to the Coconino National Forest (July 21, 2008 Memo to TMR file from Nora Rasure)). Consequently, the final analysis focused on the No Action Alternative (Alternative 1), and two Action Alternatives (Alternatives 3 and 4). The two Action Alternatives can be summarized as follows (Beard and Condon, July 15, 2008).

Actions Common to Both Action Alternatives

1. Alternatives 3 and 4 propose a road system consisting of 7,509 miles. There is little difference in the miles of roads that would remain open within Alternatives 3 and 4, but there might be different effects because of the locations of their road segments. Both will result in approximately 79% of the Forest's 1.8 million acres being within 0.5 mi. of a road.

2. All action alternatives propose changing the Coconino Forest Plan (FP) with a FP Amendment to generally prohibit wheeled motorized access off of authorized routes and areas.

3. Roads will remain open for Forest Service administrative use for Forest management purposes.

4. Roads will also remain available open for use under specifically written authorizations, such as contracts or permits (e.g. special use permits, range land management activities, fuelwood harvesting, tribal plant collecting activities or access to specific areas for ceremonial activities, etc.) The use of OHV's is recognized as necessary for range management activities and will be authorized as part of existing range allotment plans. Specific parameters for range-related OHV activity are being determined by the Regional office to ensure Region-wide comparability, so this is not a decision that individual Forests will make.

5. Valid existing rights will be recognized

6. Any existing unauthorized roads will be closed. Existing restrictions and closures to motorized travel would remain in place and no changes would be made to the management of the Cinder Hills OHV Area.

7. Camping corridors are the same for both alternatives. Motorized travel for access to dispersed campsites would be limited to a corridor bounded by a line parallel to and up to 300 feet from the edge of designated FRs.

8. Status quo will be maintained for the use of snowmobiles and other over-snow vehicles, which will continue to be allowed, restricted, or prohibited at the local level.

9. The outcome of the planning process will be a Motor Vehicle Use Map that indicates which roads are open for use and the locations of designated dispersed camping corridors and areas. These maps are to be developed by September, 2009. Changes may be made to the map on an annual basis as changes in camping areas or road status are made.

10. Whichever alternative is selected, all actions related to travel management will be conducted under the requirements of the "Standard Consultation Protocol for Travel Management Route Designation". This is an appendix to the *First Amended Programmatic Agreement Regarding Historic Property Protection and Responsibilities* Among New Mexico Historic Preservation Officer, Arizona State Historic Preservation Officer, Texas State Historic Preservation Officer, and Oklahoma State Historic Preservation Officer, and The Advisory Council on Historic Preservation and the USDA Forest Service, Region 3 (See below).

Alternative 1 – No Action

This alternative proposes no change to the existing management of motorized access on the Forest. Approximately 25% of the 1.8 million acres of the Forest is already closed to OHV use through special designations, such as Congressionally approved Wilderness areas, and special closure orders, such as for the area around Lake Mary to protect the City of Flagstaff watershed. Alternative 1 would not require an amendment to the Coconino NF Forest Plan (FP). Cross-country travel off of authorized routes is allowed except where already prohibited and where such travel would result in resource damage. Existing restrictions and closures to motorized travel would remain in place.

No changes would be made to the following:

- the existing motorized trail system
- management of or access to the Cinder Hills OHV area
- the existing policy of allowing motorized cross country travel for the purpose of retrieving big game
- motorized access for dispersed camping
- the Forest Plan

This alternative includes about 4,427 miles of open Forest Roads (FRs) plus approximately 1,393 miles of known roads that are classified as "closed" (or slated for

decomissioning), for a total of 5,820 miles of road under Forest Service jurisdiction. The closed roads are actually considered to be in an open condition due to the present policy that allows cross-country travel.

Alternative 3

Comments received during public scoping for road closures emphasizing natural resource protection and retaining access to popular recreation were reviewed by the interdisciplinary team and were added to create this alternative. Its responses to the main issues under review are:

Issue 1: Prohibit cross country motorized travel: Motorized cross country travel would be prohibited.

