

APPENDIX H
MIDDLE GILA CANYONS AREA
TRAVEL MANAGEMENT PLANNING FACTORS

The key factors considered in developing the proposed Middle Gila Canyons Transportation and Travel Management Plan are summarized below. They include land use, environmental and operational concerns that require access, or that may be affected by transportation related impacts or public use activity on adjacent lands. Also included is a brief description of the area’s current condition, related current management, uses, access related concerns, and management goals and desired conditions for the area. Specific implementation actions that may be pursued are outlined under each factor.

A. Travel Route Inventory:

The interagency travel route inventory completed for the Middle Gila Canyons transportation planning area in 2003 is summarized in Table 1 below according to the inventory class (ROUTE_TYPE) and shown on the maps in Appendix A. The inventory identified motorized travel routes and a variety of adjacent activity areas and sites associated with various land uses. A few non-motorized trails and many reclaiming routes that were no longer being used for access purposes were also identified, as well as numerous linear features that represent fence lines and utilities. The inventory was an interagency effort completed for BLM, National Forest and State lands, and travel routes are under a variety of jurisdictions. Management actions described in this plan affect only routes on BLM lands. Route designations across non-BLM land are identified only for those routes that are essential for effective access and travel management on the public lands. Travel routes on BLM lands account for a significant percentage of the total motorized route network in the Middle Gila Canyons study area. The majority of roads on BLM land are primitive and unmaintained, limited by rough conditions to ATV or high clearance 4WD vehicles. Some inventoried routes are in extreme condition, with travel way obstructions and obstacles greater than 24”, severe grades, vertical ledges and outslope.

Table 1: Summary of motorized travel route inventory for the Middle Gila Canyons study area, and routes within the BLM transportation planning area, listed by route type according to the inventory classifications¹. The reclaiming routes mileage on BLM lands in the planning area include linear features not initially identified as reclaiming, but were determined to be in reclaiming condition since. The reclaiming routes mileage study area wide does not include unclassified linear features identified in the initial inventory.

ROUTE_TYPE	Travel Management Study Area Miles	BLM Planning Area Miles	Percentage of BLM routes within Study Area
Primary_Road_Paved	4.4	0.2	4%
Secondary_Road_Paved	3.9	0.0	0%
Secondary_Road_Unpav	27.0	4.9	18%

¹ Interagency Travel Route Inventory Data Dictionary, BLM, USFS, 2003.

Tertiary_Road_Unpav	936.5	413.1	44%
Single_Track	2.9	0.5	17%
Reclaiming	8.8	7.6	86%
TOTAL	983.5	426.3	43%

The route inventory data was analyzed using the ARS Route Evaluation Tree, which resulted in three alternatives for the route designation network and are listed in the route table in Appendix B. Various factors were analyzed using BLMs Geographic Information System (GIS) and available data². Field exams, resource assessments, and cultural surveys have been conducted for some of the routes through on-going area BLM monitoring and resource information gathering efforts.

Management goals are to designate the area’s transportation system based on the route inventory, considering public input including the 2005 MGCP route evaluation, and the results of the 2007 stakeholder’s workshops, while consistent with current BLM resource management plan. The designations are designed to avoid potential impacts on sensitive resource values, and use restrictions are identified in this plan where needed to protect resource values and prevent potential conflicts.

The proposed plan will identify the travel route designations according to asset type, functional class, maintenance intensity, and intended type of access. The transportation route designations will be used to update the BLM Facility Asset Management System (FAMS). Routes will be monitored for condition and for compliance with designations. Action will be taken as needed based on ground conditions and use; and will include publication of route designation maps and related visitor information, installing physical traffic controls, posting regulatory and informational signs and making available information to ensure visitor awareness of regulations, and visitor services/enforcement. Publication of notice in Federal Register of the use restrictions. Implementation of maintenance standards for the different types of routes through internal process, or external proposal review process; engineering analysis as needed; cultural surveys and necessary clearances will be completed before new disturbance.

B. Off Highway Vehicle Use Designations:

Current Off highway vehicle (OHV) use designations for public lands in the planning area were established in the Phoenix RMP³ pursuant regulations at 43CFR8342. Table 2 below summarizes the existing OHV designations for the planning area, which are shown on Map 1.

Table 2. Summary of current OHV designations on BLM lands in the planning area.

CURRENT OHV AREA DESIGNATION	ACRES
Closed Year-Round (White Canyon Wilderness Area)	5,787
Limited to Designated Roads and	298

² Mgca-ptmp.shp, ESRI Shapefile, Meters, UTM, Zone 12, NAD 1927, USDI/BLM, July 2008

³ Phoenix Resource Management Plan Record of Decision, USDI BLM, September 1989 as amended.

Trails (White Canyon ACEC)	
Limited to Existing Roads and Trails	90,242

Goals for management related to OHV designations are to implement route specific designations that are consistent with the OHV designations in the current RMP. The designated and existing roads and trails provided for in the designations will be defined. Any change necessary to OHV designations will be considered in the RMP revision for the Tucson Field Office RMP, anticipated within the next five years. In the meantime, any use restrictions needed to protect resource values and prevent potential conflicts will be implemented under current regulations at 43CFR8340 and 43CFR8360.

