

**CORONADO NATIONAL FOREST**

**WINCHESTER MOUNTAINS**  
**ECOSYSTEM MANAGEMENT AREA**  
**Transportation Analysis Plan**



**February 2008**  
**Revised November 2009**  
**2<sup>nd</sup> Revision April 2011**

**Edited By**

**ELI CURIEL JR.**  
**ID Core Team Leader**

**Approved By**

*/s/ Kent C. Ellett*

**Kent C. Ellett, Safford District Ranger**

*April 4, 2011*

**Date**

# Table of Contents

<b>INTRODUCTION</b> .....	<b>2</b>
<b>STEP 1 – SETTING UP THE ANALYSIS</b> .....	<b>4</b>
<b>STEP 2- DESCRIBING THE SITUATION</b> .....	<b>6</b>
<b>TABLE 2.1 - CURRENT AND PROPOSED ROAD CLASSIFICATIONS, OPPORTUNITIES, AND RISKS</b> .....	<b>9</b>
<b>TABLE 2.2 - CURRENT ROAD CLASSIFICATIONS</b> .....	<b>12</b>
<b>STEP 3- IDENTIFYING ISSUES</b> .....	<b>12</b>
<b>STEP 4- ASSESSING BENEFITS, PROBLEMS AND RISKS OF THE EXISTING ROAD SYSTEM</b> ...	<b>20</b>
<b>LANDS</b> .....	<b>21</b>
<b>SOIL, WATER, AIR, AND FORESTRY</b> .....	<b>26</b>
<i>Table 1 General Ecosystem Survey Units Found in the Watersheds of the Winchester EMA</i> .....	<i>27</i>
<i>Table 2 General Ecosystem Survey Units Descriptions</i> .....	<i>27</i>
<i>Figure 1 Watershed Map</i> .....	<i>30</i>
<i>Figure 2 General Ecosystem Map</i> .....	<i>31</i>
<b>RECREATION</b> .....	<b>32</b>
<i>Table 4.3. Activity participation on the Coronado National Forest</i> .....	<i>32</i>
<b>RANGE MANAGEMENT</b> .....	<b>35</b>
<b>BIOLOGY</b> .....	<b>37</b>
<i>Table 4.4. Threatened, Endangered, Proposed and Sensitive Animal and Plant Species</i> .....	<i>39</i>
<i>Table 4.5. Sensitive Animal and Plant Species</i> .....	<i>40</i>
<i>Table 4.6. Management Indicator Species</i> .....	<i>42</i>
<b>CULTURAL RESOURCE ISSUES</b> .....	<b>46</b>
<b>FIRE PROTECTION &amp; SAFETY</b> .....	<b>48</b>
<b>STEP 5- DESCRIBING OPPORTUNITIES AND SETTING PRIORITIES</b> .....	<b>49</b>
<i>Table 5.1 - Recommended Minimum Transportation System</i> .....	<i>51</i>
<b>STEP 6- REPORTING</b> .....	<b>53</b>
<b>APPENDIX A: DEFINITIONS</b> .....	<b>55</b>
<b>APPENDIX B: BEST MANAGEMENT PRACTICES</b> .....	<b>57</b>
<b>APPENDIX C – INTERDISCIPLINARY TEAM</b> .....	<b>61</b>
<b>APPENDIX D – INTERDISCIPLINARY TEAM DISCUSSION NOTES</b> .....	<b>62</b>
<b>APPENDIX E – FSM 7700</b> .....	<b>64</b>
<b>APPENDIX F – FOREST TRANSPORTATION ATLAS</b> .....	<b>65</b>

## References

- Coronado National Forest, Forest Level Roads Analysis Report, January 13, 2003. Prepared by Melissa D. Shafiqullah, P.E.

# Introduction

This Transportation Analysis Plan (TAP) was originally completed January 2008 and revised in November 2009. As conditions and needs change or if omissions are discovered this TAP should be reviewed and updated and is the reason for this revision.

Travel planning in the Forest Service was traditionally split between the engineering program for road management and the recreation program for trails management. A recently revised federal regulation now combines the analysis of the motorized use of trails and roads under the travel analysis process. This process is intended to identify opportunities for the Coronado National Forest transportation system to meet current or future management objectives, and to provide information that allows integration of ecological, social, and economic concerns into future decisions. This report is tailored to local situations and site conditions as identified by forest staffs and collaborated with public input. The outcome of this analysis is a set of recommendations for the forest transportation system. A thorough Travel Analysis supports subsequent National Environmental Policy Act (NEPA) process, allowing individual projects to be more site-specific and focused, while still addressing cumulative impacts.

On January 12, 2001, the Forest Service issued the final National Forest System Road Management Rule. This rule revised regulations concerning the management, use, and maintenance of the National Forest Transportation System. The final rule is intended to help ensure that additions to the National Forest System road network are essential for resource management and use; that construction, reconstruction, and maintenance of roads minimize adverse environmental impacts; that unneeded roads are decommissioned; and that restoration of ecological processes is initiated.

This Ecosystem Management Area level Transportation Analysis Plan (TAP) addresses existing open National Forest System Roads (NFSR) as well as non-system roads located in the Winchester Mountains Ecosystem Management Area. This Transportation Analysis is not a NEPA document but supports NEPA Planning. It is an integrated approach to transportation planning, addressing both existing and future roads. Code of Federal Regulations Title 36 Part 212.5 Road System Management, requires that the forest identify the minimum road system needed for safe and efficient travel and for administration, utilization, and protection of National Forest System lands.

The Transportation Analysis process is described in Report FS-643, Roads Analysis: *Informing Decisions About Managing the National Forest Transportation System*. The Transportation Analysis requirements for Forest, Area, Watershed and Project Scale are described in *FSM 7700 - Transportation System: Chapter 7710 - Transportation Atlas, Records, and Analysis*; also see Interim Directives that may be policy at the time of the report. Below is the link to the complete FSM 7700 - Transportation System.  
<http://fsweb.wo.fs.fed.us/directives/fsm/7700/7710.rtf>

## **Objectives**

The objective of this analysis is to provide the Forest Service Line Officer with critical information to ensure that existing and future road systems are safe and responsive to public needs and desires, are affordable and efficiently managed, have minimal negative ecological effects on the land, are in balance with available funding for needed management actions, and are consistent with road management objectives FSM 7712.5. This analysis will not change or modify any existing NEPA decisions, but information generated by this analysis might cause the line officer to reconsider, and perhaps at some future date revise previous NEPA decisions.

## **Transportation Analysis Overview**

This analysis is intended to identify changes to the national forest transportation system that may be needed to meet current or future management objectives. The process is intended to complement, rather than replace or preempt, other planning and decision processes.

## **Six Step Process**

The analysis process is a six-step progression, regardless of scale, customized to local situations; landscape and site conditions coupled with public issues, forest plan land allocations, and management constraints. The process provides a set of possible road-related issues and analysis questions. Only those relevant questions and any additional suggestions on information needs and research findings that might apply to the project need to be addressed. The six steps are:

- Step 1. Setting up the Analysis
- Step 2. Describing the Situation
- Step 3. Identifying Issues
- Step 4. Assessing Benefits, Problems and Risks
- Step 5. Describing Opportunities and Setting Priorities
- Step 6. Reporting

The amount of time and effort spent on each step differs by the complexity of the issues, specific situations and available information particular to the project. Details about these steps can be found in FS-643 titled *Roads Analysis: Informing Decisions about Managing the National Forest Transportation System*.

## **Transportation Analysis Products**

This report is a product of the analysis process and documents the information and analyses used to identify opportunities and priorities for future national forest road and motorized trail systems (where applicable). Included in this report is a transportation map displaying the existing/recommended road system and where applicable the existing/recommended motorized trail system and the needs and/or recommendations for each. This report will:

- Identify needed and unneeded roads;
- Identify road related social, environmental and public safety risks;
- Identify site-specific priorities and opportunities for road improvements and decommissioning;
- Identify areas of special sensitivity or any unique resource values.

This report will help managers address questions on road access related to ecosystem health and sustainability, commodity extraction, recreation, social and cultural values, and administrative uses.

This report may help to inform future management decisions on the merits and risks of building new roads; relocating, upgrading, or decommissioning existing roads; managing traffic; and enhancing, reducing, or discontinuing road maintenance. This analysis is based upon:

- Use of the best available scientific information;
- Economics;
- Social and economic costs and benefits of roads; and
- Contribution of existing and proposed roads to management objectives.
- Input from resource specialists

## Step 1 – Setting Up the Analysis

### **Purpose, Scope and Objectives:**

The purpose of the project is to identify the minimum road system needed to administer and utilize National Forest System (NFS) resources within budget constraints. This TAP will support the Forest Plan revision process.

The scope of this analysis includes the area bounded by the Winchester Ecosystem Management Area on the Safford Ranger District. This is an Ecosystem Management Area level TAP with boundaries indicated on the map in Appendix F. A complete inventory of user-created routes is not required in order to complete a TAP. However, new routes are continually being created during the inventory process and therefore this report will only reflect user-created routes as of the date of this report. Some user-created routes are well located, provide excellent opportunities for outdoor recreation by motorized and non-motorized users alike, and would enhance the system of designated routes and areas. Other user-created routes are poorly located and cause unacceptable environmental impacts. The Coronado National Forest is committed to working with user groups and others to identify such routes and consider them on a site-specific basis. (Title 36 CFR 212.2) This analysis will include recommendations where appropriate to add user-created routes to the forest transportation system or recommend prohibition or restriction of motor vehicle use on identified system roads.

The objective of this Transportation Analysis is to provide critical information for a minimum road system that is safe and responsive to public needs and desires, is affordable, conforms to the Coronado National Forest Plan, is efficiently managed, has minimal negative ecological effects on the land, and is sustainable with available funding for needed management actions. All existing system roads, additional motorized travel routes and proposed roads within the project area, as well as access roads to the Forest Boundary are included in this Transportation Analysis Plan. This analysis provides a comprehensive look at the network of NFS roads and motorized NFS trails as well as all other user-created roads

located in the EMA and will be used during the NEPA process. The TAP is intended to be a broad scale comprehensive look at the transportation network. The main objectives of the TAP are:

- Balance the need for access while minimizing risks by examining important ecological, social, and economic issues related to roads and trails;
- Furnish maps, tables, and narratives that display transportation management opportunities and strategies that address future access needs, and environmental concerns;
- Identify the need for changes by comparing the current road and motorized trail system and areas to the desired condition;
- Make recommendations to inform travel management decisions in subsequent NEPA documents.

This document provides information for the Forest Plan Revision and the Travel Management Rule as it relates to the Coronado National Forest. This analysis will look at the options concerning access issues and needs, proliferation of non-system roads, un-needed roads, user-created routes, mixed use, and OHV use where applicable.

### **Analysis Plan**

The following items were specifically investigated in this analysis:

- Verify current road conditions and drivability.
- Verify accuracy of road locations on maps.
- Identify preliminary access and resource issues, concerns and opportunities.
- Identify additional issues, concerns and opportunities through internal resource staffs.
- Recommend changes to the existing road system based on the findings of this report.

### **Information Needs**

Information needs were identified and the IDT worked to gather as much information as available about the following items:

- Accurate location and condition of all system roads and motorized trails within the project area. A complete inventory of all unauthorized (user-created) routes is not required but the IDT felt it provided valuable information about what the public and other agencies were doing on the forest.
- Assessment of opportunities, problems and risks for all roads and motorized trails in the project area.
- Public access and recreational needs and desires in the area including access to private landowners.
- Areas of special sensitivity, resource values, or both.
- Best management practices for the area.
- Current forest plan and management direction for the area.
- Agency objectives and priorities.
- Interrelationship with other governmental jurisdictions for roads and motorized trails.
- Public and user group values and concerns.

### **Potential Key Issues, Concerns, and Opportunities**

The following items were considered in this analysis:

- Private property blocking federal land access
- Access to special-use permit sites
- Soil erosion, water quality, riparian issues
- OHV Recreation Use
- Motorized Trail and Vehicles route sharing
- Access to grazing allotments and improvements
- Special Uses
- Ecological effects to species and habitats
- Mineral access
- Cultural resources and Archaeological sites within the study area
- Excessive roads in the study area

## **Step 2- Describing the Situation**

### **Regional Setting**

The Winchester Mountains Ecosystem Management Area (EMA) is located within the Basin and Range physiographic province (Fenneman 1931) in southwestern Arizona which is characterized by an east-west alignment of generally parallel mountain ranges with broad valleys in between. The primary mountain range in the vicinity of the alternatives considered is the Winchester Mountains, with elevations ranging from approximately 3,000 ft to approximately 7,631 ft at the summit of Reiley Peak. The Winchester EMA contains 19,272 acres. The administrative boundary is considerably larger, yet a significant portion of that acreage is owned by the State of Arizona.

The prominent vegetation within the Winchester Mountain EMA varies between biotic communities of Arizona upland division of Sonoran Desert scrub, Semi-desert Grassland, Madrean Evergreen Oak Woodland, Interior Chaparral, and Ponderosa pine stands (Brown 1982).

The following communities are located in proximity:

- Safford
- Thatcher
- Pima
- Duncan
- Willcox
- Bonita
- Klondyke
- Fort Grant

The Interdisciplinary Team (Appendix C) convened and examined the existing transportation system in relation to current forest plan direction. This required a description of the road system; its location, ownership, condition, and current forest plan direction. A description of the physical, biological, social, cultural, economic and political aspects of the analysis area was discussed and generated by the team.

A map of the area's transportation system was developed to facilitate this description. (See Appendix F).

The products of this step are:

- A map or other descriptions of the existing road system defined by the current forest plan, and
- Basic data needed to address transportation analysis issues and concerns.

The following table provides existing data such as length of road within the Forest Boundary, current operational maintenance level and route status as listed in the INFRA database. The table also provides data on user-created routes that were GPS'd using a Trimble GeoXT handheld unit. The table provides data above and beyond what is required by a TAP.

#### Existing Direction for Roads and Motorized Trails

Travel analysis is focused on identifying needed changes to the forest transportation system; identifying the existing direction is an important first step. In general terms, the existing direction includes the National Forest System roads, trails and areas currently managed for motor vehicle use. Restrictions, prohibitions, and closures on motor vehicle use are also part of the existing direction on the forest.

Existing direction from laws and regulations, official directives, forest plans, forest orders, and forest wide or project specific roads decisions, determine the motorized routes and areas open to public motorized travel. This information about a unit's managed system is often documented in road and motorized trail management objectives, maps, Recreation Opportunity Guides, tabular databases, and other sources.