Issue 2: Reduce the number of roads: The current open road mileage is about 7,500 miles. Alternative 3 would leave about 3,200 miles open and 4,300 mi. would be closed. Alternative 3 could affect a predicted 831 to 1,398 (average 1510) sites that have already been effected by road use (Tables 7, 8, and Appendix 1 Tables 1 and 2).

Issue 3: Motorized trail system: Currently, there are about 117 miles of open motorized trail. Under Alternative 3, 92 miles would be closed and 25 miles would be left open 13 to 15 (average 14) sites would still be effected by current use but 53 would receive some improvement by trail closure (Tables 9, 10, and Appendix 1,Tables 3 and 4).

Issue 4: Dispersed Camping: Roadside parking and camping for the length of a vehicle would be allowed throughout the Forest. 300 ft. wide corridors adjacent to existing roads would be designated in specific areas.

Issue 5: Motorized game retrieval: No motorized big game retrieval would occur except where the majority of a shared game unit is on the Kaibab NF, in which case the Coconino would defer to the Kaibab's policy.

Alternative 4

Open Forest Roads would account for 3,444 miles and total system motorized trail would retain 29 miles. This alternative proposes to close 99 miles of existing unauthorized motorized trails.

Issue 1: Prohibit cross country motorized travel: Same as Alternative 3.

Issue 2: Reduce the number of roads: Open Forest Roads would account for about 3,458 miles and 4,065 mi. would be closed. As Table 8 and Appendix 1, Table 2 show,

Alternative 4 could affect a predicted 864 to 1,474 (average 1,169) sites that have already been effected by road use.

Issue 3: Motorized trail system: 28 miles of existing motorized trails would be left open, and 89 miles would be closed. 15 to 18 (average 17) sites would still be effected by current use but 47 to 55 (average 51) sites would receive some improvement by trail closure (Tables 9, 10, and Appendix 1, Tables 3 and 4). In addition, Lower Smasher Canyon and Long Route would be added to the approved motorized trail system.

Issue 4: Dispersed Camping: Same as Alternative 3.

Issue 5: Motorized game retrieval: Motorized big game retrieval off of designated routes for legally harvested cow and bull elk would be permitted for all hunts that end prior to October 10. For any shared game unit where the majority is on the Kaibab NF, the Coconino will defer to their policy for game retrieval.

VI. Methodology for Analysis

Data Limitations and Assumptions

Number of Sites Recorded: Unlike many other Forests in the United States, the1.8 million acres of the Coconino National Forest are contained within a contiguous geographic block, rather than consisting of individual units separated by significant acreages of private, tribal, or other governmental ownership. Consequently, the Coconino has used its exterior boundary to define the area for which archaeological site information is recorded. Although there are significant acreages of National Park Service, private, and Arizona State land within the Forest boundaries, those areas are constantly changing, due to land exchanges with private developers or consolidations of checkerboard sections between the Forest and the State, sale of land to municipalities for civic or educational purposes, or by Congressionally mandated transfers of Forest land to the National Park Service, such as has occurred in the past with Walnut Canyon, Montezuma Castle, and Sunset Crater National Monuments or, more recently, with the expansion of Walnut Canyon (1,419 acres and 30 sites) in 1996. In similar fashion, sites that may originally have been on private or state land become Forest sites when they become Forest System lands. A substantial number of sites also have multiple ownership, being partly on National Forest land and partly on private or land of some other jurisdiction. Since site numbers are assigned for each site when it is found and recorded by the Forest, site numbers and records are maintained in the archaeological data base for sites that were, or are no longer, located on Forest lands. Current land status can be determined from the most recent GIS database, should such information be needed. In addition, current land ownership is irrelevant when studies are made of archaeological site types, densities, land use patterns, etc. for research or management purposes.

Within the exterior boundary of the Coconino National Forest, site information has been recorded for approximately 9,000 archaeological sites. This includes approximately 787 "Legacy Sites" – early sites reported prior to 1960 by the Museum of Northern Arizona that have not yet been relocated and re-recorded to current standards; 291 sites on National Park Service land, mostly Walnut Canyon National Monument; 130 sites on private land, 51 sites on county or municipal lands, and approximately 8,741 sites recorded since 1975, when the Heritage Program of the Forest was established.