Proposed management practices include monitoring and enforcement for compliance with use designations, publication of maps and other information to ensure visitor awareness of use restrictions, publication of legal notices.

C. Special Management Areas:

The planning area includes several Special Management Areas (SMAs) designated in the Phoenix RMP, and one designated by Congress. The SMA's are shown on Map 2, and include:

1. White Canyon Wilderness Area:

The White Canyon Wilderness (approx. 5,773 acres) was designated by Congress in 1990⁴ to further the purposes of the Wilderness Act of 1964⁵. All motorized and mechanized travel in the Wilderness is prohibited, with very limited exceptions according to the Wilderness Act and wilderness management policy⁶. Several existing routes constructed for mineral exploration and range use before the wilderness was established are within the Wilderness boundary, and are in reclaiming condition. Two of these routes are on relatively flat ground and have reclaimed to substantially unnoticeable condition, with vegetation cover similar to conditions on undisturbed ground. Three of the routes were constructed on hillside slopes and are revegetating, but the cut and fill slopes, and the grade from the original earthwork remain noticeable. The constructed grades may be used for hiking and equestrian access, subject to wilderness management constraints and physical limitations. Two of the constructed ways attract recreational use, as well as a route along the bottom of White Canyon. Use of existing routes in the wilderness is light, with most of the use occurring along White Canyon and the constructed grade to the west. Public access to the wilderness area is from Highway 177 via the Battle Axe Rd., which forms part of its southern boundary along Walnut Canyon. An unimproved trail head and primitive vehicle camping area is along the Battle Axe road in White Canyon. Issues and concerns are protecting wilderness values (naturalness, opportunities for solitude, and opportunities for primitive and unconfined recreation), motor vehicle trespass into the wilderness, potential for weed infestations along travel routes and activity areas, and visitor management. There is no wilderness specific management plan for this

⁴ Arizona Desert Wilderness Act of 1990, Public Law 101-628, November 28, 1990.

⁵ Wilderness Act of 1964 (16 U.S.C. 1131-1136, 78 Stat. 890) Public Law 88-577, September 3, 1964.

⁶ Policy on FWS wildlife management activities in Wilderness Areas, USDI FWS BLM, 2007

wilderness area, and management is in accordance with wilderness regulations⁷ and BLM policy⁸.

Table 3: Inventory routes in the White Canyon Wilderness Area:

Special Management Area	Route Inventory Miles (Non motorized or reclaiming routes)
WHITE CANYON WILDERNESS AREA	6.2

Goals for management related to wilderness management are to acquire legal access, accommodating wilderness visitor use on appropriate existing routes while protecting wilderness values. Planned management actions or practices include: acquiring legal public access along Battle Axe road as planned under the Ray Land Exchange; posting wilderness boundary, regulatory and informational signs along roads/trails trailheads; minimal trail maintenance subject to wilderness management constraints; noxious or exotic plant inventory and treatment if necessary; monitoring trail condition and use, and conducting periodic visitor service and enforcement patrols.

2. White Canyon Area of Critical Environmental Concern (ACEC):

The White Canyon ACEC includes approximately 1,920 acres of BLM land, and 480 acres of private land planned to become part of the ACEC upon acquisition from Asarco under the Ray Land Exchange. The ACEC is adjacent to the White Canyon Wilderness area and is important because of its outstanding scenic, wildlife, riparian and cultural values. Motorized vehicles use is limited to designated roads and trails. The ACEC was established in the Phoenix RMP, which prohibited land use authorizations including surface occupancy related to oil/gas development. There is no potential for oil and gas development in the area, but a major copper deposit underlying Copper Butte is planned for future development by Asarco.

Goals related to the ACEC are to acquire legal public access on the section of Battle Axe Road across private lands as planned under the Ray Land Exchange, and to reduce impacts related to transportation and public use on resource values. Planned management actions or practices include: project plan to relocate section of Battle Axe road out of the stream channel to reduce erosion; traffic control to prevent off road travel; posting regulatory and informational signs; noxious weed inventory, and treatment to eradicate known tamarisk; monitoring conditions and use. Conduct regular visitor service and enforcement patrols.

Table 4. Motorized routes within the White Canyon ACEC, existing and planned.

Special Management Area	Motorized Route Inventory Miles
PLANNED ACEC (Pending acquisition)	1.6

⁷ Code of Federal Regulations, 43 CFR 8560 Wilderness Management, 2007.

⁸ Management of Designated Wilderness, Handbook H-8560-1, USDI BLM, July 27, 1988.