#### Maintenance Level Descriptions:

- |                                     |                                 |
|-------------------------------------|---------------------------------|
| 1 = Basic custodial care (closed)   | 5 = High degree of user comfort |
| 2 = High clearance vehicles         | C = Convert use                 |
| 3 = Suitable for passenger cars     | D = Decommission                |
| 4 = Moderate degree of user comfort |                                 |

Maintenance levels shown on the table indicate roads currently in INFRA and under Forest Service jurisdiction. For unauthorized roads recommended to be added to the system, the maintenance levels are merely recommended levels.

#### *Open Authorized Road*

Existing roads open to the public for motorized use are forest system roads, which are currently in the Forest's INFRA database with attributes reflecting an existing, National

Forest System Road under the jurisdiction of the Forest Service with an operational maintenance level between 2 and 5.

*Closed Authorized Road (Maintenance Level 1)*

Closed roads have been closed to vehicle traffic for at least a year but are necessary for future activities. If there is a future need for the road but no immediate need, then it is placed in the system as a closed (ML1) road. They appear in the INFRA database with an operational maintenance level of 1. If there is no compelling administrative or public need for the road in the long-term, then it should be decommissioned.

*Open Unauthorized Road*

An unauthorized road is not included in the forest transportation atlas or database. These roads are usually established by various users over time. They were not planned, designed, or constructed by the Forest Service.

*Decommissioned Road*

Decommissioned roads have some type of physical closure at their entrance or may be completely obliterated. They appear in the INFRA database with a route status of decommissioned. In order to return a decommissioned road to service as a system road, the NEPA process must be followed even when no physical work is required to allow motorized traffic back on the road.

**Table 2.1 - Current and Proposed Road Classifications, Opportunities, and Risks**

EXISTING SYSTEM	Road Classifications							Winchester EMA
Road Number	OA - Open Authorized (Miles) on Forest	CA - Closed Authorized (Miles) ML 1	OU - Open Unauthorized (Miles)	Route Status Decommissioned (Miles)	OHV Routes (Miles)	New Proposed Routes (Miles)	Operational Maintenance Level	Description
659	1.79						2	<b>The Mesas</b> - 10.67 mi long w/ 8.88 mi off Forest
659-old			0.50				2	Was originally 659. Has been rerouted. Leads to water tank.
690	0.11						2	<b>Reiley Canyon</b> - locked out; 7.41 mi long w/ 7.30 mi off Forest
696	0.00						2	<b>Allen Flat</b> - on <b>State Lands</b>
696-0.67L-1			0.00					<b>Off-Forest</b> - Road to corrals 0.07 miles long
6617				1.30			D	<b>Un-named</b> - previously obliterated road; leads to water tank
6618	0.51						2	<b>Brushy Well</b>
6619	2.89						2	<b>Rockhouse Canyon</b> - 3.58 mi long w/ 0.69 mi off forest
6620	2.14						2	<b>Pine Ridge</b> ; 3.54 mi long w/ 1.40 mi off forest
6620 A	0.49						2	<b>Un-named</b>
6620 B	1.70						2	<b>Juniper Tank</b>
6620 C	0.42						2	<b>Pine Canyon</b> - leads to corral
6621	0.69						2	<b>Pipeline Road</b> ; 10.09 mi long w/ 9.40 mi off forest
6621-1.39R-1			0.00					<b>State Lands - not analyzed</b>

EXISTING SYSTEM	Road Classifications							Winchester EMA
	Road Number	OA - Open Authorized (Miles) on Forest	CA - Closed Authorized (Miles) ML 1	OU - Open Unauthorized (Miles)	Route Status Decommissioned (Miles)			OHV Routes (Miles)
6621 A	0.00						2	Un-named; leads to small tank; State Lands
6626	0.00						2	Browning Road; leads to well; State Lands
6627	0.00						2	Un-named; 11.67 mi long w/ 0.74 mi on State Lands
6628	0.00						2	Javelina Spring; 5.28 mi long on State Lands
<b>TOTALS</b>	<b>10.74</b>	<b>0.00</b>	<b>0.50</b>	<b>1.30</b>	<b>0.00</b>	<b>0.00</b>		



**Table 2.2 - Current Road Classifications**

<b>Road Classification</b>	<b>Existing Miles of Road</b>
<b>OA</b> = Open Authorized	10.74
<b>CA</b> = Closed Authorized	0.00
<b>OU</b> = Open Unauthorized	0.50
<b>OHV Routes</b>	0.00
<b>Total Miles, All Roads</b>	<b>11.24</b>
<b>INFRA Decommissioned miles</b>	<b>1.30</b>

## Step 3- Identifying Issues

The purpose of this step is to:

- identify resource concerns and issues
- Identify the key questions and issues affecting road-related management

The products of this step are:

- A summary of key road-related issues, including their origin and basis, and
- A description of the status of the current data

The following issues are addressed in this analysis and described in more detail in Step 4:

- Private land access
- Private property blocking federal land access
- Access to special-use permit sites
- Soil erosion, water quality, riparian issues
- OHV Recreation Use
- Motorized Trail and Vehicles route sharing
- Dispersed camping and user created routes
- Access to grazing allotments and improvements
- Special Uses
- Ecological effects to species and habitats
- Mineral access
- Cultural resources and Archaeological sites within the study area
- Excessive roads in the study area

The interdisciplinary team (Appendix C) met in August 2007 and again in October 2009 and identified preliminary issues related to their study area. These issues are discussed in the individual specialist reports in Section 4. A review of the questions in FS-643 titled *Roads*

*Analysis: Informing Decisions about Managing the National Forest Transportation System* was also completed in order to identify any issues not previously made aware for this project.

Answers to the following questions helped to identify the most important road-related issues in the analysis area.

- What are the primary public issues and concerns related to roads and access?
- What are the primary management concerns (internal issues) related to roads and access?
- What are the primary legal constraints on roads and roads management?
- What additional information will be needed to better understand and define the key issues?
- What resources and skills are available to complete an effective analysis?

Issues were generated from local knowledge of roads, IDT members and discussions with other public agencies such as Arizona Game and Fish. EMA-scale issues are addressed through this transportation analysis process.

Decisions that will change the existing system will occur through public involvement and a NEPA analysis that considers all effects on roads in the system now or proposed for addition or deletion from the system in the future.

### Road Maintenance

The Forest Service objective for system roads is to operate and maintain National Forest System Roads (NFSR) roads in a manner that meets road management objectives (RMOs) and that provides for:

1. Safe and efficient travel;
2. Access for the administration, utilization, and protection of its lands; and
3. Protection of the environment, adjacent resources, and public investment.

The Forest Service (FS) is responsible for maintenance of NFSRs resulting from traffic associated with:

- a. Administration of FS lands,
- b. Noncommercial uses and activities,
- c. Incidental noncommercial use related to ownership or occupancy of isolated parcels of private land served by an NFS road,
- d. Commercial road use that is not subject to cost recovery, and
- e. Incidental public use.

The amount and frequency of maintenance is subject to: availability of funding, obligations, agreements, and protecting the FS's investment.

## **Road Maintenance Levels**

Maintenance levels are defined by the Forest Service Handbook (FSH) 7709.58 as the level of service provided by and maintenance required for, a specific road. The maintenance level must be consistent with RMOs, and maintenance criteria.

The maintenance level is determined by the Line Officer by considering the following factors:

- Resource program needs
- Environmental and resource protection requirements
- Visual quality objectives
- Recreation spectrum classes
- Road investment protection requirements
- Service life and current operational status
- User safety
- Volume, type, class, and composition of traffic.

The RMO identifies the current maintenance level or operational maintenance level and desired maintenance level or objective maintenance level for each road. The operational and objective maintenance level may or may not be the same for a road depending on the current needs, road condition, budget constraints, and environmental concerns and those forecasted for the future.

The following are the five maintenance levels classified by the FSH 7709.58:

***Road Maintenance Level 5 (ML5)*** – roads that provide a high degree of user comfort and convenience. These roads are normally double-lane, paved facilities, some may be aggregate surfaced and dust abated. These roads are subject to the Highway Safety Act (HSA) and Manual of Uniform Traffic Control Devices (MUTCD). These roads have the following characteristics:

- Highest traffic volume and speeds
- Typically connect to State and county roads
- Usually arterial and collector roads
- Drainage addressed by use of culverts.

***Road Maintenance Level 4 (ML4)*** – roads that provide a moderate degree of user comfort and convenience at moderate travel speeds. Most are double-lane and aggregate surfaced. These roads are also subject to the HSA and MUTCD and have the following characteristics:

- Moderate traffic volume and speeds
- May connect to county roads
- Usually a collector road
- Drainage addressed by use of culverts

***Road Maintenance Level 3 (ML3)*** – roads that are open and maintained for travel by prudent drivers in a standard passenger car. User comfort and convenience are low priorities. These roads are typically low speed, single lane with turnouts, and spot surfacing. These roads are also subject to the HSA and MUTCD and have the following characteristics:

- Moderate to low traffic volume
- Typically connect to arterial and collector road, and/or are collector roads
- Combination of grade dips and culverts provide drainage

- Potholing or washboarding may occur.

**Road Maintenance Level 2 (ML2)** – roads are open for use by high-clearance vehicles; passenger car traffic is not a consideration. Traffic is normally minor, usually consisting of one or a combination of administrative, permitted, dispersed recreation, or other specialized uses.

The following characterize these roads:

- Low traffic volume and speed
- Typically local roads
- Typically connect collector or other local roads
- Grade dips are the preferred drainage treatment
- Surface smoothness is not a consideration
- Not subject to HSA

**Road Maintenance Level 1 (ML1)** – roads that are closed to vehicular traffic intermittently for periods that exceed 1 year. Basic custodial maintenance is performed to protect adjacent resources and enable the road to facilitate future management activities. Planned road deterioration may occur at this level; may be open and suitable for non-motorized uses. Roads in this category may be of any type, class or construction standard, and may be managed at any other maintenance level during the time they are open for traffic.

ML1 roads have the following attributes:

- Vehicular traffic is eliminated, including administrative traffic
- Entrance is physically blocked or disguised
- No maintenance other than a condition survey may be required so long as no potential exists for resource damage
- Not subject to HSA

**Annual Maintenance** is the performance of one or more work activities needed to preserve or protect a roadway including surface, shoulders, roadside, structures and such traffic-control devices as are necessary for its safe and efficient use to the standard provided through construction, the most recent reconstruction, or other condition as agreed.

Unpaved roads require much more frequent maintenance than paved roads, especially after wet periods and when accommodating increased traffic. Wheel motion shoves material to the outside (as well as in-between travelled lanes), leading to rutting, channelizing of water, reduced water-runoff to ditch line, and eventual road damage if unchecked. As long as the process is interrupted early enough simple re-grading is sufficient for several years, with material being pushed back into shape.

Another problem with well-used higher-speed unpaved roads is washboarding — the formation of corrugations across the surface at right angles to the direction of travel. They can become severe enough to cause vibration in vehicles so that bolts loosen or cracks form in components. Grading removes the corrugations. Good quality surface materials can help prevent corrugations from re-forming.

**Deferred maintenance** is the practice of postponing needed maintenance activities such as grading for one or more maintenance cycles in order to save money and/or labor. The failure to perform needed repairs leads to road deterioration and ultimately road impairment. Sustained deferred maintenance may result in higher eventual maintenance costs, road failure, and in some cases, road safety implications.

The accounting standard-setter for the U.S. Government defines deferred maintenance in this way, *“Deferred maintenance” is maintenance that was not performed when it should have been or was scheduled to be and which, therefore, is put off or delayed for a future period. For purposes of this standard, maintenance is described as the act of keeping fixed assets in acceptable condition. It includes preventive maintenance, normal repairs, replacement of parts and structural components, and other activities needed to preserve the asset so that it continues to provide acceptable services and achieves its expected life. Maintenance excludes activities aimed at expanding the capacity of an asset or otherwise upgrading it to serve needs different from, or significantly greater than, those originally intended.*

An example of deferred maintenance for a system road is not performing recommended routine maintenance or repairs as recommended in road condition surveys: the road will not remain at its recommended standard or serviceability and will be more likely to degrade and become damaged over time.

Maintenance competes for funding with other programs and is often deferred because appropriations are insufficient or were redirected to other priorities or projects. Deferred maintenance is not routinely reported, however awareness of the implications of deferred road maintenance exists in the Forest Service.

Operating a road system and attempting balance between resource protection and public wishes is a challenging task. This travel analysis helps to fulfill two major requirements of 36 CFR 212, Subpart A – *Administration of the Forest Transportation System* and Subpart B- *Designation of Roads, Trails, and Areas for Motor Vehicle Use*:

- **212.5** Road System Management - Identify the minimum road system.
- **212.55 & 212.56** - Identify and subsequently designate a system of roads, motorized trails, and areas for motor vehicle use.

In so far as feasible there is a need to be more financially in balance with road maintenance funding versus road maintenance needs. The forest’s authorized road network will continue to degrade and have access impacts as well as environmental impacts as long as needs exceed funded maintenance efforts. Decreasing Forest maintenance costs and increasing road maintenance funding should continue to be our overall goal. Reducing costs, balancing resource needs and meeting access needs are major components of our operation and maintenance efforts. Strategies that reduce road maintenance costs include:

- Lower road maintenance levels (e.g. ML3 to ML2).

- Decrease mileage by closing or decommissioning system roads (abandonment or obliteration).
- Transfer jurisdiction (ownership) or maintenance responsibilities to other maintenance entities (including private land owners and home owner associations) as appropriate.
- Convert open and/or closed roads to motorized trails recognizing this will increase trail maintenance costs (class 1, 2, or 3 which is basically a minimally maintained, natural surfaced trail).
- Reduce mileage of paved roads.
- Work cooperatively with other public road agencies and associations for material and equipment/labor sharing opportunities.
- A combination of the above strategies.

The Coronado National Forest **Annual Road Maintenance Plan** provides a list of roads that will receive maintenance during the current fiscal year. Roads on each District receiving maintenance are prioritized by District Ranger and staff and known critical road safety needs receive the highest priority. The entire Coronado National Forest has approximately 1715 miles of ML 2 roads, approximately 289 miles of ML 3 roads, about 24 miles of ML 4 roads, and about 4 miles of ML 5 roads. Therefore there are a total of about 2100 miles of National Forest System Roads on this forest.