Between 1975 and 2007, site information sources maintained by the Forest consisted of a site log, site forms, copies of MNA legacy site forms, with site locations plotted on aerial photographs overlays (updates of the Forest's aerial photo coverage have been performed at various intervals since the 1940's, and all have been used for site plotting), and on 1:24,000 USGS maps, maintained as the Forest's Site Atlas.

In recent years, the Forest Service has designed numerous computerized systems to supplement and/or replace previous manual record and file systems. This includes archaeological records. Since 2007, new computerized records include an EXCEL spread sheet Site Log, a computerized MSWORD site form that generally follows the earlier manual site form, a computerized site recording system known as (INFRA), computerized Geographic Map System (GIS) plotting of sites, a computerized Geodatabase with locational and summary site information that supports the GIS system, and the use of various global positioning system receivers ("GPS Units") to determine on-the-ground site locations. Use of the manual Site Log, site form, and aerial photographs have been discontinued and the Forest is in a transition period that will result with termination of the MSWORD site form and Site Atlas. The MNA Legacy site forms and all previous site forms and records are still maintained but will eventually be placed in archival status as they are updated and replaced by computerized records.

All sites with confirmed locations, approximately 8,175 sites, are plotted on the Forest's GIS map layers with supporting information in the Geodatabase. The computerized Archaeological Site Log has records for approximately 6,171 sites and includes additional site information that is not yet entered into INFRA or the Geodatabase. New sites recorded since 2007 are now being routinely entered into the computerized Site Log, INFRA database, GIS, and the Geodatabase. However, computerization of sites recorded prior to 2007 is not complete, but data entry for them is being done as time permits.

In summary, there are a number of information systems that today comprise the Archaeological Site Survey of the Coconino National Forest, with not all information entered into the various computer files maintained by the Forest. However, various types of computerized information for 6,000 to 8,000 sites is available and is sufficient to characterize and make reliable conclusions about the nature and condition of archaeological sites on the Coconino National Forest.

Road Extent and Type: The length and extent of roads by type used in this analysis is based upon figures from the Forest GIS database as of August, 2007. At present, 1,600

miles of user-created routes are registered in the Forest GIS roads data layer. However, many more miles of user-created roads and motorized trails exist that are unknown to the Forest and not reflected in the GIS data layer. In addition, more miles are being created annually as recreation motorized OHV use on the Forest increases; thus, the extent of user-created routes and related resource damage should be considered minimal estimates.

Road Miles: Miles listed by road maintenance level are considered reasonably accurate. However, with the thousands of road segments identified for GIS analysis, many of which may extend slightly beyond the Forest boundary, actual segment lengths may be slightly different than their GIS-defined lengths and may slightly over-predict Forest road miles.

OHV/Camping Users: An Arizona State University study of Arizona OHV use by county indicates that about 85% of people who use the Forest for OHV-related activities come from other areas, particularly Phoenix and Los Angeles.

Unreported Survey Data: The Coconino National Forest covers about 1,831,756 million acres. Of this, approximately 340,465 acres - slightly less than 19% - have been archaeologically surveyed at 100%, based on the Forest's Heritage GIS Database as of Aug. 7, 2008. In fact, more acres have actually been surveyed, but they overlap previous surveys. In addition, an unknown amount of survey information has been conducted that is not reflected in the Heritage GIS database due to on-going projects, unfinished surveys, or inadequate documentation.

Assumed Survey Widths: Certain assumptions were made to facilitate the GIS Heritage analysis. Actual survey widths reported for both "point" projects, such as a cattle guard, stock tank, or telemeter station, and "linear" projects, such as roads, power lines, buried telephone cables, and fence lines, vary, depending on the actual project dimensions versus the area physically examined by the archaeologist. Typically, a larger area is surveyed than the actual project width. Since actual survey widths are not yet entered into the geodatabase, it was assumed that archaeologists "typically" survey about 60 ft. on either side of themselves, plus an average 15 ft. wide road itself, when conducting an archaeological survey. This results in approximately a 0.25 acre for a "point" project or a 135 ft. total survey width for a "linear" project, and is the survey width assumed for projects for the analysis.