WHITE CANYON ACEC	2.6
----------------------	-----

3. Gila River Riparian Management Area:

The Gila River Riparian Management Area includes approximately 24 river miles from the Florence-Kelvin Hwy. bridge to the Ashurst Hayden Dam. The riparian area consists of the river and valley bottomland ecological site, encompassing approx. 1,493 acres of BLM land intermingled with approx. 218 acres of State trust and approx. 184 acres of private land. The bottomland is covered by mesquite riparian bosque and desert scrub, with cottonwood-willow on the river banks. Extensive tamarisk infestation is found throughout the area. The riparian management area provides critical habitat for spikedace and Southwestern willow flycatcher, both listed threatened and endangered species. Motor vehicle routes were inventoried within the SMA at several locations, with some new ATV trails created by users in the past 3 years. The river is paralleled by the Copper Basin Railway, carrying industrial products related to Asarco's Ray Mine and Hayden smelter including hazardous materials. The river attracts recreation including sightseeing, fishing, hunting, picnicking, river floating, water play, and camping. Motor vehicle use occurs along the river channel bottom when stream flows largely dry up due to drought or control of irrigation releases from the Coolidge Dam. The Copper Basin Railway parallels the SMA, along its edge or traversing parts it. Deadgrowth is extensive in the vegetation cover, and fuel loading is high. In the past 10 years several wildfires ignited by recreation visitors and slag from the railroad brakes have occurred. Current management goals are to improve condition of riparian vegetation and aquatic habitat for native fish; enhance water quality, and limit salinity discharges; limit motorized vehicle use to existing roads and trails, and prohibit surface occupancy related to oil/gas development in the riparian zone. Livestock grazing is excluded from most of the riparian management in accordance with the USFWS biological opinion on grazing⁹, except for water access lanes at designated locations, and except for a riparian pasture in the Whitlow Ranch grazing allotment (#6032).

Table 5. Motorized routes within Gila River Riparian Management Area.

Special Management Area	Motorized Route Inventory Miles
Gila River Riparian Area	13.2

Management goals related to this SMA are to accommodate recreational river access, reduce impacts related to transportation and public use on riparian resource values, and rehabilitate recent ATV impacts. Planned actions or practices include: identify motorized routes in the riparian area at several other river access points; designate one river ford crossing at Cochran, with bank treatment to control erosion; posting regulatory and informational signs; posting interpretive wayside exhibit with riparian area themes, noxious weed inventory at public use areas, treatment to reduce fuel load at public use areas, treatment eradicate known tamarisk growing along the roads in

⁹ Biological Opinion, Livestock Grazing on 18 allotments, along the Middle Gila River ecosystem, USFWS consultation # 02-21-00-F-0029; Oct. 23, 2003.

the area; and monitoring resource conditions and use. Conduct regular visitor service and enforcement patrols.

4. Gila River Cultural Resource Management Area:

The Gila River Cultural Resource Management Area (CRMA) is approximately 22,920 acres, intermingled with State trust and private lands. It consists of the river valley and adjacent slopes where extensive cultural resources were discovered by surveys related to the now abandoned Bureau of Reclamation Twin Buttes Project. The area is significant in the region’s prehistoric habitation and agriculture, historic mineral development, transportation, ranching and homesteading. Current management goals are to manage the area for information, public and conservation values. Motorized vehicle use is limited to existing roads and trails.

Table 6. Motorized routes within the Gila River and Reymert Historic Townsite CRMAs.

Special Management Area	Motorized Route Inventory Miles
Middle Gila Cultural Resource Management Area	137.8
Reymert-Denoon Townsite	0.2

Management goals related to this SMA are to reduce impacts related to transportation and public use on known cultural resource values, and greater appreciation of resource values among visitors. Planned management actions or practices include: avoid identifying routes across sensitive sites; traffic control where needed to prevent off road travel in sensitive sites; posting regulatory and informational signs; interpretive wayside exhibit with area prehistory and history themes; surveys and assessments of sites at risk of damage or loss, and monitoring of resource conditions. Conduct regular visitor service and enforcement patrols.

5. Reymert Townsite Cultural Resource Management Area:

The planning area includes the 20 acre Reymert Townsite CRMA, which includes visible remnants of historic stone buildings and structures; standing walls, building slabs and pads, and scattered artifacts. Some damage to the site is occurring from public visitation, and from loafing by grazing livestock attracted by water from a spring near the townsite. A project plan for the site was prepared in 1993¹⁰; some stabilization work was completed on one of the structures, and traffic control barriers and signs were installed; the post and cable parking area delineator has been destroyed and only remnants are left.. Current management goals are to manage the site for public education/interpretive values, and keep the site closed to motor vehicle use except for a designated parking area.

Goals for management are to maintain the current primitive access to the site, delineate a parking area away from fragile grounds and structures to prevent or

¹⁰ Cultural Resource Project Plan for the Reymert Mine Townsite of DeNoon (AZ U:16:81<BLM>), USDI BLM, January 1993.

minimize resource damage. Interpretive signing and wayside exhibit will be installed to promote greater appreciation of fragile cultural resource values. Planned actions are to identify the vehicle driveways needed for access, replace the barriers and signs, install an interpretive signing and regulatory signing, and visitor register. Coordinate with grazing management program to maintain the spring water system and reduce impacts from visitors in the riparian area on site; coordinate with cultural resource management program for additional site surveys and developing interpretive themes. Coordinate with the minerals program on minimizing impacts and use conflicts with any existing mining claims. Monitor site conditions and use. Conduct regular visitor service and enforcement patrols.