Forest wide Operational Maintenance Level Miles:

District	ML 1 (miles)	ML 2 (miles)	ML 3 (miles)	ML 4 (miles)	ML 5 (miles)
Douglas	12.94	285.024	76.834	1.402	0.00
Nogales	2.91	458.355	69.466	1.450	0.00
Sierra Vista	18.02	633.353	83.599	0.063	3.93
Safford	18.89	207.157	12.118	0.775	0.00
Santa Catalina	15.94	130.8985	47.0944	19.9194	0.00
Forest Total	<b>68.70</b>	<b>1714.7875</b>	<b>289.1114</b>	<b>23.6094</b>	<b>3.93</b>
*Percent receiving annual maintenance	0%	8.28%	60.9%	8.47%	0%

\*Based on FY2010 Road Accomplishments

As noted in the table above, not all roads receive maintenance every year. In 2010, a total of 320 miles out of 2100 miles of roads were maintained, which represents about 15.24% of the total forest total miles. This is about average for a typical year on the Coronado with a 3 man road crew. Based on the FY2010 road accomplishment report, only 142 miles of ML 2 roads or 8.3% of all forest ML 2 road miles received maintenance. Also during FY2010, 176 miles of ML 3 road received maintenance which represents approximately 61% of all ML 3 roads. Since very few ML4 and ML 5 roads receive maintenance only 8.5 % ML 4 roads and 0% ML 5 roads received maintenance in FY 2010. The lion's share of the annual road maintenance is concentrated on maintenance level 3 roads.

The Coronado has conducted required annual road condition surveys since 1999 to determine the maintenance and associated funding needed to maintain roads to the required safety standards and assigned maintenance levels. Condition surveys describe the features of the road (e.g. surfacing material, ditches, culverts, signs, etc.) and their current condition. Deferred and annual maintenance costs for those roads are then calculated using a regional standard cost guide.

### **Maintenance Level 2 Roads**

The only standards for a ML 2 road are for route marker signing. Most high road density areas are attributable to ML 2 roads. In most cases nonsystem roads are contributing to the road density in the EMA and are good candidates for decommissioning in order to reduce that density.

### **Maintenance Level 3, 4, 5 Roads**

The Highway Safety Act requires maintenance level 3-5 roads to meet the standards for directional, regulatory, and warning signs. Clearing for sight distance and safety is not occurring as often as needed due to limited funding. Therefore with limited funding, the focus must be on high-priority roads which are identified in the Annual Maintenance Plan which is approved by the line officer. High priority roads are often maintenance level 3-5 roads and almost always have higher traffic volumes than maintenance level 2 roads.

Although the initial remedy may be to decommission roads to provide a sustainable system, the expense of decommissioning would need to include both the planning cost of conducting the appropriate environmental analysis as well as the physical implementation cost of achieving the desired objective. Such costs may include provision for new road construction, or adoption of a non-system road to access a portion of the area served by a decommission-candidate road.

Shared or exchanged road maintenance is occurring primarily on maintenance level 3-5 roads, but could be increased overall. Road maintenance agreements with surrounding counties in which the Forest has roads have expired but are still in place. Agreements with other governments and entities need to be investigated in the future. Counties are also attempting to shed road maintenance costs and responsibilities for similar reasons. Efficiencies which serve all public road agencies are actively sought.

Legal public motorized access on or to system roads is lacking in many locations, often on roads which are currently being used by the public. Closure of such access is often sudden, difficult and time consuming to resolve—if possible at all—and fully within the rights of private property owners who own lands needed for such access. Resolving access problems often consumes funding otherwise used for road maintenance. Conversely, unequivocal lack of legal public access with no probable solution is an opportunity to decommission authorized roads and thereby save maintenance funds for roads which provide the public with legal access to their public land. Such decommissioning actions can also be an inducement for private landowners who might otherwise close public access routes across their land to cooperatively work toward a mutually acceptable legal motorized public access route across and/or adjacent to their land in order to retain designated system roads further inside the National Forest behind their property.

### Road Maintenance Frequency

The quantity and frequency of maintenance is subject to: availability of funding, obligations under agreements, and protecting the FS's investment. In accordance with the maintenance levels described above the following table displays the cyclic activities required to properly maintain roads:

Activity	As Needed		Annually		
	ML 1	ML 2	ML 3	ML 4	ML 5
Maintain traveled way for protection of investment, resource values, and to provide some degree of user comfort			Low	Moderate	High
Maintain road prism to provide for passage of high clearance vehicles		X			
Maintain shoulder for structural integrity of roadway and drainage functionality		X	X	X	X
Keep drainage structures/features functional and prevent unacceptable resource damage	X	X	X	X	X
Vegetation removal to provide for sight distance			X	X	X
Vegetation removal for access and to control resource damage		X			
Alleviate erosion or sedimentation on or from roadway	X				
Remove roadside hazard trees			X	X	X
Maintain structures to provide for passage of planned traffic and preserve structure and to protect natural resources		X	X	X	X
Install/maintain warning, regulatory, and guide signs and other traffic devices to provide for existing traffic			X	X	X

### Road Maintenance Costs

Federally appropriated funds used for road operation and maintenance on the Coronado National Forest (CNF) have ranged from about \$750,000 to \$1,100,000 per year over the last five years, with the average funding being approximately \$850,000 per year.

Besides the on-the-ground performance of maintenance related work, all road systems have fixed costs associated with management of the systems. Management includes:

- Oversight of the road system.
- Establishing and maintaining road management systems required by law (e.g., pavement management, bridge management, safety management, sign management, and congestion management).
- Collecting and maintaining data about the road system (e.g., conducting road condition surveys, gathering traffic count and vehicle accident information, etc).
- Providing information services (e.g., maps, road condition reporting, etc).
- Out-year project planning (e.g., specialist surveys/reports, agreements with other entities, etc).
- Office support (contracting officers, utilities, equipment, etc.)

Over the last five years, fixed costs accounted for approximately **30 percent** of the appropriated funds leaving the other 70 percent for on-the-ground maintenance. The table below lists the existing forest-wide average annual maintenance cost per mile per maintenance level for roads on the CNF. The costs were calculated based on an average road maintenance budget of \$850,000 per year.

**Road maintenance costs for entire Forest**

Operational Maintenance Level	Annual Cost per Mile	AVG Miles Maintained	Annual Cost
5*	\$ 0	0	\$ 0
4	\$4250	2	\$ 8,500
3	\$2656	176	\$467,456
2	\$2634	142	\$374,028
1*	\$ 0	0	\$ 0
Totals		320	\$849,984

\*The Coronado rarely performs maintenance on ML 5 and ML 1 roads and has no average maintenance costs available.

## Step 4- Assessing Benefits, Problems and Risks of the Existing Road System

The purpose of this step is to:

- Assess the benefits, problems and risks of the current road system and whether the objectives of the Forest Plan 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 management objectives

Roads analysis is a science-based process and the interdisciplinary team (Appendix C) used and interpreted relevant scientific literature to identify issues which may cause potential impacts. Any assumptions made during the analysis, and limitations of the information on which the analysis is based will be described.

Specific questions were used to assess benefits, problems, and risks. Benefits are the potential uses and socioeconomic gains provided by roads and related access. Problems are conditions for certain environmental, social, and economic attributes that managers deem to be unacceptable. Risks are likely future losses in environmental, social, and economic attributes if the road system remains unchanged. The questions were used as a checklist to scan the range of possible benefits, problems, and risks and to screen them for those relevant to roads in the area under consideration.

The relevant questions were then used to guide more in-depth assessment and link to the science base for each of the identified benefits, problems, and risks. These questions were not intended to be prescriptive, but were used to assist the interdisciplinary team in developing questions and approaches appropriate to each analysis area. Which questions are appropriate for a particular analysis area and which warrant deep or cursory treatment will depend on the particular area and the issues being addressed. Some question may need to be addressed at several scales. Addressing these and other road-related questions was done with maps, GIS, statistical summaries, or other information that contributed to understanding the benefits, needs, risks, and effects of the roads. These indicators did not answer questions directly but assisted in discerning and quantifying important interactions.

## **Lands**

Public access to the Winchester Mountain Ecosystem Management Area (EMA) has become increasingly restricted over the last several decades as traditional routes [County and National Forest System (NFS) Roads] through private lands adjacent to the EMA are blocked, gated, and locked [where a legal right (written or unwritten title) of public access may or may not exist] from public use.

Although several roads leading to the EMA connect to a county maintained road and provide the physical access to the area (currently open and used by public), many of these roads do not have documented right-of-way (written title) through the non-federal (private and state trust) land. Therefore, because no legal right of public access may exist (written or unwritten title) for these roads; they may be closed or controlled by a private landowner without notice.

In addition, Arizona State Trust lands are not "public lands" as are BLM and NFS lands. State Trust lands are managed for the benefit of trust beneficiaries. Trust management responsibilities include requiring a permit, lease, or right-of-way and charging a fee for use of trust lands including public access to NFS and other public lands as well as State Trust lands. Exceptions to this requirement are licensed hunters and fishers, actively pursuing game or fish, in-season, and certain archaeological activities permitted by the Arizona State Museum.

The Coronado Land and Resource Management Plan (LRMP) provides direction to “ensure public access to various parts of the Forest on state, county, or permanent Forest Service roads” and “obtain necessary public access for all permanent roads and trails within the National Forest boundary”. However, landowners are very hesitant to grant right-of-way for perpetual public access across their private lands for a variety of reasons including impacts from off-highway vehicle use, undocumented aliens, litter, vandalism, privacy issues, perceived potential liability (Arizona Revised Statute 33-1551 limits a private landowner’s liability in regards to recreational and educational access), fair market value, and in many cases, a desire for exclusive use and control of the adjacent NFS lands.

The rapid growth of Arizona’s population has also lead to a much greater need for public access to the EMA as well as other public lands in the area. At the same time, rapid growth has also lead to increased impacts on adjacent private lands surrounding the EMA, resulting in more restricted public access. Reluctance by adjoining private landowners to grant right-of-way for public access has increased exponentially with the demand for public access. Public access into the EMA often becomes controversial particularly when dealing with differing opinions towards public access and appropriate uses of NFS and other public lands and generates issues far more complex and controversial than in the past.

***How does the road system connect to public roads and provide primary access to communities?***

County-maintained roads, state and private roads, along with the system of roads under Forest Service jurisdiction provide the surrounding rural and larger nearby metropolitan communities and a variety of public land users primary access to and into the EMA. These roads also provide the sole or primary access to the numerous parcels of non-federal (state and private) scattered within and adjoining the EMA. The EMA is important for recreation (dispersed camping and hunting), fuel wood gathering, ranching, and many other forest uses.

It is also important to understand, that in addition to the numerous roads (state and private) leading to the EMA without documented right-of-way (written title) where they cross private land, there are many county-maintained roads essential to getting public land users to the EMA and the forest’s transportation system (roads and trails) where a legal right of public access may or may not exist either [no documented right-of-way (written title)].

State-wide, increasing numbers of county-maintained roads (where written title may or may not exist) have either been blocked or have had private landowners threaten to block, gate and lock them. A single landowner, with a minimal amount of private land (5 acres or less), can challenge a road’s ownership status, close the road to public use, and block or control access to thousands of acres of public (BLM and NFS) and State Trust lands. These roads were constructed by and/or maintained for decades by their respective counties at the public’s expense and long considered public roads by the public. Many have provided public access through and to private, State Trust, and Federal (BLM and NFS) lands as far back as the late 1800s.

To further complicate the public access situation, it is also very difficult for public road agencies (local, county, and state) to assert prescriptive rights for a county-maintained road. Since

territorial days, the Arizona Courts have consistently held that no public highway or road can be created by prescription and all public highways must be established in strict compliance with the provision of Arizona statute.

Because of limited budgets and staffing, Counties are becoming very reluctant to enter the legal arena to assert any ownership interest to closed roads or exercise their power of eminent domain to restore traditional access routes (even though they either constructed and/or maintained them for decades at the public expense) especially if the public use is access to public lands and they can divest themselves of maintenance responsibilities. Local politicians are also reluctant to engage public access issues because they perceive a majority of the public land users affected by blocked access are not their local constituents. Depending on the composition of a county's Board of Supervisors (BOS) and the constituents involved (on either side of the issue), a BOS may or may not be supportive in various locations throughout their county. This trend is expected to continue.

Recent trends indicate many more traditional access routes (both county and Forest Service) will be challenged, blocked, gated, and locked.

***How does the road system connect large blocks of land in other ownership to public roads (ad hoc communities, subdivisions, in-holdings and so on)?***

While there is only one parcel of private land ( $\pm 400$  acres) located within the proclaimed boundaries of the Winchester EMA (Northwestern side) there are 13 sections of state trust lands ( $\pm 8,700$  acres) within the EMA boundaries. In addition, as stated previously, there are also numerous scattered parcels of non-Federal (state and private) land of various shapes and sizes adjacent to the proclaimed boundaries of the Winchester EMA, resulting in a complex and intermingled landownership pattern within and surrounding the EMA.

No NFS Roads (NFSR) within the proclaimed boundaries of the EMA are used for access to the State and private lands. A NFSR is defined as a forest road other than a road which has been authorized by a legally documented right-of-way held by a State, county or other local public road authority (36 CFR 212.1). Unless otherwise required by an order, the use of an existing NFSR does not require a special-use authorization; however, any such use is subject to compliance with all Federal and State laws governing the road used (36 CFR 251.50(d)).

In those cases where a landowner's ingress or egress to non-federal (state and private) land via a NFSR requires surface disturbance or the use or construction of a road across NFS land not on the NFSR system or open to general public use, the landowner must apply for and receive a special-use or road-use authorization documenting the occupancy and use authorized on NFS lands or facilities and identifying the landowner's rights, privileges, responsibilities, and obligations (36 CFR 251.110(d)).

It is Forest Service policy to provide access across NFS land to non-Federal (state and private) land within the proclaimed boundaries of a National Forest that is adequate to secure the owners thereof reasonable use and enjoyment of their land without unnecessarily reducing the management options of the Forest Service or damaging NFS lands or resources. However, it is

not Forest Service policy to provide access across NFS land to private land outside the proclaimed boundaries of a National Forest. Forest Access needs to private inholdings are addressed on an individual basis as requests are received (application for special or road use authorization). The application is then analyzed through the NEPA process to determine possible environmental effects and the level of reasonable access required. If access is being provided by a public road agency such as the county or state, then the Forest Service is not obligated to provide any additional access over NFS lands.

***How does the road system affect managing roads with shared ownership or with limited jurisdiction? (RS 2477, cost-share, prescriptive rights, FLPMA easements, FRTA easements, DOT easements)***

There are no roads with shared ownership or with limited jurisdiction (RS 2477, cost-share, prescriptive rights, FLPMA easements, FRTA easements, DOT easements) within the Winchester EMA.