Archaeological Survey Coverage: Estimates of archaeological site densities and sensitivities are based on the numbers of sites found within reported survey areas within different environmental areas as identified by specific TES unit designations. However, survey coverage is not evenly distributed over the various environmental zones represented on the Forest. Archaeological survey coverage is determined each year by the projects that are proposed for that year, since funding for surveys is based upon project needs. Surveys conducted purely for archaeological reasons are limited to out-service or volunteer organizations. This has resulted in Forest survey data being weighed more heavily to the ponderosa pine forest zone, an area that has historically

had more intensive management focus due to timber sales, fire suppression, and, more recently, projects to reduce potential wildfire threats to populated areas, than other parts of the Forest. Surveys, however, indicate that the under-represented pinyon-juniper zone has much higher site densities than the ponderosa zone. Site information for other environmental areas where even less survey coverage exists, such as the tundra on the San Francisco Peaks, an area of highly sensitive cultural value, and steep canyon slopes, where numerous rock shelters, caves, and cliff dwellings are known to occur, must also be considered less reliable than for other environmental zones.

Methodologies Used

Models: In order to evaluate the archaeological sensitivity of different parts of the Forest, a simple model was developed that predicts the potential number of sites per square mile within different environmental situations as reflected by the 134 soil/moisture/vegetation units defined by the Terrestrial Ecosystem Soil Survey (TES) for the Forest. The Terrestrial Ecosystem concept was developed by the U.S. Forest Service to characterize the various environmental areas of the forest by considering a number of environmental variables such as geological substrate, slope, aspect, existing vegetation, historical vegetation, moisture, and soil type. All of these variables have been found to be important when considering the relationships between the environment and prehistoric land use patterns.

For purposes of evaluating the potential effects of designating various combinations of roads as open or closed to vehicle use, **site sensitivity** is defined as the potential site density of the area that could theoretically be impacted by road maintenance and use. The potential site density for each of the 134 TES units is determined by dividing the number of sites recorded within each TES unit by the total acres that archaeologists have physically examined within each TES unit. This provides an estimate of the number of sites per acre which, when multiplied by 640 (the number of acres within a square mile), provides the estimated number of sites per square mile within each of the TES units. The estimated site density for each TES unit was plotted as a histogram, ranging from low to high, and by identifying natural breaks in the histogram, five site density classes were defined (Table 11), which have been used to produce an overall site density map for the Forest (Figure 1).

Ratings of simple site density were modified into areas of **cultural sensitivity** for areas that are known to be of traditional cultural importance to modern Southwestern Indian tribes. The degree to which the site sensitivity was upgraded for cultural sensitivity is based upon the relative traditional importance of an area, as understood by the Forest archaeologists. Hence, the San Francisco Peaks, with their major religious and cultural significance to many tribes, are ranked as extremely high in cultural sensitivity, while the pinyon-juniper country east of Winona, an important fuelwood and pinyon nut gathering area for nearby Navajo chapters, is rated as much lower in cultural sensitivity.

Cultural Sensitivity and Archaeological Site Density		
Cultural Sensitivity	**Figure 1 Color Code**	**Estimated Site Density**
Very Low	[blue]	0 sites/square mile
Low	[green]	1 - 10 sites/square mile
Moderate	[yellow]	11 - 20 sites/square mile
High	[orange]	21 – 30 sites/square mile
Very high	[red]	30+ sites/square mile

Table 11. Archaeological site density classes defined for the Coconino National Forest

The Forest Plan and subsequent updates provide several criteria that were used as part of the interdisciplinary analysis that resulted in the open and closed road and motorized trail configurations proposed in Alternatives 3 and 4. These include consideration for:

- Roads that provide access to Heritage sites that have been identified for current or future development as interpretive or recreation use sites or areas

- Roads necessary to meet peoples' needs and values, such as American Indians' traditional gathering of plants and access for various purposes, and access to sites and areas needed for the maintenance of cultural and religious values

- Roads necessary to manage special use sites and areas

VII. Environmental Consequences
Evaluation of Alternatives

Table 12 summarizes the three alternatives under consideration and compares the total miles of **roads** proposed to leave open, the miles of roads proposed to close, and the potential number of sites that might be impacted by each alternative.