6. Grayback Mountain-Box O Wash Multiple Resource Management Area:

The Grayback Mountain – Box O Wash SMA includes approximately 16,389 acres of BLM land, intermingled with State trust land (4,726 acres) and private property (99 acres). This area includes mainly the broad upland rolling terraces dissected by desert washes and bounded by hills around South Butte and Grayback Mountain. Soils in much of the area are sandy/gravelly and prone to erosion by running water. The washes discharge sediment into the Gila River a few miles above the Ashurst-Hayden Dam. The area is also valuable habitat for a variety of wildlife, and it is most of it is within Category 2 desert tortoise habitat. The mountains, particularly along the river provide fair habitat for bighorn sheep. The area includes existing powerlines, range improvements and mining claims. Motorized routes were inventoried in the major washes and uplands. Current management goals are to improve watershed condition to satisfactory; increase soil cover; reduce sediment yield and salinity discharge; improve ecological site condition to good; enhance stream flow and water quality, and maintain wildlife habitat capability. Planned actions include: preparing an activity plan, land acquisition; and limiting motorized vehicle use to existing roads and trails.

Table 8. Motorized routes within Grayback Mountain – Box O Wash Multiple Resource Management Area.

Special Management Area	Motorized Route Inventory MILES
Grayback Mt. Box O Wash	106

Goals for management are to maintain current access for multiple uses, prevent or minimize resource damage related to transportation and public use on watershed and other values. Planned actions are to identify the motor vehicle route system, road maintenance to improve drainage and stabilize erosion, install charcos for road runoff and trap sediment; install informational and regulatory signs as needed; complete condition survey and monitor route conditions and use. Conduct regular visitor service and enforcement patrols.

7. Arizona National Scenic Trail: The Arizona Trail was designated by Congress as a National Scenic Trail under an amendment to the National Trails System Act on March

30, 2009. (P.L. 90-543, as amended through P.L. 111-11, March 30, 2009), making it a special management area. This 800 trail runs from the Coronado National Monument near the international border across Arizona to near the Utah border. Approximately 26 miles of the trail crosses the Planning Area (White Canyon Passage). The trail is under construction, with approximately 7 miles completed and the remainder planned to be completed by 2012. The trail is planned to accommodate non-motorized travel (hiking, equestrian, mountain bicycle), and Trail development is according a project plan and environmental assessment completed in 2006. In 2009 a section of the trail in the vicinity of Red Mountain was analyzed to consider the feasibility of realigning the trail to avoid sensitive lands. The decision and NEPA review for the realignment is being handled separately from the TTMP, but is addressed to ensure coordination with other travel management designations.

D. Land Status and Authorizations:

The transportation study area includes public lands intermingled with State, private, military and Bureau of Reclamation lands, Tonto National Forest lands in the Globe Ranger District. The planning area consists of public land administered by the BLM, which makes up approximately 43% of the study area. The current general land status for the planning area is shown on Map 3, based on the BLM Master Title Plats and related public land records.

Table 9: General land ownership acreages in the Middle Gila Canyons Transportation Study Area

Ownership	Acres
Bureau of Land Management	96,320
State	84,165
National Forest Service	26,648
Private	21,533
Military	3,861
Bureau of Reclamation	174
TOTAL	232,701

The planning area includes approximately 79,330 acres of BLM land the White Canyon Resource Conservation Area (RCA) designated in the Phoenix RMP, intermingled with approx. 21,257 acres of State land and 5,799 acres within the RCA. Most of the public lands in the planning area are identified for retention, except for approximately 16,990 acres outside RCA identified as suitable for disposal. Current public land authorizations include utilities (power lines, natural gas lines, communications facilities, mineral materials sites, and roads¹¹). Authorized users need access for the use, maintenance and operation of their facilities as provided for in the authorizations. Two major utility corridors are designated in the Phoenix RMP cross the planning area along the existing electric transmission lines. The Copper Basin Railway holds a right of way along the tracks paralleling the Gila River, typically 100 - 200 ft., and trespass by visitors, safety and damage to facilities are concerns.

¹¹ Public Land Records, LR2000, USDI BLM, 2008.

On grade railroad crossings were identified in the motorized route inventory near the Kelvin bridge, at Cochran, Price and Whitlow Ranch Rd. Several motorized routes paralleling the tracks were also identified. On grade railroad crossings and public use along the tracks present concerns related to public safety and potential damage to the railway.

Public lands along the Gila River are under several withdrawals for the San Carlos Indian Irrigation Project (SCIP) (PLO 141, and EO 5611), and the Bureau of Reclamation's (BOR) Middle Gila River Project (PLO 3835, and Power Site Classification 438). Public lands under the existing protective withdrawals are subject to public land regulations administered by the BLM, including 43CFR8300. The SCIP operates and maintains irrigation facilities including the Ashurst-Hayden Diversion Dam and associated canals, power lines and service access roads and uses the Gila River to deliver irrigation water stored by the Coolidge Dam. Access is required for maintenance and operation of the SCIP facilities, but damage from vandalism or accident is a concern. Part of the Diversion Dam road was closed by the SCIP to public use in 2007 due to vandalism, and the need for a bypass route that avoids the diversion dam facility is identified to provide access to the transportation system from the Florence area. The BOR has proposed relinquishment of the Middle Gila River Project withdrawals, and approval is pending.