***How does the road system affect managing special-use permit sites (concessionaires, communications sites, utility corridors, and so on)?***

Other than the short portion of the permitted El Paso Natural Gas Line traversing the EMA in the southeastern corner of the EMA, there are very few, if any, special-use authorizations (concessionaires, communications sites, etc.) other than commercial outfitters within the EMA. Permitted commercial outfitters use the road system for various permitted activities and could be affected if and when roads are closed or decommissioned. Closure and decommissioning of any authorized and unauthorized roads will remain an important issue to special-use permit holders as well as private landowners and other public land users, especially the grazing permittees. In addition, as stated previously, numerous county and forest roads to and into the EMA may not have documented right-of-way (written title) where they traverse private land and may be closed or controlled by a private landowner without notice affecting the permit holder's ability to access the EMA.

***What are people's perceived needs and values for access?***

Currently, there are many roads (both county, forest, and private) through non-Federal (state and private) lands both within and adjoining the EMA that are currently open and relied on by the public where a legal right of public access (written or unwritten title) may or may not exist and may be closed at any time and without notice. There is no perpetual legal public access to the Winchester EMA. Although it is a private landowner's right and prerogative to block and control access across their private land were no public right of access exists, the public believes the Forest Service as well as other agencies (County, State, and Federal) also has a responsibility to provide reasonable public access to NFS and other public lands to best serve the interests of all public land users, not just a privileged few.

Forest-wide, public land users have become extremely frustrated with government agencies (County, State, and Federal) failure to restore public access where traditional access points or

routes to public (BLM and NFS) lands have been blocked, gated, and locked by a private landowner. Many public land user and landowner conflicts as well as creation of wildcat (user-created) roads are due to attempts by public land users to access NFS lands via private, state trust, and other public (NFS) lands after a traditional access route has been blocked from public use by adjoining or adjacent private landowners.

Public land users get frustrated with the inability to access NFS lands and other public (BLM) lands via a traditional access route that has been blocked by an adjoining landowner, especially where they perceive the landowner has a private exclusive use of the public land. This is particularly true when the blocked road had been maintained for decades and/or built by a county at the public's expense and they believe the landowner is benefiting economically by blocking and controlling access to NFS land.

As public land users multiply and squeeze through the remaining access points and routes, there is a "domino effect" of more locked gates and blocked access further restricting public access and limiting dispersed recreational opportunities. The public land essentially becomes National Forest "back yards" for the adjoining landowners and their guests, providing little benefit to the general public, while escalating the public's perception of private exclusive use of those lands.

Access needs identified in the existing or revised Forest Land and Resource Management Plan or in this analysis may not be fully met by the forest road system as it currently exists. The existing forest road system may be needed for future activities not currently planned for and to provide public access to the NFS lands as well as non-Federal lands within the proclaimed boundaries. Private landowners will continue to block and close traditional access routes through their private lands, thus limiting and further restricting administrative and public access to and through NFS lands. New roads, relocation and reconstruction of portions of existing system and user-created roads, or re-commissioning of closed system and user-created roads may be required to meet both future administrative and public access needs.

Road Number	Description
NFSR 659 (The Mesas Rd):	<p>Connects the Winchester EMA to the Galiuro EMA. The Arizona Game and Fish Department (AGFD) currently hold a 50-year public recreational road easement for the portion of roadway across state trust lands (The Mesas) from the Galiuro EMA to the Winchester EMA. The AGFD issues hunting permits in this area. Although the 50-year public recreational road easement held by the AGFD for the portion of NFSR 659 across state trust lands is not perpetual, currently it is the only legal public access route to the Winchester EMA.</p> <p><b>Recommendation: No change from open authorized.</b></p>
NFSR 690 (Reiley Canyon Rd):	<p>NFSR 690 (Reiley Canyon Rd) is currently blocked where it enters private land from the state trust land outside the proclaimed boundary of the EMA. The portion of roadway into the forest to Upper Reiley is in very poor condition, difficult to find in places, and inaccessible by either Forest personnel or the general public.</p>

	<b>Recommendation: Decommission.</b>
NFSR 6621 (Pipeline Rd)	NFSR 6621 (Pipeline Rd) connects to the Fort Grant Road (Cochise County maintained Road) and the Allen Flat Roads (Cochise County maintained Road) and provides access to the permitted El Paso Natural Gas Line.  <b>Recommendation: Retain.</b>

## **Soil, Water, Air, and Forestry**

- *How and where does the road system modify the surface and subsurface hydrology of the area?*
- *How and where does the road system generate surface erosion?*
- *How and where do road-stream crossings influence local stream channels and water quality?*
- *How and where does the road system create potential for pollutants, such as chemical spills, oils, or herbicides to enter surface waters?*
- *How and where is the road system ‘hydrologically connected’ to the stream system?*
- *How do the connections affect water quality and quantity (such as delivery of sediments, elevated peak flows)?*
- *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 and where does the road system affect wetlands?*
- *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 riparian plant communities?*

Roads in the Winchester Ecosystem Management Area (EMA) include parts of the following watersheds (See Figure 1):

- Hot Springs Canyon (Hydrologic Unit Code (HUC) 1505020301)
- Tres Alamos Wash (HUC 1505020208)
- Wilcox Playa (HUC 1505020100)

### **General**

Roads affect soil, water, and air by accelerating erosion, diverting water, providing access for various polluting agents, and creating dust. The roads in these watersheds are having these affects, but have not been identified as causing significant negative effects on water quality at the sample points, or air quality at any monitoring location. Local effects on soil, water (including riparian areas), and air may be important. Roads affect forestry resources by providing access

for management of fuels and forest products. Following is the background information about the area.

Large areas of this EMA are not roaded or are accessible only by the poorest of roads. This is due in large part to the steep nature of the central portion of the EMA and the adjacent land east, west, and south of the EMA. The only roads enter from the north, and access range allotment improvements and dispersed recreation sites.

## Soil

A General Ecosystem Survey (GES) was completed by the Forest Service in 1991 and covers the entire Winchester EMA (USDA, 1991). In the GES report, the soils are found to occur in only one of the four possible GES climatic classes due to wide range in elevation and aspect: High Sun Mild (HSM) in the mid elevation woodlands. This class indicates that winters are mild and the majority occurs between April 1 and September 30. The different GES Units found within the EMA are shown below in Figure 2 and Table 4.1, with general unit descriptions in Table 4.2.

Table 4.1 General Ecosystem Survey Units Found in the Watersheds of the Winchester EMA

<b>Watershed Name</b>	<b>General Ecosystem Survey Units</b>
Hot Springs Canyon	475, 490
Tres Alamos Wash	490
Wilcox Playa	475, 490

Table 4.2 General Ecosystem Survey Units Descriptions

<b>GES UNIT</b>	<b>Average Gradient %</b>	<b>Surface Texture/ Modifier</b>	<b>Soil Depth</b>	<b>Parent Material</b>	<b>Climate Class (see text for description)</b>	<b>Erosion Hazard</b>
475	40% to 80%	Extremely Cobbly / Sandy Loam	Shallow	Granite, Rhyolite	HSM	Moderate
490	4% to 25%	Very Cobbly / Sandy Loam	Deep	Granite, Rhyolite	HSM	Moderate to Severe

## Water

Arizona Department of Environmental Quality (ADEQ) assesses water quality for streams and natural channels throughout the State. All assessments are made comparing water quality requirements for specific uses expected of the watercourse with data from water samples collected. No streams or lakes within this EMA have been assessed. However, several streams in Hot Springs Canyon watershed downstream from this EMA have been assessed. Hot Springs Canyon Creek and Bass Canyon Creek have designated uses of wildlife and warm water aquatics, fish consumption, full body contact, and agriculture-livestock. Both are assessed to be Category 1 Attaining all uses. An unnamed tributary to Bass Canyon Creek has designated uses of wildlife and warm water aquatics, fish consumption, and full body contact. This is assessed to

be Category 3 Inconclusive. No violations were found, but only one samples has been collected (<http://www.azdeq.gov/environ/water/assessment/download/303-04/sc.pdf>). No road closures or relocations are recommended due to water quality issues.

Riparian areas are extremely important everywhere on the Coronado National Forest, and they occupy less than 4% of the watersheds in the Winchester EMA. Roads can alter riparian areas by physically occupying the area, diverting water, providing access to people and vehicles that in turn destroy riparian vegetation, and by generating erosion that degrades the site.

There are no recommended road closures due to riparian issues.

**Air**

None of the Winchester EMA is located in a Class I air quality area. None of the Winchester EMA is located in a non-attainment area for air quality (<http://www.azdeq.gov/environ/air/plan/notmeet.html>). In general, dust from roads is an air pollutant and should be minimized where possible. No roads are proposed for closure for air quality purposes at this time.

**Forestry**

The Winchester EMA watersheds have provided limited opportunities for personal use fuelwood gathering. Fuels management and other forest management activities use access by roads. No new roads are proposed, and no roads are proposed for closure for forest management purposes at this time.

**Summary**

It is recommended that the following system road remain on the system as a level 1 road to be used only occasionally for administrative purposes.

Road Number	Recommendation	Comments
6617	Retain as a maintenance level 1 road	This road is on the ridge above Brush Canyon and is needed to access a water tank. It does not affect riparian areas

It is recommended that the following system roads be kept on the system because they are needed for access to the Forest even though there are known threats to watershed resources.

Road Number	Recommendation	Comments
6618	Retain on the system	This is the Brushy Well road. It does not affect riparian resources, and the Forest accepts the responsibility of maintaining this road in the areas that have steep slopes
6619	Retain on the system	This is the Rockhouse Canyon road. It does not affect riparian

Road Number	Recommendation	Comments
		resources, and the Forest accepts the responsibility of maintaining this road in the areas that have steep slopes
6620	Retain on the system	This is the Pine Ridge road. It does not affect riparian resources, and the Forest accepts the responsibility of maintaining this road in the areas that have steep slopes
6620B	Retain on the system	This is the road to Juniper Tank. It does not affect riparian resources.
6620C	Retain on the system	This is the Pine Canyon road. It does not affect riparian resources, and the Forest accepts the responsibility of maintaining this road in the areas that have steep slopes

Figure 1 Watershed Map

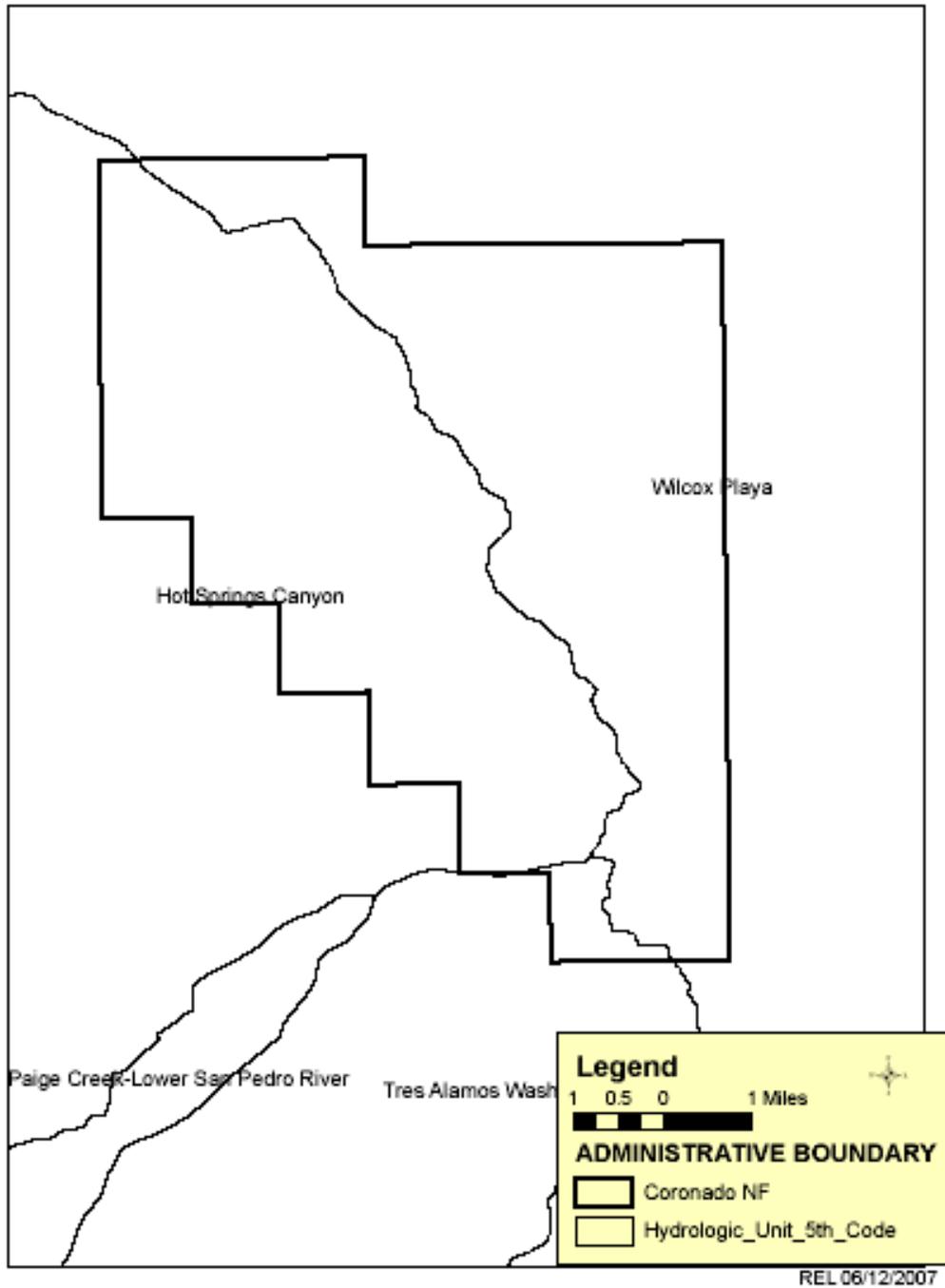
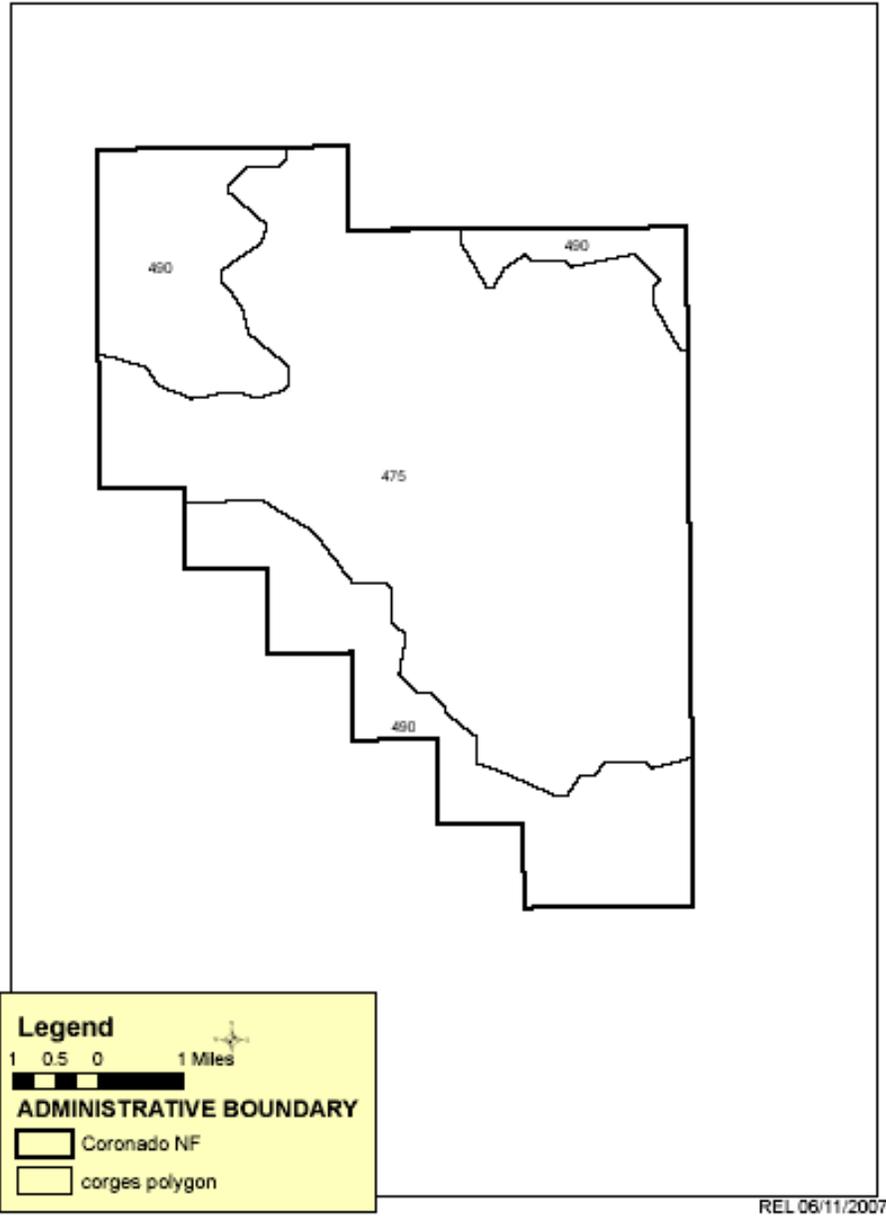