Table 13 summarizes the three alternatives under consideration and compares the total miles of motorized **trails** proposed to leave open, the miles of trails proposed to close, and the potential number of sites that might be impacted by each alternative.

Alternative 1 – No Action

Alternative 1, the No Action alternative, does not meet the direction or requirements of the Travel Management Rule. However, it would have the following effects:

- All 117 miles of the current motorized trail system would remain open. No trails would be closed (Tables 10 and Appendix 1, Table 4).

- Between 62 and 73 sites (average 67) would remain effected by the current motorized trail system. No sites would be removed from the TMR Area of Potential Effect (APE) (Tables 10 and Appendix 1, Table 4).

- All 7,522 miles of the current road system would remain open. No roads would be closed (Tables 8 and Appendix 1, Table 2).

- Between 1,962 to 3,724 (average 2,640) sites would continue to be within the APE related to continued road use, designated motorized travel route, and dispersed camping. No sites would be removed from the APE (Tables 8 and Appendix 1, Table 2). An unknown number of sites would continue to be potentially effected by continued cross-country travel.

Alternative 3

- 25 miles of the current motorized trail system would remain open and 92 miles would be closed (Tables 9 and 10).

- Between 49 and 57 sites (average 53) would be removed from the APE of the motorized trail system (Table 9 and Appendix 1, Table 3).

- The road system would be reduced to 3,231 miles and 4,292 miles would be closed (Tables 7 and 8, Appendix 1 Tables 1 and 2).

- Between 831 and 1,398 sites (average 1,122) would continue to be within the APE of the designated miles of road. Between 1,131 and 1,877 (average 1,510) sites would be removed from the APE by the closing of 4,292 miles of road (Tables 7 and 8, Appendix 1, Tables 1 and 2).

- A significant, but unknown number of sites would be protected from potential effects and excluded from the APE by restricting motorized cross-country travel.

- Designated dispersed camping areas would use information from archaeological surveys, as required by the TMR Protocol, to minimize the number of sites that could be effected within designated camping corridors.

Alternative 4.

- 28 miles of the current motorized trail system would remain open and 89 miles would be closed (Tables 9 and 10, Appendix 1, Tables 3 and 4).

- Between 47 and 55 sites (average 51) would be removed from the APE of the motorized trail system (Table 9 and Appendix 1, Table 3).

- The road system would be reduced to 3,458 miles and 4,065 miles would be closed (Tables 7 and Appendix 1 Table 1).

- Between 864 and 1,474 sites (average 1,169) would continue to be within the APE of the designated roads. Between 1,099 and 1,800 (average 1,450) sites would be removed from the APE by the closing of 4,065 miles of road (Tables 7 and 8 and Appendix 1, Tables 1 and 2).

- A significant, but unknown number of sites would be protected from potential effects and excluded from the APE by restricting motorized cross-country travel.

- Designated dispersed camping areas would use information from archaeological surveys, as required by the TMR Protocol, to minimize the number of sites that could be effected within designated camping corridors.

Travel Management Consultation Protocol

The Southwest Region of the Forest Service has had a Programmatic Agreement with the Advisory Council on Historic Preservation and State Historic Preservation Officers within the Region that details Forest Service responsibilities for complying with Section 106 of the National Historic Preservation Act. This agreement provides for the development of standard consultation protocols for common or special undertakings. By following these protocols and the Programmatic Agreement, all parties agree that the Forest Service is following legal requirements for the identification, evaluation, and treatment of historic properties.