Travel routes across public land are generally open to public use, but many require crossing intermingled non-federal lands. Some routes are the sole access to non-federal inholdings or adjacent lands, but lack a right of way or specific authorization for their use or maintenance. Some routes are under a transportation right of way, and others are maintained under other types of authorized uses, including utilities and communications facilities, mineral materials sales, mining plans of operations, and grazing permits. As land use changes over time, their associated access needs may also change. Most of the main access routes to the public lands area lack easements or rights of way across State Lands. Price Road and Diversion Dam roads are dedicated county roads, and Battle Axe Road is under a right of way to Pinal County. Part of the Whitlow Ranch road is under a right of way for the Red Hill Mine.

The Ray Land Exchange affects several parcels of public land within the RCA which would be conveyed to private ownership in the Copper Butte area (3,988 acres), and two parcels that would be re-conveyed to the United States near Cochran (319 acres) and Walnut Gulch (480 acres). The Walnut Gulch parcel will become an addition to the White Canyon ACEC, and the Cochran parcel will become part of the Gila River SMA. Relocation of the Battle Axe road is anticipated as the Copper Butte Mine is developed in the future, as well as the likely loss of vehicle access across the future mine area of operations to the Gila River east of the Spine. Comments received on the proposed plan requested not designating routes that cross the public lands that would be conveyed under the land exchange. However, until the conveyance, those lands remain public lands under the jurisdiction of the BLM and they will be given travel management designations. These designations will be changed as needed at the time of conveyance or development of the mine.

Management goals related to lands/realty are to accommodate access needs related to existing authorizations, inholdings and public lands generally, and allow public use of service roads related to utilities, unless restriction is necessary for health and safety reasons.

Management actions that may be employed include road or trail easement reservations on land disposal actions where access is needed, cooperative agreements with authorized users on transportation maintenance. Right of way grants to Pinal County for certain main access roads will be pursued. Specify road standards for reconstruction, improvement and maintenance in land use authorizations depending on service level. Execute road and trail maintenance agreements as needed under Adopt-a-Trail program or other means. Right of Entry, Right of Way or Easement acquisition, or access agreements across non-federal lands, including grade crossing at Cochran and near the Kelvin bridge will be pursued on routes identified as public land access routes within the planning area, and considered essential for administrative and public use of public lands.

E. Wildlife and Habitat:

The planning area provides a variety of wildlife habitats which support mule deer, desert bighorn sheep, javelina, mountain lion, coyote, fox, raccoon, quail, dove, bats, gila monster, chuckwalla, various snakes and other reptiles, ducks, great blue heron, warm water fish, and various resident and migratory birds. The area is in Arizona Game and Fish Department (AGFD) Region V and Region VI, Game Management Unit # 37B. The AGFD has several water guzzlers or catchments in the area, and water rights on springs, for wildlife water. Livestock waters, the Gila River and a few side drainages with perennial water are also available to wildlife. The motorized route inventory identifies routes in sensitive habitat areas due to the presence of water, nesting and burrowing habitat, and refuge that wildlife depend on, and general wildlife habitat deterioration from impacts related to transportation and growing recreation use is a major concern.

The density of the inventoried motorized routes in the area is a management concern and is summarized in Table 10 below. Travel route inventory density ranges from 0 to 11 miles of motorized route per square mile section (typ. 640 acres), with a study area-wide mean density is 2.3 miles per section. No standards have been established for road densities in local habitat types. However, wildlife managers and conservation interests consider densities above 2 miles per section to be generally excessive¹². Wildlife species in the area provide hunting and wildlife watching opportunities and access is needed for associated recreational activities. However, access, transportation and recreational use can cause impacts on habitat and displace animals or cause mortality depending on the amount of use, traffic, speed and seasonal factors. Map A-5 in Appendix A highlights the road density according to a range of classifications. Presently, overall route density the planning area is relatively high, and concentrated around local mining districts. While motorized route density is relatively high, the amount of use and traffic the routes receive is relatively low on most of the routes.

Table 10. Study area acreage according to route density miles per mile.

DENSITY CLASS (Miles/Square Mile)	SECTION #	ACRES
0.0	27	16944
Less than 0.5	67	42036
0.5 to 2.0	134	84915
2.0 to 5.0	162	101625

¹² Policy Statement, Arizona Wildlife Federation Federal Travel Management Planning, 2007.

Greater than 5.0	58	36642
------------------	----	-------

Aquatic habitat is found in the Gila River which supports warm water game fish includes catfish and carp. Native fish present in the Gila River include Desert Sucker (*Catostomus clarki*), Sonoran Sucker (*Cotostomus insignis*), and Longfin Dace (*Agosia chrysogaster*). The habitat is limited by low flows which cause the river to practically dry up at times, hot water temperatures and low oxygen. River flows are highly influenced by the operation of the SCIP irrigation system.

Desert wash corridors are important wildlife habitat for many species due to the increased vegetation cover, structure and composition caused by the added moisture collected by the areas natural drainage system. Burrowing habitat is found on the banks, and avian nesting in the trees. Ephemeral runoff and pools create seasonal habitat for amphibians, and are a water source for wildlife. Channels in desert washes in the area vary in width depending on their discharge area, and those wider than 10 to 12 feet are attractive to OHV users, particularly where overhanging vegetation is sparse. The motorized travel route inventory identified approximately 234 miles of route in the study area within natural drainage courses, with 119 miles on public lands (see Appendix A), affecting approximately 300 acres of desert wash habitat study area wide, and 150 acres on public lands. Desert wash habitat is along approximately 1,217 miles of intermittent natural drainage courses in the study area, encompassing approximately 14800 acres.