Figure 2 General Ecosystem Map



References:

Arizona Department of Environmental Quality. 2004. Water Quality Assessment (<http://www.azdeq.gov/environ/water/assessment/download/303-04/sc.pdf>).

USDA Forest Service, 1991. General Ecosystem Survey. USDA Forest Service, Southwestern Region.

## **Recreation**

- *Is there now or will there be in the future excess supply or excess demand for roaded/unroaded recreation opportunities?*
- *Is developing new roads into unroaded areas, decommissioning existing roads, or changing maintenance of existing roads causing significant changes in the quantity, quality or type of roaded/unroaded recreation opportunities?*
- *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/unroaded recreation opportunities?*
- *Who participates in roaded/unroaded recreation in the areas affected by road constructing, maintaining, or decommissioning.*
- *What are these participant's attachments to the area, how strong are their feelings and are alternative opportunities and locations available.*

### **Recreation Uses and Opportunities**

Recreational uses in this area include hiking, hunting, camping, mountain biking, off-highway vehicle use, equestrian use, prospecting, rock collecting, bird watching and sightseeing. Dispersed recreational use is mostly by unorganized groups, individuals, and permitted users, such as hunting guides and hunters. There is extremely limited road access for visitors to the area.

Due to its proximity to Tucson, and with the population of the City of Tucson, Pima County, Cochise County, and Graham County continuing to grow, it is expected demands for all types of outdoor recreation will continue to increase. As of 2009, the population of nearby Cochise County was estimated at approximately 129,000 (U.S. Census Bureau) with the most populated areas being Sierra Vista and nearby communities. The Winchester EMA also receives recreation pressure from Willcox, Safford, and the surrounding towns. Hunting seasons seem to be the most popular time for use in this area.

The 2007 National Visitor Use Monitoring survey for the Coronado National Forest does not represent specific areas of the forest as the results are combined from survey points throughout the forest. It does, however give a general idea of the recreation interests of forest visitors as a whole. The following are percentages of survey respondents who reported participating in particular recreation activities: Complete survey results are available on-line at <http://www.fs.fed.us/recreation/programs/nvum> (National Visitor Use Monitoring Program).

Table 4.3. Activity participation on the Coronado National Forest  
(National Visitor Use Monitoring FY2007 data)

Activity	% of visitors who participated in this activity <sup>a</sup>	% who said it was their primary activity <sup>b</sup>	Average hours spent in primary activity <sup>c</sup>
Camping in developed sites	6.4	3.5	29.9
Primitive camping	3.1	0.7	22.7
Backpacking	0.9	0.1	73.9
Resort Use	0.5	0.0	30.0
Picnicking	12.8	3.3	3.4
Viewing wildlife, birds, fish, etc	65.9	4.5	2.8
Viewing natural features (scenery)	68.2	11.2	2.5
Visiting historic/prehistoric sites	8.5	0.6	2.4
Visiting a nature center	17.2	0.8	1.7
Nature Study	15.7	0.0	.
Relaxing	45.9	5.3	7.7
Fishing	3.8	2.5	6.6
Hunting	3.2	3.1	12.4
OHV use	4.5	1.1	3.7
Driving for pleasure	23.7	5.9	2.8
Snowmobile travel	0.0	0.0	.
Motorized water travel	0.0	0.0	.
Other motorized activities	0.5	0.3	1.1
Hiking or walking	75.6	52.2	2.7
Horseback riding	0.1	0.0	2.5
Bicycling	1.9	1.1	4.6
Non-motorized water travel	0.5	0.0	.
Downhill skiing or snowboarding	0.0	0.0	.
X-C skiing, snow shoeing	0.0	0.0	.
Other non-motor activity (swim, etc.)	0.7	0.1	8.3
Gathering forest products mushrooms, berries, firewood	2.7	0.2	3.0
Motorized trail Activity	3.2	1.3	2.1
No Activity Reported	5.1	5.0	.

Alternate locations for outdoor recreation activities include the Catalina EMA to the west, which is closer to Tucson and receives high recreation use. The northwest and southwestern sides of

the Winchester EMA are particularly popular for OHV use. The Pinaleño EMA lies northeast of the Winchesters and provides a much higher number of developed recreation opportunities.

This EMA receives some hunting use and lies completely within Game Management Unit 32. (2009-10 Arizona Hunting and Trapping Regulations, Arizona Game and Fish Department, AGFD). Permit availability for the 2009-2010 general deer hunt, is as follows: antlered mule deer – 10/03/09 to 11/05/09 – 450 permits, 11/13/09 to 11/19/09 – 450 permits; antlered whitetail deer – 10/23/09 to 10/29/09 – 500 permits, 11/06/09 to 11/12/09 – 500 permits, 11/27/09 to 12/03/09 – 500 permits, 12/11/09 to 12/31/09 – 40 permits (2,440 total permits for the general hunt). There are many other hunts including muzzleloader and archery deer, javelina, quail, dove and juniors' only hunts. The influx of hunters in the fall creates a sudden increase in demand for motorized access to remote areas, and for dispersed camping locations that are accessed by NFS roads; however, overall use is very low compared to other EMAs on the Coronado.

### **Off-Highway Vehicle Management**

The increasing popularity of off-highway vehicles (OHVs), particularly all terrain vehicles (ATVs), means places to ride and drive are more and more in demand. The Winchester EMA receives low to moderate use overall, but ATVs provide the most common method of access to this mountain range. The impacts here are not extreme as compared to other areas of the Forest, such as the east side of the Santa Rita EMA, Redington Pass in the Santa Catalina EMA or Providencia Canyon in the Huachuca EMA. As the more popular parts of the Coronado NF continue to receive more recreation use and become more crowded, it is possible OHV use will spread to the Winchester area, though the Galiuro EMA and Pinaleño EMA are far more likely to be affected first. Locally, due to the prevalence of private gates being locked around the Forest boundary and available State land surrounding the Galiuro EMA, pressure for access to meet community recreation needs is increasing and development of illegal access points may become more prevalent.

The rough terrain of the Winchester EMA makes it unsuitable for the development and maintenance of high density road networks that would support high OHV use. The existing primitive routes lead to trailheads, stock tanks, and areas where dispersed camping and hunting may occur.

Roads classified as unauthorized currently provide more areas for motorists to ride or drive but many of these are dead-end routes. Non-system roads that are classified as “unauthorized” in the transportation analysis may have been formed through legal, permitted uses such as range improvement projects, and in some cases the roads then became useful roads for forest access. Some “unauthorized” roads are historic roads that were never added to the road system. These non-system roads have been used as though they were part of the road system, some for many years.

The noise and dust from OHVs and other vehicles can disturb visitors such as hikers, hunters, bird watchers and campers. Because overall use is low, and the area is accessed mainly via OHV, recreationists in this area are unlikely to be disturbed by the presence of ATVs.

## **Dispersed Motorized Camping**

The Forest Land and Resource Management Plan (pp. 27, 28) provides for motorized dispersed camping as follows: “Vehicles may pull off roads or trails up to 300 feet for parking or camping.” Along many roads, parking and camping spots are limited by terrain, vegetation and rockiness. Frequently used motorized dispersed campsites, where evidence of camping such as fire rings can be seen, are usually readily identifiable. Some dispersed campsites are occupied only during hunting season and may not be obvious at other times of the year. The demand for opportunities for motorized dispersed camping continues to grow. The forest road system is used to access these dispersed campsites.

## **Responses to Specific Road Comments**

The Recreation recommendation for the Winchester EMA is to keep all roads currently present on Forest, with the exception of 6620A, which should become restricted for administrative use only; 659, which was an old road alignment that could be restricted access; and a small portion of 690, which allows very little additional benefit to the entry point at the Forest Boundary. All other roads (6618, 6617, 6619, 6620, 6620B & C, and 6621) will be maintained, in part to allow continued hunter and recreationist access to this remote mountain range.

## **Range Management**

- *How does the road system affect access to range allotments?*

The Winchester Ecosystem Management Area contains approximately 27,981 acres. There are 5 grazing allotments within this EMA. All are currently active. Every allotment has structural range improvements that have been constructed by the FS over the tenure of the each grazing allotment for the purpose of improving applied management. Many, if not all, of these improvements need to be maintained on a regular basis so the roads continue to serve an important purpose. As time has passed these roads have developed into what is basically considered to be a significant portion of the EMA transportation system. These are the roads or travel-ways that by-in-large make up the routes that are used by ATVs, 4WDs, motorcycles, hunters, bicyclers and other visiting publics. Generally the roads we consider Level 1 and 2 roads. We expect to keep all roads within the EMA (listed in INFRA) at their current level and do not intend to drop them to some other designation.

Properly managed livestock grazing is a sustainable and legitimate use of National Forest System lands. The roads described in the following pages are also used by the Forest Service to administer the grazing permits. Due to the rough topography and remoteness of some of the mountain range, these roads are crucial to access important areas of the allotments. Grazing activities must be aggressively monitored throughout the grazing season to ensure resource protection and compliance with the grazing permit, NEPA decisions, ESA section 7 consultations, and annual operating instructions to permittees.

Activities or reasons that these roads are needed for range management purposes include, but are not limited to the following:

- Access to range improvements (fences, corrals, cattleguards, pipelines, water delivery systems, earthen tanks) which must be checked, maintained, and repaired on a regular basis.
- The anticipated need for construction of new structural and non-structural range improvements identified through adaptive management and the NEPA process related to grazing authorizations and the development of AMPs.
- The past and current level of cross-country travel as demonstrated over the past 10 – 20 years for general range management and permit compliance purposes.
- The type and complexity of grazing management and frequency of livestock movements for range management purposes.
- The type of fences needing to be maintained (e.g., electric fences as opposed to traditional barbed wire fences).
- The need for checking the functionality of fences and the logistics involved in the transport of repair materials to fence line locations.
- The need and logistics for repair and maintenance of wildlife and other types of enclosures which are the responsibility of the grazing permit holder.
- The need for placing or staging supplements in strategic locations for livestock and grazing management purposes.
- The need to check gates potentially left open by other national forest users (e.g., recreationists and hunters).
- The need to attend to sick or injured livestock.

**Past, Current & Future Access Issues:** Access to the EMA has not kept pace with the current growth of Gila Valley. Public access is a problem for this EMA.

**Off Road Driving:** Because of the topography and rough terrain off Road Driving has not been a problem for this EMA. The EMA has some wildcat roads which serve no purpose and may be the end result of allowing individuals the opportunity to travel 300 feet off the existing and established road bed.

**Roads and Watersheds:** Most of the roads in the EMA are Maintenance Level 1 & 2 roads. All roads need and require routine maintenance and attention which is sometimes not very timely with the result that more time and effort is required to bring them to a serviceable standard when maintenance is implemented. All or most of the roads contribute to sediment loading in washes and are eroding. Better water drainage and erosion control is needed on all the roads.

**Maintain Access for Range & Wildlife Management:** The road network within the EMA is adequate for the purposes of range and wildlife management if better access is achieved. New roads are not planned for construction on this EMA under this project. Some of the roads need

to be better maintained to allow the user public the opportunity to travel to areas within the EMA without incurring damage to their vehicles or risking life and limb for recreational use or to maintain range improvements.

The following table provides a list of recommendations for system and non-system roads to be changed to **Open Authorized Restricted** (OAR), maintenance level 2, under Special Use Permit. These roads are currently being used by range permittees for management of livestock grazing and will be restricted from use by the public.

Road Number	Rationale
659-old	Grazing Permittee authorized use to maintain Range Improvements
6620A	Grazing Permittee authorized use to maintain Range Improvements

## **Biology**

- What ecological attributes, particularly those unique to the region, would be affected by “roading” of currently “unroaded” areas?
- To what degree do the presence, type, and location of roads increase the introduction and spread of exotic plant and animal species, insects, diseases, and parasites?
- What are the potential effects of such introductions to plant and animal species and ecosystem function in the area?
- To what degree do the presence, type, and location of roads contribute to the control of insects, diseases, and parasites?
- How does the road system affect ecological disturbance regimes in the area?
- What are the adverse effects of noise caused by developing, using, and maintaining roads?
- What are the direct effects of the road system on terrestrial species habitat?
- How does the road system facilitate human activities that affect habitat?
- How does the road system affect legal and illegal human activities (including trapping, hunting, poaching, harassment, road kill, or illegal kill levels)? What are the effects on wildlife species?
- How does the road system directly affect unique communities or special features in the area?
- Do areas planned for road entry, closure, or decommissioning have unique physical or biological characteristics, such as unique natural features and threatened or endangered species?
- 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?
- What are the traditional uses of animal and plant species within the area of analysis?