The “Standard Consultation Protocol for Travel Management Route Designation” has been developed to cover Travel Management that designates situations that do and do not need consultation as well as standards for dealing with cultural resources. It authorizes the Forest Archaeologist to determine the level of inventory needed for a TMR activity based on past and future use levels, types of motorized use, topography, soils, vegetation, previous archaeological surveys, site types, site densities, predictive models and overviews, historic information and tribal consultations. However, 100% surveys are required where site density is expected to be high, where site densities are unknown but visitor use or impacts will be high, where significant historic roads, trails, and related features occur, and when new road and motorized trail construction is proposed. Surveys at less than 100% are acceptable where site density is low and where prior use has already disturbed the road, trail, or area and continued use is not expected to cause additional significant damage to heritage resources. Survey widths are recommended to be 60 m. on either side of a road, and limited subsurface testing within a roadbed to determine the presence or absence of cultural deposits is allowed.

The guidelines of the protocol will be followed for all Travel Management Route designations.

Cumulative Effects

In order to understand the contribution of past actions to the cumulative effects of the proposed action and alternatives, this analysis relies on current environmental conditions as a proxy for the impacts of past actions. This is because existing conditions reflect the aggregate impact of all prior human actions and natural events that have affected the environment and might contribute to cumulative effects.

This cumulative effects analysis does not attempt to quantify the effects of past human actions by adding up all prior actions on an action-by-action basis. There are several reasons for not taking this approach. First, a catalog and analysis of all past actions would be impractical to compile and unduly costly to obtain. Current conditions have been impacted by innumerable actions over the last century (and beyond), and trying to isolate the individual actions that continue to have residual impacts would be nearly impossible. Second, providing the details of past actions on an individual basis would not be useful to predict the cumulative effects of the proposed action or alternatives. In fact, focusing on individual actions would be less accurate than looking at existing conditions, because there is limited information on the environmental impacts of individual past actions, and one can not reasonably identify each and every action over the last century that has contributed to current conditions. Additionally, focusing on the impacts of past human actions risks ignoring the important residual effects of past natural events, which may contribute to cumulative effects just as much as human actions. By looking at current conditions, we are sure to capture all the residual effects of past human actions and natural events, regardless of which particular action or event contributed those effects. Third, public scoping for this project did not identify any public interest or need for detailed information on individual past actions. Finally, the Council

on Environmental Quality issued an interpretive memorandum on June 24, 2005 regarding analysis of past actions, which states, “agencies can conduct an adequate cumulative effects analysis by focusing on the current aggregate effects of past actions without delving into the historical details of individual past actions.”

The cumulative effects analysis in this (EA or EIS) is also consistent with Forest Service National Environmental Policy Act (NEPA) Regulations (36 CFR 220.4(f)) (July 24, 2008), which state, in part:

> “CEQ regulations do not require the consideration of the individual effects of all past actions to determine the present effects of past actions. Once the agency has identified those present effects of past actions that warrant consideration, the agency assesses the extent that the effects of the proposal for agency action or its alternatives will add to, modify, or mitigate those effects. The final analysis documents an agency assessment of the cumulative effects of the actions considered (including past, present, and reasonable foreseeable future actions) on the affected environment. With respect to past actions, during the scoping process and subsequent preparation of the analysis, the agency must determine what information regarding past actions is useful and relevant to the required analysis of cumulative effects. Cataloging past actions and specific information about the direct and indirect effects of their design and implementation could in some contexts be useful to predict the cumulative effects of the proposal. The CEQ regulations, however, do not require agencies to catalogue or exhaustively list and analyze all individual past actions. Simply because information about past actions may be available or obtained with reasonable effort does not mean that it is relevant and necessary to inform decision-making. (40 CFR 1508.7)”

No cumulative effects have been identified for any of the alternatives, since any sites cut by roads have already been affected, regardless of which alternative is considered. Sites that already have roads through them have already been affected by construction, maintenance, and use. Routine maintenance of such sites should be limited to areas that have previously been affected by use and maintenance and any disturbance will take place in areas that have previously been disturbed. Some improvement in condition to sites presently cut by roads, or that have roads leading to them, can be expected should those roads be closed. However, sites will still be reasonably accessible since expected road density should result in no areas being more than about 0.5 mi. from road access. Areas that are needed for traditional religious purposes, plant collecting, or other special needs may still be accessed by individuals requesting a permit for this purpose. Areas will be provided where fuelwood may be collected, also under permit.