Table 11: Indicates the approximate acreage of riparian habitat in the planning area, found mainly along the Gila River, and the acreage of desert wash habitat.

Ownership	Riparian acres	Xero-riparian acres
BLM	1510	6334
State	218	5858
Private	205	1196
BOR	-	18
Military	-	177
USFS	-	1174

Goals for management include minimizing potential impacts related to transportation and public use, particularly in sensitive habitat areas. Planned practices include new studies on the effects of primitive roads and traffic on wildlife and habitat; developing guidelines for route density in the area; coordination of travel management and habitat management plans.

Sensitive wildlife species in the area include sonoran desert tortoise and desert bighorn sheep, which require special management under current BLM policy:

1. Sonoran Desert Tortoise:

Sonoran desert tortoise (*Gopherus agassizii*) Category 2 and Category 3 habitat is found in the planning area and is shown on Map 4. Habitat categories were delineated by the BLM according to guidelines for management of desert tortoise

described in the Desert Tortoise Habitat Management Rangewide Plan¹³. The criteria used to categorize tortoise habitats include the 1) importance of the habitat to maintaining viable populations, 2) resolvability of conflicts, 3) tortoise density, and 4) population status (stable, increasing, decreasing). Under the Rangewide Plan, the Bureau is committed to maintaining viable tortoise populations in Category I and Category II habitats. Category III habitat areas are of lower value in maintaining viable populations of tortoises on the public lands, and uncategorized lands are not considered to have significant value. Under current BLM policy¹⁴, compensation may be required for loss of categorized habitat caused by authorized activities according to procedures established in 1992¹⁵. Within the planning area, Category II habitat occurs in the mountainous areas, and Category III encompasses primarily bajada slopes and hills dissected by desert washes. Desert washes have particular importance due to exposure of soil strata in banks that provide burrowing habitat¹⁶. Approximately 92% of the public lands in the planning area are categorized desert tortoise habitat, as shown on the table below, with the majority in Category II habitat. Approximately 88% of the motorized route inventory on BLM lands is in categorized habitat (62%) and much of the rest in Category III habitat (26% of the mileage). According to the FMR study desert tortoise in the area tend to have relatively small ranges, and those with ranges in high traffic areas are at risk of being road kill or poached. Desert tortoises are encountered along the area roads and trails, with infrequent sightings enhancing recreational experiences.

Table 12: Sonoran Desert Tortoise habitat categories in the Middle Gila Canyons Study Area, and motorized travel route inventory according to land ownership.

OWNERSHIP	CAT 2 ACRES	CAT 2 INVENTORY ROUTE MILES	CAT 3 ACRES	CAT 3 INVENTORY ROUTE MILES
Bureau of Land Management	57690	265.4	30636	112.1
State	12274	39.5	38107	188.7
Private	2546	16.7	6267	27.7
Military	0	0	2815	1.1
Bureau of Reclamation	0	0	35	0
TOTAL	72510	467	77860	533

Goals for management include minimizing impacts on desert tortoise habitat related to transportation and public use, and compliance with the Rangewide Plan. Practices

¹³ Desert Tortoise Habitat Management on the Public Lands: A Rangewide Plan, USDI/BLM, Washington D.C., November 1998.

¹⁴ BLM Instruction Memorandum No. AZ-92-46 Strategy for Desert Tortoise Habitat Management on Public Lands in Arizona.

¹⁵ BLM Instruction Memorandum No. AZ-99-008 Supplemental Guidance for Desert Tortoise Compensation.

¹⁶ Desert tortoise habitat use and home range size on the Florence Military Reservation: Final Report. Nongame and Endangered Wildlife Program Technical Report 242, Arizona Game and Fish Department, Phoenix, Arizona, March 2005

include avoiding or minimizing motorized routes in Category II habitat, and in sensitive shelter habitat throughout categorized habitat; completing baseline desert tortoise surveys; implementing desert tortoise guidelines during road construction or maintenance activities; reducing the extent of routes in washes in Category II habitat; establishing speed limit in Category II habitat of 25 MPH; making available visitor information promoting awareness and low-impact ethic in desert tortoise habitat.

2. Desert Bighorn Sheep:

The AGFD evaluated desert bighorn sheep (*Ovis canadensis mexicana*) habitat in the study area and identified ‘Fair’, ‘Good’ to ‘Excellent’ habitat, and is shown on Map H-5 and summarized in the Table below. The most suitable habitat is in the rugged central mountains north of the Gila River, with some suitable habitat south of the river. A population of bighorn sheep from several sources elsewhere in Arizona was released by AGFD in the Rincon area near White Canyon in the fall of 2003, and a second group of bighorn sheep was released in the fall 2007. Radio collar monitoring data from 2003 to 2006¹⁷ indicates the sheep are dispersing within the area’s suitable habitat, and so far appear to prefer the area north of the Gila River, east of Box Canyon, west of SR177 and south of Telegraph Canyon. This area coincides with the most rugged and inaccessible part of the planning area, and was found to be most frequently occupied by bighorn sheep during the monitoring period. Bighorn sheep breeding is occurring, but lambing areas have not been identified. Under current management, the BLM prohibits sheep and goat grazing on public lands within 15 miles of bighorn sheep to prevent transmission of disease that could kill off the population. Bighorn sheep is occasionally encountered along the area roads and trails, with infrequent sightings enhancing the recreational experience of visitors.