- How and where does the road system restrict the migration and movement of aquatic organisms?
- What aquatic species are affected and to what extent?
- For roads receiving specific wildlife-related comments from the public, what response is given?

**1. What ecological attributes, particularly those unique to the region, would be affected by the roading of current unroaded areas?**

The Winchester Mountain Range on the Safford Ranger District rises from semi-desert grasslands (both Sonoran and Chihuahuan) at approximately 3,000 ft to approximately 7,631 ft at the summit of Reiley Peak. There is a high diversity of plant and animal species that form a variety of biotic communities in this EMA. These biotic communities include Arizona upland division of Sonoran Desert scrub, Semi-desert Grassland, Madrean Evergreen Oak Woodland, Interior Chaparral, and Ponderosa pine stands (Brown 1982).

Within these biotic communities a large variety of vegetation associations provide habitat for a huge array of wildlife species. Of particular concern to land managers are species included on the Federal List of threatened and Endangered species, the Regional Forester’s Sensitive Species List (Revised 2007), and the List of Management Indicator Species (MIS) found in the Coronado National Forest Land Resource management. The table below includes the list of special status species that are known to occur or could potentially occur in the Winchester Mountains.

The Winchester Mountain EMA is located in Graham County approximately 45 miles southwest of Safford, Arizona, and approximately 20 miles northwest of Willcox, Arizona. The local population base of Safford, Thatcher, and Pima includes approximately 15,000 residents, based on population estimates from the year 2000. Willcox had 3,733 residents during the same year. However, the recent re-opening of a copper mine northeast of Safford has lead to a localized increase in these populations. Southern Arizona is a destination for winter visitors and year-round recreation due to its mild climate and, to a large extent, because of the availability of a high quality wildland experience on the Coronado National Forest.

The Winchester Mountains currently have very restricted access, due to road closures on private lands adjacent to the Forest. The main access points are on the northwest side in the Rockhouse area and on the north side near Reiley Peak. There are no recreational residence/summer home areas. The primary uses of this mountain range are for grazing activities, hiking, and hunting.

The potential effects of roads to certain special status species of the Winchester EMA are described below the table. Federally Listed Species such as the Mexican Gray Wolf, Jaguar, and Jaguarundi are not discussed because potential effects are remote since there are no known recent records of occurrence on the Forest. For Sensitive species, there is a general discussion of potential impacts that are common to whole groups of species. The same is true of MIS species discussions.

The Winchesters are one of many rural mountain ranges in Southern Arizona. Traffic in and around this mountain range tends to be low, with a small influx of use during the hunting seasons. Recreation use of this area may increase due to rising population numbers in the Safford area, but likely will only occur if access issues are resolved.

Generally, road systems can contribute to the presence of urbanization effects that can affect far greater areas than just the road sites themselves; it can also result in changes in wildlife and plant communities of a variety of taxa (unit used in the science of biological classification). Urbanization affects forest dwelling bird communities by favoring certain species while selecting against others (Marzluff 1997). Similar effects may be expected for other taxa especially small mammals (Marzluff *ibid*). The presence of domestic pets such as dogs (which is common at many of the campgrounds) can increase nest failure in many bird species and may affect changes in distribution of small mammal and reptile species. The increase of both native and non-native predators can cause increased reproductive failure in the vicinity of the urban areas. While these effects are currently minimized due to few access points to this EMA, there would potential for increasing effects should visitor numbers rise. Even low-density camping areas can affect the adjacent plant communities through trampling, soil compaction, and brush removal.

In addition to mortalities due to road-building and the ensuing traffic using the road, continual modification of the physical environment occurs long after a road is opened. Factors such as soil compaction, increased surface temperature, and decreased moisture content may seem innocuous, but most people have seen the potential for animals, reptiles especially, to be drawn to the residual warmth held by roads. Dust continually raised by driving along dirt roads may settle onto plants adjacent to the road, blocking photosynthesis; this same dust can then be introduced into water systems as sediment and contaminants to ecosystems (Trombulak and Russell 2000).

The majority of the Winchester Mountains are unsuitable for road building due to steep terrain. The majority of roads entering this EMA end within 2 miles of the Forest Boundary, as the slope increases sharply. Additional roads in these areas would tend to produce the undesirable effects seen along developed highway corridors.

**Table 4.4. Threatened, Endangered, Proposed and Sensitive Animal and Plant Species known or suspected to occur on the Winchester Mountains, Safford Ranger District:**

Group	Species Scientific Name	Common Name	Federal Status
<b><u>BIRDS</u></b>	<i>Strix occidentalis lucida</i>	<b>Mexican spotted owl</b>	T
<b><u>MAMMALS</u></b>	<i>Canus lupus baileyi</i>	<b>Mexican Gray Wolf</b>	E
	<i>Panthera onca</i>	<b>Jaguar</b>	E

Group	Species Scientific Name	Common Name	Federal Status
	<i>Felis yagouaroundi tolteca</i>	<b>Jaguarundi</b>	E
	<i>Leptonycteris curasoae yerbabuena</i>	<b>Lesser long-nosed bat</b>	E

<sup>1</sup>LT = Listed Threatened; LE = Listed Endangered; FS = Forest Sensitive

### **Mexican Spotted Owl - Threatened.**

There is 1 known Mexican Spotted Owl Protected Activity Center (PAC) in the Winchester Mountains. This PAC is located in the higher elevations of the mountain range, near Reiley Peak, and is associated with heavily forested areas of more mature trees. This PAC is not accessible by road. Should roads be created in this area, both motorized and non-motorized vehicles may degrade or destroy spotted owl habitat, particularly riparian and shrub habitats vital to the owl's prey. Noise produced by vehicles and the vehicle riders may disturb spotted owl nesting and roosting sites. The potential for additional road building is small due to the rough terrain of this mountain range. New roads in this PAC would have the effect of increasing disturbance to breeding owls and therefore adversely affect this Federally listed species.

### **Lesser Long-nosed Bat - Endangered.**

No known roosting sites have been positively identified within the Winchester EMA. These bats are likely to forage in the area, particularly in the lower-elevation grassland areas. In this area, the bats feed mainly on agave. Apart from direct disturbance of roost sites, potential effects to this taxon are associated with the loss of food plants. The majority of sites that provide quality foraging habitat for the species are not accessible by Forest roads. Creation of additional roads in this area could impact the food plants for the species, leading to adverse effects to the species.

**Table 4.5. Sensitive Animal and Plant Species known to or suspected to occur on the Winchester Mountains, Safford Ranger District:**

Forest Service Sensitive Species			
<b>BIRDS</b>	<i>Falco peregrinus anatum</i>	<b>American peregrine falcon</b>	SEN
	<i>Haliaeetus leucocephalus</i>	<b>Bald eagle</b>	SEN
	<i>Accipiter gentilis apache</i>	<b>Apache northern goshawk</b>	SEN
	<i>Buteogallus anthracinus</i>	<b>Common black hawk</b>	SEN
	<i>Meleagris gallopavo mexicana</i>	<b>Gould's wild turkey</b>	SEN, MIS
	<i>Otus trichopsis</i>	<b>Whiskered screech owl</b>	SEN
	<i>Cynanthus latirostris</i>	<b>Broad-billed hummingbird</b>	SEN

Forest Service Sensitive Species			
	<i>Hylocharis leucotis</i>	<b>White-eared hummingbird</b>	SEN
	<i>Calypte costae</i>	<b>Costa's hummingbird</b>	SEN
	<i>Camptostoma imberbe</i>	<b>Northern beardless tyrannulet</b>	SEN
	<i>Pipilo aberti</i>	<b>Abert's towhee</b>	SEN
<b>INSECTS</b>			
	<i>Ophiogomphus arizonicus</i>	<b>Arizona snaketail</b>	SEN
	<i>Atrytonopsis cestus</i>	<b>Cestus skipper</b>	SEN
	<i>Piruna polingii</i>	<b>Four-spotted skipperling</b>	SEN
<b>REPTILES</b>			
	<i>Aspidoscelis burti stictogrammus</i>	<b>Giant spotted whiptail</b>	SEN
	<i>Heloderma suspectum suspectum</i>	<b>Reticulate Gila monster</b>	SEN
	<i>Gopherus agassizii</i> (Sonoran Population)	<b>Sonoran Desert tortoise</b>	SEN
<b>PLANTS</b>			
	<i>Salvia amissa</i>	<b>Galiuro sage</b>	SEN
	<i>Potentilla albiflora</i>	<b>White-flowered cinquefoil</b>	SEN
	<i>Physalis latiphysa</i>	<b>Broadleaf ground cherry</b>	SEN
	<i>Heuchera glomerulata</i>	<b>Arizona alum root</b>	SEN
	<i>Erigeron heliographis</i>	<b>Heliograph Peak Fleabane</b>	SEN
	<i>Castilleja nervata</i>	<b>Trans-Pecos Indian Paintbrush</b>	SEN
	<i>Carex ultra</i>	<b>Cochise Sedge</b>	SEN
	<i>Penstemon discolor</i>	<b>Catalina beardtongue</b>	SEN
	<i>Carex chihuahuensis</i>	<b>Chihuahuan sedge</b>	SEN
	<i>Abutilon parishii</i>	<b>Pima indian mallow</b>	SEN
	<i>Hieracium rusbyi</i>	<b>Rusby hawkweed</b>	SEN

**FS Sensitive Species General Discussion** - Construction and maintenance of roads in currently un-roaded areas has the potential to impact a variety of species in similar ways. Bird species are impacted most by fragmentation of habitat, disturbance during breeding season, and changes in habitat due to vegetation removal, introduction of non-native plants, and altered fire regimes. Increased encroachment on un-roaded areas results in impacts related to urbanization described at the beginning of this section. Plant species are also affected through direct disturbance of individuals from road construction or creation of wildcat roads. Additional effects to plant species can result from increased illegal collection of rare species and the introduction of non-native competitors that degrade habitat quality or alter natural fire regimes. Similarly, insect species are also potentially impacted by the introduction of non-native plants along travel corridors. Most frequently, non-native plants compete with and exclude native plant species that function as host plants for insects during some part of their complex life cycles. Insects may also be impacted by vegetation removal (loss of cover) and increases in soil compaction.

**Table 4.6 Management Indicator Species\***

	<b>Group</b>	<b>Species</b>
1	Cavity Nesters	Coppery-tailed (Elegant) Trogon Sulphur-bellied Flycatcher Other primary and secondary cavity nesters
2	Riparian Species	Gray hawk Blue-throated hummingbird Coppery-tailed (elegant) trogon Rose-throated becard Thick-billed kingbird Sulphur-bellied flycatcher Northern Beardless tyrannulet Bell's vireo Black bear
3	Species Needing Diversity	White-tailed deer Merriam's turkey Coppery-tailed (elegant) trogon Sulphur-bellied flycatcher Buff-breasted flycatcher Black bear
4	Species Needing Herbaceous Cover	White-tailed deer Mearn's quail Pronghorn antelope Desert massassauga Baird's sparrow
5	Species Needing Dense Canopy	Bell's vireo Northern beardless tyrannulet Gray hawk
6	Game Species	White-tailed deer Mearn's quail Pronghorn antelope Desert bighorn sheep Merriam's turkey Black bear
7	Special Interest Species	Mearn's quail Gray hawk Blue-throated hummingbird Coppery-tailed (elegant) trogon Rose-throated becard Thick-billed kingbird Sulphur-bellied flycatcher Buff-breasted flycatcher Northern beardless tyrannulet Five-striped sparrow
8	Threatened and Endangered Species	Desert bighorn sheep Gray hawk Peregrine falcon Blue-throated hummingbird Coppery-tailed (Elegant) trogon Rose-throated becard Thick-billed kingbird Sulphur-bellied flycatcher

	Group	Species
		Buff-breasted flycatcher Northern beardless tyrannulet Bell's vireo Baird's sparrow Five-striped sparrow Mexican stoneroller Arizona (Apache) trout Gila topminnow Gila chub Sonora chub Desert massassauga Twin-spotted rattlesnake Arizona ridge-nosed rattlesnake Huachuca (Sonora) tiger salamander Tarahumara frog Western barking frog Spikedace Arizona treefrog Mt. Graham spruce (red) squirrel Gould's turkey

*Management Indicator Species, or MIS, are organized into groups that represent their dependence on various habitat characteristics or their importance to humans. Groups 1 through 6 in the table above can all be impacted through the alteration of habitat from the introduction of non-native plants or directly by the loss of key habitat components such as the loss of dead trees that provide nesting cavities for group 1 species, for instance. \*Note: Not all species in the above table occur on this EMA; however, the various characteristics under which the indicators are grouped are still important to the overall analysis of impacts.*

**2. To what degree do the presence, type, and location of roads increase the introduction and spread of exotic plant and animal species, insects, diseases, and parasites?**

Roads provide corridors for the introduction and spread of non-native species. The Winchester EMA is somewhat threatened by this because it is fairly close to Tucson, and the number of visitors could increase. Recent growth in the city of Safford has already increased the number of visitors in nearby mountain ranges. Developed areas are immense sources of non-native plants that are used as ornamental landscaping. Additionally, other governmental agencies in the region have used many of the invasive species as erosion control or as landscaping along roadways.

Lehmann lovegrass (*Eragrostis lehmanniana*) and Boers lovegrass (*E. chloromelas*), introduced into the southwest in the early 1930s, has invaded low-elevation (3000 to 4500 feet) grasslands around the base of the nearby Pinaleño Mountains. While roads may have been a factor in its spread (highway rights of way were seeded with Lehmann lovegrass), there is no feasible control for non-native lovegrass.

Non-native organisms have been a major factor implicated in declines of native amphibians and fish throughout western North America. Eradication of non-native amphibians and fish species, such as green sunfish (*Lepomis cyanellus*), has been a focus of the Coronado National Forest in

recent years. While state and federal agencies no longer intentionally introduce bullfrogs or green sunfish in Arizona, well-intentioned private individuals who are unaware of the repercussions of their actions still move bullfrogs and sunfish about. Existing roads accessing springs and riparian areas may facilitate the spread of bullfrogs and other non-native organisms.