No change will result by allowing pull-off parking or camping to take place within one vehicle length of existing roads, since this use has been allowed in the past and will continue to be allowed. Corridors for dispersed camping have previously been available

for this activity and efforts have been made to keep popular camping areas available in designated corridors. Areas where potential conflicts may exist between archaeological sites, traditional uses, and dispersed camping will receive archaeological survey first to determine whether or not such areas may be designated, and monitoring will be recommended in potentially sensitive areas to determine if designations should be changed.

For these reasons, the analysis of past actions in this section is based on current environmental conditions.

Monitoring:

Known sites should be monitored periodically to keep track of their condition, if they are along open roads, or to determine the rate and extent to which they are becoming revegetated and naturalized, if they are along roads that are closed. Sites in or near camping corridors should also be monitored to determine if any impacts are occurring to them.

VIII. Tribal Consultations

Aug. 25, 2006 – Meeting with representatives from Hopi, Hualapai, Yavapai-Prescott, Navajo, and Yavapai-Apache.held at Forest Supervisor's office to discuss TMR and how tribes would like to be consulted to improve dialogue, and more effective communication.

Sept. 8, 2006 – Letters sent to 13 tribes, 7 Navajo Chapters, Dine' Medicineman's Association, and BIA introducing Forest Plan Revision and TMR and inviting their participation in meetings to be held throughout Arizona.

Feb. 28, 2006 – Annual Project consultation letter to 13 tribes, 7 Navajo Chapters, and Dine' Medicineman's Association.

November 1-2, 2006 - Meeting with Yavapai-Prescott, Navajo, Hopi, Acoma, and Hualapai.

December 17, 2006 - Meeting of Kaibab and Coconino N.F. with Cameron Chapter.

December 19, 2006 - Joe Stringer met with representatives of the Hualapai Tribe

January 17, 2007- Presented Forest Plan Revision and Travel Management Rule information at Leupp Chapter meeting.

January 19, 2007 – Meeting of Kaibab and Coconino N.F. with Leupp Chapter.

January 31, 2007– Meeting of Kaibab and Coconino N.F. with Navajo Nation Historic Preservation Department and Navajo Forestry Department. Tony Joe, Timothy Begay, Marklyn Chee from Navajo Nation (NN) Historic Preservation Department (NHPD), Alex Becenti from Navajo Forestry Department, Mike Williams, Ariel Leonard and Mike Lyndon from Kaibab National Forest (KNF), Joe Stringer, Peter Pilles and Mark Sensibaugh from Coconino National Forest (CNF), and Mae Franklin, CNF, KNF GRCA Navajo Liaison.

February 16, 2007- Public meeting at Leupp Chapter House to discuss Forest Plan Revision and Travel Management Rule. Representing the Coconino National Forest were Joe Stringer, Jim Beard, Heather Green, Jennifer Kevil, Peter Pilles, Chris Barrett, Gerilyn Mexicano, Julia Yazzie, Tina Williams, Dan Russell, and Claire Pitner.

March 18, 2007 - Kaibab and Coconino N.F. presentation to Cameron Chapter about status and results of tribal consultations for Forest Plan Revision and Travel Management Rule. Received information from Chapter members related to USFS/Tribal relationships, recommendations for access, plant collecting areas, etc. Coconino National Forest personnel were Heather Green, Jim Beard, Peter Pilles, Mae Franklin, Chris Barrett, Julia Yazzie, Gerilyn Mexicano, Tina Williams, and Jennifer Kevil.

November, 2007 - On-going telephone calls from Joe Stringer to tribal contacts to establish contact and invite tribal consultation.

July 6, 2007 – Annual Project consultation letter to 13 tribes, 7 Navajo Chapters, and Dine' Medicineman's Association.

IX. References

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State Historic Preservation.Officers; The Advisory Council on Historic Preservation, and the United States Department of Agriculture, Forest Service, Region 3.

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