Table 13. Bighorn sheep habitat acreage according to habitat suitability.

BIGHORN SHEEP HABITAT QUALITY	ACRES	Motorized Route Inventory MILES
Excellent	5950	23.4
Fair	50497	217.2
Good	24648	74.2
Poor	1966	9.0

Goals for management include minimizing impacts on desert bighorn sheep habitat related to transportation and public use, and cooperate with the AGFD in habitat management. Practices include avoidance of sensitive habitat in motorized route designations; limiting road maintenance to low volume, low speed, primitive standards; on-going monitoring and evaluation of bighorn sheep colonization; making available visitor information, educational or interpretive materials about bighorn sheep; establishing use restrictions on recreational use of goats/sheep in the planning area. The transportation plan and use restrictions will be reviewed when lambing areas are identified to determine if adjustments are necessary.

¹⁷ Mineral Mountain Bighorn Sheep Monitoring Surveys 2003-2006, Arizona Game and Fish Department, 2007.

3. Cactus Ferruginous Pygmy Owl:

The planning area includes habitat suitable for the cactus ferruginous pygmy owl (CFPO, *Glaucidium brasilianum cactorum*), a species recently de-listed by Fish and Wildlife Service (FWS) from threatened and endangered status under the Endangered Species Act (ESA), and includes part of a FWS recovery habitat area as shown on Map H-6 and summarized in the Table below. When the species was listed, surveys were conducted in the planning area related to proposed land uses to determine habitat suitability and if the owl is in the area. Suitable habitat was identified in areas along major drainages with woodland and scrub cover with mature saguaro forest, but the owl was not detected. The area south of the Box Canyon and other similar areas were rated highly suitable.

Goals for management are to monitor the status of the CFPO and comply with the any future biological opinions if the species is listed as threatened and endangered.

Minimize impact on the quality of habitat in the recovery area from route designations and public use.

Practices include surveys for the species in future wildlife studies in the area.

Avoiding land treatments for land use authorizations that alter the habitat suitability, structure or diversity and other existing components required by the owl.

Table 14. Motorized route inventory in the study area within the Fish and Wildlife Service's CFPO recovery area.

CFPO Habitat Unit (USFWS)	Motorized Route Inventory MILES
Unit 5a	66.1
Unit 6	201.8
Unit 7	173.9
Other	129.3

F. Grazing and Range Improvements:

The planning area includes portions of a number of BLM grazing allotments, which are shown on Map H-7 and include: Len (#6197), Sleeping Beauty Mtn (#6099), Rafter Six (#6067), Horse Track (#6111), A-Diamond (#6120), Teacup Ranch (#6188), Cochran (#6133), Myers (#6132), Whitlow (#6032), Helm Wheel (#6244) and Battle Axe (#6059).

The allotments are currently permitted for cattle grazing, and are used and operated as part of ranches involving BLM lands, State lands and private land base properties. Authorized range improvements needing access include fences, livestock water facilities (wells, tanks, pipelines, troughs, impoundments or stock tanks), salt licks, corrals, gathering areas.

Numerous gates and cattleguards are found along the roads at allotment boundary or pasture fence crossings. Access is needed for the use and maintenance of range improvements, use of the range, trailing, and hauling livestock into and out of the area. Public lands in the Gila River Riparian Management Area are closed to grazing in accordance with the current USFWS biological opinion on grazing, with enclosure fencing in place along most of the river corridor. Ranchers currently provide minimal maintenance of the roads and trails to

accommodate their access needs. Concerns related to public recreational use and grazing operations include vandalism to range improvements (damage to watering facilities, OHV use in stock tanks, camping at water sources, fence cutting, damage to gates, leaving gates open and allowing cattle out of pastures or allotments, trespass onto private land, driving of cattle from their pastures, blocking access to water, and littering, among other concerns.

Goals for management are to accommodate access needs for authorized grazing use, and maintenance and operation of range improvements, and reduce potential conflicts between public use and grazing operations. Practices include replacing wire gates with frame gates or cattleguards on main access routes, restricting recreational use at critical range improvement sites, and identifying allowable road and trail maintenance under grazing permits.