### **3. What are the potential effects of such introductions to plant and animal species and ecosystem function in the area?**

Not all non-native species are a problem, but some aggressively out-compete native species. Lehmann lovegrass dominates the low-elevation grassland areas, affecting both the presence of native grasses and wildlife species and the natural fire regime. This species produce abundant herbage that, when dry, may provide fuel for wildfires. There is also some concern that lovegrass seeds and foliage are not as valuable as food sources as native grasses would be. The potential impacts from bullfrog introduction include potential for large quantities of predation on other vertebrate and invertebrate species that are native to the area.

### **4. To what degree do the presence, type, and location of roads contribute to the control of insects, diseases, and parasites?**

The road system may provide portions of fire lines that can be used during the implementation of prescribed fires, which can help manage the problems listed above. More remote portions of the range are best accessed by trail on foot or horseback.

### **5. How does the road system affect ecological disturbance regimes in the area?**

The primary ecological disturbances in the Winchester EMA are drought, wildfire, and flood. Roads have no effect on drought but may increase the incidence of wildfire by providing access to areas of dense fuel and leading to camping areas where campfires may be allowed to escape from fire rings.

### **6. What are the adverse effects of noise caused by developing, using, and maintaining roads?**

The current road system does not enter the Forest Boundary to any great extent in this mountain range. For this reason, the effects of the current roads and their use/maintenance are not likely to lead to severe urbanization effects or high road mortality on Forest lands. Current maintenance effects are those that are directly road-related, such as temporary increases in dust and noise levels, as well as reduced wildlife crossings. Because maintenance to these roads is infrequent, the effects are likely minimal at this point. However, if visitor numbers increase, there will be increased effects, including, trampling effects at campgrounds, wildcat shooting, and use of OHV's off roads and trails.

If the area were developed further, as would likely to occur when surrounding ranchland and State Trust Lands are sold to developers, then increasing urbanization effects may be seen along roads and along Forest boundary lands. Urbanization affects forest dwelling bird communities by

favoring certain species while selecting against others (Block and Finch 1997). Similar effects may be expected for other taxa especially small mammals (Block and Finch *ibid*). The presence of house pets such as dogs increases nest failure in many bird species and may affect changes in distribution of small mammal and reptile species. The increase of both native and non-native predators can cause increased reproductive failure in the vicinity of the urban areas. Even low-density urban areas such as summerhome areas can affect the adjacent plant communities through trampling, soil compaction, and brush removal. These changes can favor one species over another due to disturbance tolerance or loss of suitable foraging or breeding habitat. As an example, the cliff chipmunk generally benefits from increased urbanization and human presence.

### **7. What are the direct affects of the road system on terrestrial species habitat?**

Roads can fragment habitat and disrupt wildlife migration corridors. In addition to fragmenting the habitat and reducing habitat availability, high road density can translate to a higher incidence of vehicle-caused mortality.

The roads analysis has taken potential for habitat damage into consideration throughout the Winchester EMA.

### **8. How does the road system facilitate human activities that affect habitat?**

Roads within the Winchester EMA provide access for hunters, hikers, and other recreationists. Roads may increase the incidence of wildfire by providing access to areas of dense fuel and leading to camping areas where campfires may be allowed to escape from fire rings. The campsites themselves may, with heavy human use, cause localized trampling of vegetation that provides wildlife habitat.

### **9. How does the road system affect legal and illegal human activities (including trapping, hunting, poaching, harassment, road kill, or illegal kill levels)? What are the effects on wildlife species?**

Road access can increase the amount of mortalities due to road kill and provide opportunities for illegal activities. However, the presence of roads also allows for an increased presence of federal and state law enforcement agents. Pressure from illegal uses may increase if the local population increases.

### **10. How does the road system directly affect unique communities or special features in the area?**

See above.

### **11. Do areas planned for road constructing, closure, or decommissioning have unique physical or biological characteristics, such as unique features and threatened or endangered species?**

Road construction is not within the scope of this project. Roads are not planned for construction on this EMA under this project. Any future projects that would involve such potential would be consulted upon individually in order to minimize and/or mitigate effects.

**12. How and where does the road system facilitate the introduction of non-native aquatic species?**

See above.

**13. How and where 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?**

As mentioned earlier in this report, the majority of roads do not penetrate deep into Forest land on this EMA; there are no areas of exceptionally high aquatic species diversity or productivity crossed or accessed by Forest roads.

**14. What are the traditional uses of animal and plant species within the area of analysis?**

Wildlife viewing, hunting, camping, and hiking are the primary uses. There are 5 grazing allotments within this EMA, with some degree of use at all elevations.

**15. How and where does the road system restrict the migration and movement of aquatic organisms?**

Currently, no barriers to fish movement seem to exist as a by-product of road presence.

**16. What aquatic species are affected and to what extent?**

None.

**17. For roads receiving specific wildlife-related comments from the public, what response is given?**

No roads within this EMA received wildlife-related comments.

## Cultural Resource Issues

Guidelines for conducting a Transportation Analysis suggest addressing three questions pertinent to heritage resources:

- How does the road system affect access to paleontological, archaeological, and historical sites?

- How does the road system affect cultural and traditional uses (such as plant gathering, and access to traditional and cultural sites) and American Indian treaty rights?
- How are roads that are historic sites affected by road management?

In addition to these questions, it is also pertinent to consider impacts the road system has had, continues to have, and could have in the future on heritage resource sites in the area. In general, road systems affect paleontological, archaeological and historical sites both positively and negatively. The primary positive effect of roads is the access provided for authorized visitation and site maintenance of a small number of sites. On the other hand a large number of archaeological sites have been adversely affected through physical damage to sites and the greater access by unauthorized artifact collectors.

A review of Coronado National Forest records shows that several dozen archaeological and historical sites have been recorded in the Winchester EMA. Archaeological sites range chronologically from Archaic-period artifact scatters to 20<sup>th</sup> century mining and ranching. Precontact sites include habitations, artifact scatters, and rock art sites.

***Direct impacts to heritage resource sites.*** It is clear that past road construction has to some extent damaged or disturbed a number of archaeological sites. A review of recorded sites the Winchester EMA indicates that no recorded archaeological sites are crossed by roads. However, unrecorded sites may still be impacted. The impacts of roads on sites are variable, depending on the extent of disturbance from road construction and the nature and depth of the archaeological deposits. In the majority of cases, damage to archaeological sites occurred in decades before the National Historic Preservation Act mandated cultural resource surveys to identify archaeological sites subject to damage by undertakings on Federal lands. In most cases, the damage was largely limited to the time of construction many years ago and is no longer an ongoing concern. This is typically the case with more major roads where the road bed has been built up and surfaced either with gravel or pavement. There are, however, a number of cases on smaller roads where cultural materials are evident in the road bed and adjacent ditches and are subject to on-going disturbance. This is particularly the case with small user-created roads where road construction activities were minimal or nonexistent and ground disturbance is limited to the surface and near-surface deposits.

Minimal archaeological survey has been completed within the Winchester EMA and no sites have been recorded within close proximity to any roads. Currently, there are no plans to move or close any existing roads. If any changes are later proposed, a cultural resources survey will be required.

***Access to Paleontological, Archaeological, and Historic Sites.*** At a general level, the road system provides access to all of the sites in the area. Access provided by the road system in the area can affect paleontological, archaeological and historical sites both positively and negatively. The primary positive affect of road system is the access provided for authorized visitation and site maintenance of a small number of sites. Without road access, many sites would be rarely visited by either the public or Forest Service personnel. It would be much more difficult to monitor sites and ascertain whether any damage is occurring. On the other hand, road access exposes sites to damage by unauthorized artifact collectors and vandalism.

***Access to Traditional-Use Areas and Treaty Rights issues:*** As with heritage-resource sites, in a general sense, the road system provides to all areas of traditional and cultural use. No traditional-use areas have been specifically identified in the Winchester EMA. None of the Native American tribes with traditional ties to the Winchester Mountains has any treaty rights pertaining to Forest-administered lands.

***Roads that are historic sites.*** No historic roads have been recorded in the Winchester EMA.

## **Fire Protection & Safety**

### ***How do the roads in the National Forest System affect fire suppression on the Safford Ranger District?***

Road access is a critical issue for initial attack fire resources, when quick responses mean the difference between stopping a fire when it is small and having a large project fire. It is imperative that roads identified in the roads analysis as system roads are maintained in a proper manner to ensure that rapid ingress and egress are obtainable. Maintenance Level 2 roads need to be maintained at an acceptable level for fire vehicular access. Firefighter safety is a main concern when accessing a road into an area. Maintenance Level 1 roads on the district, from an initial attack standpoint, will be assessed before committing any fire equipment onto the road and will probably be used for OHV access only.

### ***How do roads in the National Forest system on the Safford Ranger District affect prevention, fire investigations and enforcement?***

The ability to patrol and administer forest regulations and investigate fires on National Forest lands on the Safford Ranger District require that the District prevention and Forest Protection Officers be able to travel throughout the district on reasonably maintained roads (level 2 and 3). Due to the size of the district and small number of available personnel, rough roads establish smaller patrol areas per day and increase vehicle maintenance costs.

### ***How do roads in the National Forest System affect fuels management activities on the Safford Ranger District?***

Since 2003, fuels reduction on National Forest has become a priority. Safford Ranger District has incorporated force account, contractors, and Arizona Department of Corrections hand crews into the fuels program. Our ability to adequately administer fuels reduction projects on the district depends on being able to ferry fuels crews to work sites. Level 2 and 3 roads are the main access points for crew vans that we use as crew shuttles. If these roads aren't maintained it is impossible to administer our fuels program adequately.

### ***How do the roads in the National Forest System affect firefighter and public safety?***

Level 3 and 4 roads on the district need to be adequately signed and maintained to allow for any emergency evacuations that may arise from a wildfire. Level 1 and 2 roads need to have the

proper signage to inform the public and emergency fire personnel as to the status of a road (example: closed to passenger cars).

## Step 5- Describing Opportunities and Setting Priorities

The purpose of this step is to:

- Describe the minimum road system
- Describe modifications to the existing road system that would achieve desirable or acceptable conditions

The Products of this step are:

- A map of the current and proposed road system

### The Minimum Road System

36 CFR 2.2.5 (b) a portion of the Travel Management Rule states:

“...b) Road system - (1) Identification of road system. For each national forest, national grassland, experimental forest, and any other units of the National Forest System (Sec. 212.1), the responsible Official must identify the minimum road system (MRS) needed for safe and efficient travel and for administration, utilization, and protection of National Forest System lands. In determining the minimum road system, the responsible Official must incorporate a science-based travel analysis at the appropriate scale and, to the degree practicable, involve a broad spectrum of interested and affected citizens, other state and federal agencies, and tribal governments. The minimum system is the road system determined to be needed to meet resource and other management objectives adopted in the relevant land and resource management plan (36 CFR part 219), to meet applicable statutory and regulatory requirements, to reflect long-term funding expectations, to ensure that the identified system minimizes adverse environmental impacts associated with road construction, reconstruction, decommissioning, and maintenance.”

This step compares the current condition to a desired future condition to help identify the opportunities and need for change. This step provides the information to develop the Forest’s strategic intent for road management; that is, to balance the need for decommissioning or retaining unauthorized and authorized roads with the need to minimize risk to public safety and damage to natural resources. Before implementing any proposed actions the Forest will complete the NEPA process. During the NEPA process, however, roads may be added or deleted from the recommended system.

Another consideration in developing the minimum road system is maintenance. However, some maintenance level 2 roads only need routine maintenance every few years rather than annually. Creating a road system to match the available funds by simply closing roads will not result in a road system that meets the access needs for public or for administrative purposes.

The IDT analyzed the extent and current condition of roads on national forest system lands within the project area. The IDT recommended the minimum road system for this EMA using the direction in Title 36 CFR 212.5 (b). The recommendations and issues associated with the identified roads and motorized trails on this EMA are described in the table below.

**Table 5.1 – Recommended Minimum Transportation System**

		PROPOSED RECOMMENDATIONS									Winchester EMA
Road Number	No Change	OA - Open Authorized (Miles)	OAR - Restricted Use (Miles)	ML1 - Maintenance Level 1 (Miles)	Decommission (Miles)	Proposed New Construction	Existing OHV Trail	Convert to OHV Trail	Convert to Non-Motorized Trail	Located Within 300 Ft corridor	DESCRIPTION
659	X										The Mesas
659-old			0.50								The Mesas; Rerouted- recommend to change to OAR; ML2
690					0.11						Reiley Canyon - Recommend to decommission
696											Allen Flat - Off Forest - not analyzed
696-0.67L-1											Off Forest - not analyzed
6617	X										Un-named - previously obliterated road
6618	X										Brushy Well
6619	X										Rockhouse Canyon
6620	X										Pine Ridge
6620 A			0.49								Un-named - Recommend change to OAR; ML2
6620 B	X										Juniper Tank
6620 C	X										Pine Canyon
6621	X										Pipeline Road

Road Number	No Change	PROPOSED RECOMMENDATIONS									Winchester EMA
		OA - Open Authorized (Miles)	OAR - Restricted Use (Miles)	ML1 - Maintenance Level 1 (Miles)	Decommission (Miles)	Proposed New Construction	Existing OHV Trail	Convert to OHV Trail	Convert to Non-Motorized Trail	Located Within 300 Ft corridor	DESCRIPTION
6621-1.39R-1											State Lands - not analyzed
6621 A	X										Un-named - State Lands - not analyzed
6626	X										Browning Road - State Lands - not analyzed
6627	X										Un-named - State Lands - not analyzed
6628	X										Javelina Spring - State Lands - not analyzed
<b>TOTALS</b>		<b>0.00</b>	<b>0.99</b>	<b>0.00</b>	<b>0.11</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>		

# Step 6- Reporting

The Purpose of this step is to report the key findings of the analysis.

The products of this step are:

- A written report for this EMA and a Transportation Atlas showing existing routes and recommendations for the minimum road system.

## Report

This report is available to the public, if requested and will become part of the EMA file. A map depicting all recommendations is in Appendix F.

## Key Findings and Recommendations

The key findings and recommendations of this analysis which are based on Interdisciplinary Team (IDT) discussion, specialist expertise, and public input, include:

### Open Authorized (OA)

At this time no new roads are recommended to be added to the system as Open Authorized (OA) roads.

Road Number	OA - Open Authorized (Miles)
<b>TOTALS</b>	<b>0.00</b>

### Open Authorized and Restricted (OAR)

0.99 miles of roads are recommended to be changed to Open Authorized and Restricted (OAR) roads. The roads shall be restricted to the public and only government officials or Special Use Permittees will be allowed use. Note: Road numbers in brackets were previous report numbers.

Road Number	OAR- Restricted Use (Miles)
659-old	0.50
6620 A	0.49
<b>TOTALS</b>	<b>0.99</b>

Maintenance Level 1 (ML 1)

At this time no roads are recommended to be added to the system as Maintenance Level 1(ML 1) roads.

Road Number	Maintenance Level 1 (Miles)
<b>TOTALS</b>	<b>0.00</b>

Decommission

The following system road is recommended to be **decommissioned**.

Road Number	Decommission (Miles)
690	0.11
<b>TOTALS</b>	<b>0.11</b>

Motorized Trail

At this time no roads were recommended to be **converted** to OHV/ATV motorized trails:

Road Number	Converted (Miles)
<b>TOTALS</b>	<b>0.00</b>

## Appendix A: Definitions

### Road Definitions (36 CFR 212.1)

**Authorized Road** - Roads wholly or partially within or adjacent to National Forest system lands that are determined to be needed for long-term motor vehicle access, including state roads, county roads, privately owned roads, national forest system roads and other roads authorized by the Forest Service.

**Unauthorized Road** - Road on national forest system lands that are not managed as part of the forest transportation system, such as unplanned roads, abandoned travelways and off-road vehicle tracks that have not been designated and managed as a trail and those roads that were once under permit or other authorization and were not decommissioned upon the termination of the authorization.

**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.

**Road Decommissioning** - Activities that result in the stabilization and restoration of unneeded roads to a more natural state or conversion to other non-road uses.

**Road Reconstruction** - Activities that result in improvement or realignment of an existing authorized road as defined below:

**Road Improvement** - Activity that results in an increase of an existing road's traffic service level, expansion of its capacity or a change in its original design function.

**Road Realignment** - Activity that results in a new location of an existing road or portions of an existing road and treatment of the old roadway.

**Access Rights:** A privilege or right of a person or entity to pass over or use another person's or entity's travel way. (36 CFR 212.1, FSM 5460.5 - Rights of Way Acquisition)

**Arterial Road:** An NFS road that provides service to large land areas and usually connects with other arterial roads or public highways (7705 – DEFINITIONS).

**Collector Road:** An NFS road that serves smaller areas than an arterial road and that usually connects arterial roads to local roads or terminal facilities (FSM 7705 – DEFINITIONS).

**Forest Road or Trail:** A road or trail wholly or partly within or adjacent to and serving the NFS that the Forest Service determines is necessary for the protection, administration, and utilization of the NFS and the use and development of its resources (36 CFR 212.1 – FSM 7705 – DEFINITIONS).

**Local Road:** An NFS road that connects a terminal facility with collector roads, arterial roads, or public highways and that usually serves a single purpose involving intermittent use (FSM 7705 – DEFINITIONS).

**National Forest System Road:** A forest road other than a road which has been authorized by a legally documented right-of-way held by a state, county, or local public road authority (FSM 7705 – DEFINITIONS – 36 CFR 212.1).

**Public Road:** A road under the jurisdiction of and maintained by a public road authority and open to public travel (23 U.S.C. 101(a) – (FSM 7705 – DEFINITIONS)).

**Private Road:** A road under private ownership authorized by an easement granted to a private party or a road that provides access pursuant to a reserved or outstanding right (FSM 7705 – DEFINITIONS).

**Route:** A road or trail (FSM 7705 – DEFINITIONS).

## Appendix B: Best Management Practices

Federal agency compliance with pollution control is addressed through section 313 of the Clean Water Act, Executive Order 12580 (January 23, 1987), National Non-point Source Policy (December 12, 1984), USDA Non-point Source Water Quality Policy (December 5, 1986) and the Environmental Protection Agency (EPA) in their guidance "Non-point Source Controls and Water Quality Standards" (August 19, 1987). In order to comply with State and local non-point pollution controls the Forest Service will apply Best Management Practices (BMPs) to all possible non-point sources which may result from management activities proposed in any future decision document. These BMPs are described in the Region 3 Soil and Water Conservation Handbook 2509.22.

Best Management Practices are the primary mechanism for achievement of water quality standards (EPA 1987). This appendix describes the Forest Service BMP process in detail and lists the key Soil and Water Conservation Practices that may be employed when in the implementation of a selected action is determined in a Record of Decision.

Best Management Practices include but are not limited to structural and non-structural controls, operations, and maintenance procedures. BMPs can be applied before, during, or after pollution producing activities to reduce or eliminate the introduction of pollutants into receiving waters (40 CFR 130.2, EPA Water Quality Regulation). Usually, BMPs are applied as a system of practices rather than a single practice. BMPs are selected on the basis of site-specific conditions that reflect natural background conditions and political, economic, and technical feasibility.

### BMP IMPLEMENTATION PROCESS

In cooperation with the State, the Forest Service's primary strategy for the control of non-point source pollution is based on the implementation of preventative practices (i.e., BMPs). The BMPs for this project have been designed and selected to protect the identified beneficial uses of the watershed.

The Forest Service non-point source management system consists of the following steps:

1. **BMP SELECTION AND DESIGN** - Water quality goals are identified in the Forest Plan. These goals meet or exceed applicable legal requirements including State water quality regulations, the Clean Water Act, and the National Forest Management Act. Environmental assessments for projects are tiered to Forest Plans using the National Environmental Policy Act (NEPA) process. The appropriate BMPs are selected for each project by an interdisciplinary team. In each new location, there is flexibility to design different BMPs depending on local conditions and values and downstream beneficial uses of water. The BMP selection and design are dictated by the proposed action, water quality objectives, soils, topography, geology, vegetation, and climate. Environmental impacts and water quality protection options are evaluated, and alternative mixes of practices considered. Final collections of practices are selected that not only protect water

quality but meet other resource needs. The final sets of selected practices constitute the BMPs for the project.

2. BMP APPLICATION - The BMPs are translated into contract provisions, special use permit requirements, project plan specifications, and so forth. This ensures that the operator or person responsible for applying the BMP actually is required to do so. Site-specific BMP prescriptions are taken from plan-to-ground by a combination of project layout and resource specialists (e.g., hydrology, soils, etc.). This is when final adjustments to fit BMP prescriptions to the site are made.
3. BMP MONITORING - When an activity begins (e.g., road building, mining, timber harvesting, etc.), engineering representatives, resource specialists, and others ensure that BMPs are implemented according to plan. BMP implementation monitoring is done before, during, and after resource activity implementation. This monitoring answers the question: "Did we do what we said we would do?" Once BMPs have been implemented, further monitoring is done to evaluate if the BMPs are effective in meeting management objectives and protecting beneficial uses. If monitoring indicates that water quality standards are not being met or that beneficial uses are not being protected, corrective action will consider the following:
  - o Is the BMP technically sound? Is it really best or is there a better practice which is technically sound and feasible to implement?
  - o Was the BMP applied entirely as designed? Was it only partially implemented? Were personnel, equipment, funds, or training lacking which resulted in inadequate or incomplete implementation?
  - o Do the parameters and criteria that constitute water quality standards adequately reflect human induced changes to water quality and beneficial uses?
4. FEEDBACK - Feedback on the results of BMP evaluation is both short- and long-term in nature. Where corrective action is needed, immediate response will be undertaken. This action may include modification of the BMP, modification of the activity, ceasing the activity, or possibly modification of the State water quality standard. Cumulative effects over the long-term may also lead to the need for possible corrective actions.

All roads will be maintained using Best Management Practices to reduce watershed impacts.

1. Use Best Management Practices with specific practices identified and implemented for specific sites.
2. Control sediment, particularly resulting from soil movement caused by roads.

Under both Alternative B and C, improved road miles through reconstruction and maintenance would be accomplished utilizing Best Management Practices to bring these miles to minimum Forest standards. Best management practices are a practice or a combination of practices that is determined by a State (or designated area-wide planning agency) after problem assessment, examination of alternative practices and appropriate public participation to be the most effective, practicable (including technological, economic, and institutional considerations) means of preventing or reducing the amount of pollution generated by non-point sources to a level

compatible with Federal and State water quality goals and standards. Non-point source pollutants are generally carried over, or through, the soil and ground cover via stream flow processes.

Soil and Water Conservation Practices in the form of Best Management Practices (BMPs) will be implemented and monitored as directed in the Forest Plan. Through the use of BMPs the adverse effect of planned activities will be mitigated.

The following BMPs are applicable to all action alternatives:

Erosion Control Plan. Minimize erosion and sedimentation through effective planning prior to initiation of construction activities and through effective contract administration during construction.

Timing of Construction Activities. Schedule operations during periods when the probabilities for rain and runoff are low. Equipment shall not be operated when ground conditions are such that unacceptable soil compaction or displacement results. Erosion control work must be kept current when construction occurs outside of the normal operating season.

Road Slope Stabilization. Prevent on-site soil loss from exposed cut slopes, fill slopes, and spoil disposal areas. The level of stabilization effort needed must be determined on a case-by-case basis. Surface stabilization measures shall be periodically inspected, as necessary, to determine effectiveness. In some cases, additional work may be needed to ensure that the vegetative and/or mechanical surface stabilization measures continue to function as intended.

Dispersion of Subsurface Drainage from Cut and Fill Slopes. Minimize the possibilities of cut or fill slope failure and the subsequent production of sediment. Dispersal of collected water should be accomplished in an area capable of withstanding increased flows.

Control of Road Drainage. Minimize the erosive effects of concentrated water flows caused by road drainage features.

Timely Erosion Control Measures on Incomplete Roads and Stream Crossing Projects. Minimize erosion and sedimentation from road construction sites where final drainage structures have not been completed. Apply protective measures to all areas of disturbed, erosion-prone, unprotected ground that is not to be further disturbed in the present year. When conditions permit operations outside of the Normal Operating Season, erosion control measures must be kept current with ground disturbance to the extent that the affected area can be rapidly "closed" if weather conditions deteriorate. Do not abandon areas for the winter with remedial measures incomplete.

Construction of Stable Embankments (Fills). Construct embankments with materials and methods which minimize the possibility of failure and subsequent water quality degradation.

Control of Side Cast Material. Minimize sediment production from side cast material during road construction, reconstruction, or maintenance. Side casting is not an acceptable construction alternative in areas where it will adversely affect water quality. Prior to commencing

construction or maintenance activities, waste areas should be located where excess material can be deposited and stabilized.

Servicing and Refueling of Equipment. Prevent pollutants such as fuels, lubricants, bitumens, raw sewage, wash water, and other harmful materials from being discharged into or near rivers, streams, and impoundments, or into natural or man-made channels leading thereto. Selecting service and refueling areas well away from wet areas and surface water, and by using berms around such sites to contain spills. Spill prevention, containment, and countermeasures (SPCC) plans are required if the volume of fuel exceeds 660 gallons in a single container or if total storage at a site exceeds 1320 gallons. Any SPCC needs to be reviewed and certified by a registered professional engineer.

Controlling In-Channel Excavation. Minimize sedimentation and turbidity resulting from excavation for in-channel structures, so as to comply with state and Federal water quality standards.

Disposal of Right-of-Way and Roadside Debris. Construction debris and other newly generated roadside slash developed along roads near streams shall not be deposited in stream channels (including ephemeral and intermittent).

Maintenance of Roads. Maintain roads in a manner that provides for water quality protection by minimizing rutting, failures, side casting, and blockage of drainage facilities (all of which can cause sedimentation and erosion).

Road Surface Treatment to Prevent Loss of Materials. Minimize sediment production and erosion from road surface materials to comply with state and Federal water quality standards. Road surface treatments are prescribed based on traffic levels, road design standards, soils, and geology.

Decommissioning of Roads. Reduce sediment generated from unneeded roads, roads that run in streambeds and roads that are located in streamside zones by closing them to vehicle use and restoring them to productivity.

## APPENDIX C – INTERDISCIPLINARY TEAM

### Supervisor’s Office

Curiel,	Eli	Engineering, Editor & ID Core Team Leader
Makansi	Kathy	Cultural Resources
Lefevre,	Bob	Soils, Water, Air & Forestry
Emmett	Tami	Public Access Program Manager
McKay	George	Forest Lands Program Manager
White	Laura	Zone Recreation

### District Office

<b>D4 – Safford Ranger District</b>		
Casey,	Anne	Wildlife Biology
Duncan,	Chuck	Range Management
Zale,	Buddy	FMO
Glaspie	Scott	AFMO
Hennings	Lorean	District Recreation Area Manager

### Arizona Game & Fish Department

<b>Safford District</b>		
Aubuchon	Duane	Wildlife

## **APPENDIX D – Interdisciplinary Team Discussion Notes**

The notes in this section are included in an effort to provide a brief summary of why the TAP recommendations for changes to the road system were made. They do not replace the discussion in under Step 4 of the TAP document. While discussing the recommendations, the Interdisciplinary Team (IDT) reviewed comments that were collected during public meetings and from letters and e-mails submitted by many interest groups, individuals and other agencies. These comments were used to identify issues that needed to be weighed, along with many other factors, in the formation of the recommendations.

The TAP is a living document and therefore will be updated regularly. Line officers and IDTs will continue to consult the TAP as they are planning future projects. Since the TAP contains only recommendations, future projects will continue to receive public input that pertains to the Forest transportation system and may recommend decisions which are not consistent with the initial recommendations of the TAP. Modifications to the TAP's recommendations as a result of final decisions will be incorporated, after the appropriate NEPA procedures have been completed.

System roads highlighted	Winchester EMA
Road Number	DESCRIPTION 10/26/09 IDT comments in red
659	The Mesas
659-old	Rerouted- recommend to add as OAR; ML2
690	Recommend change to ML1. Road is bad. Limited access to forest boundary.
696	Allen Flat - Not on forest. On state. Not analyzed.
696-0.67L-1	Off Forest - not analyzed
6617	Un-named - Does not affect riparian area.
6618	Brushy Well. Does not affect riparian area. We accept maintenance on 40%+ slopes due to need for this road for access for hunting, recreation, admin.
6619	Rockhouse Canyon. Does not affect riparian area. We accept maintenance on 40%+ slopes due to need for this road for access for hunting, recreation, admin.
6620	Pine Ridge - Does not affect riparian area. We accept maintenance on 40%+ slopes due to need for this road for access for hunting, recreation, admin.
6620 A	Recommend change to ML1. Add OAR Needed for permittee access to maintenance pipeline.
6620 B	Juniper Tank - Does not affect riparian area.
6620 C	Pine Canyon - Does not affect riparian area.
6621	Pipeline Road - Only access in this area for hunter, recreation, admin.
6621-1.39R-1	Not analyzed. Not on FS.
6621 A	Un-named - Not analyzed. Not on FS.
6626	Browning Road
6627	Un-named
6628	Javelina Spring - Not analyzed. Not on FS.

**APPENDIX E – FSM 7700**

## **APPENDIX F – FOREST TRANSPORTATION ATLAS**