G. Minerals/Mining:

The planning area includes mining districts identified in the late 1800's and early 1900's, which were extensively explored and developed, resulting in many of the existing roads to mining claims, extraction and processing sites. Several historic townsites with visible remnants are found in the area (Reymert-DeNoon, Price, Cochran). Besides the road network, much of which is in use today, remnants of historic mineral activity include buildings/structures, equipment, excavations, spoil piles and junk. The historic mines and associated sites with interesting features attract sightseeing (Ajax, Martinez, Columbia, Woodpecker, the 'Coke Ovens'), causing trespass on private land, liability and vandalism problems. The condition of historical mine features is degrading due to weathering and vandalism. Many inactive mine tunnels, shafts and adits are found on public land, state land and private property, some of which were identified in the 2003 travel route inventory adjacent to travel routes and recreation activity areas. Some inactive or abandoned mines present a serious public hazard, and some provide wildlife habitat (bats, owls, rodents and others). Most of the public lands in the planning area are open to mineral entry, mineral leasing and mineral sales, except for the White Canyon Wilderness Area and lands along the Gila River withdrawn for the San Carlos Irrigation District and the potential Twin Buttes Dam project (see land status section). A number of mining claims, and several active and potential mineral extraction operations are found in the area. The mining districts and, potential abandoned or inactive mine hazards are shown on Map H-8. An initial physical hazard assessment was completed in the planning area, and will be used to develop project plans to remediate those hazards under a separate BLM action.

Presently active quarry operations or mineral materials sites on BLM land are found along SR177 south of Superior¹⁸, along Whitlow Ranch Road (Pinal County mineral materials site, Red Hill quarry), and Price Road (National Guard mineral materials site). A proposed decorative stone quarry on public lands along Sandman Road was not authorized¹⁹.

Goals for management related to mining activities include accommodating appropriate access for current and potential operations, access to mining claims, and alleviating potential hazards and safety concerns. Practices include working with quarry/mine operators, mining

¹⁸ Kalamazoo Quarry, BLM AZA #AZA-033727

¹⁹ Proposed KJC Decorative Stone Quarry, KJC Resources, 2008.

claim holders on a case by case basis on proposed road improvement, maintenance, reducing potential conflicts with other public uses. Specifying road standards for quarry haul roads; inventory and evaluation of abandoned and inactive mine hazards and correcting hazardous conditions (physical, chemical), signing. Requiring bat/owl friendly closure devices on shafts/tunnels providing important habitat. Visitor education and interpretation, signing, particularly about mine hazards. Coordination with Arizona Mine Inspector's Office, AGFD, and conservation organizations.

H. Recreation Resources and Use:

The planning area receives a wide range of recreational use, taking place in semi-primitive undeveloped settings found on intermingled BLM and adjacent National Forest and State lands. Landscape features include rugged mountains and canyons, low hills, open desert bajadas, and the Gila River in creosote, palo verde cacti vegetation. The recreational settings and experiences are typical of semi-primitive motorized, semi-primitive non-motorized, and primitive places as defined by the Recreation Opportunity Spectrum (ROS) classification system. BLM lands are a significant part of the land base (about 41%) providing recreation opportunities within the study area, with National Forest lands about 11%, and state trust lands about 36%. Forest lands are available for public recreational use in accordance with National Forest regulations and land use plan²⁰, which also includes transportation and travel management designations. State lands are available for public use with a recreational permit or hunting license²¹. With federal and state land combined, most of the land in study area (89%) is available for public outdoor recreational use with relatively good vehicle access from federal, State and County highways.

Most of the traffic on the travel routes in the planning area is generated by public recreational use, predominantly 4WD, ATV, and motorcycle traffic, with some equestrian, mountain biking and hiking use. Recreational visitors predominantly engage in sightseeing, driving for pleasure, challenge and skill, hunting, rock hounding and gold panning, camping, target shooting, and other outdoor activities. Use and demand for these activities fluctuates depending on the time of day, time of week, and time of year, and is significantly influenced by 'snow bird' residents and winter visitors. The planning area is situated within a one to two hour drive from Phoenix and Tucson, and is near developing rural towns and communities. Visitors originate in the nearby cities, and include international travelers visiting resorts and looking for adventures in the 'old west' settings. Similar opportunities and settings are found north of Phoenix and elsewhere in Arizona, but the planning area is unique because of its location, geographic setting, and natural and cultural attributes.

Recreational use is moderate, with an increasing trend, and primarily related to motorized sightseeing and driving for fun, among other outdoor recreation activities. No specific objectives to produce recreation outcomes or benefits, but they are being produced nevertheless. Benefit based recreation management decisions requiring land use allocations will be considered at the time the Phoenix RMP is revised. In the meantime, the following

²⁰ Tonto National Forest, Globe District Forest Management Plan, 36CFR291, 36CFR295 (being revised in near future)

²¹ Recreational Permit Information, Arizona State Land Department, 2008 (<http://www.land.state.az.us/>).

recreation management opportunities, conditions and concerns were important considerations in developing the proposed transportation and travel management plan:

1. *Visiting semi-primitive outdoor places and sightseeing by a variety of motor vehicle travel, seeing a variety of sonoran desert scenery, wildlife and historic attractions/points of interest:* The area's outstanding Sonoran desert mountain and canyon scenery, panoramic landscapes, vegetation, showy wildflower blooms in spring, geologic features and cultural sites attract sightseeing and generate traffic on the existing travel route network. Popular destinations include historic mines and mining/transportation related sites (Sunset, Ajax, Martinez, Columbia, Copper Basin Railway, others), historic townsites (Reymert-DeNoon, Cochran, Price), and scenic canyons (Box, Martinez, Cottonwood, Walnut, White, Gila River).

The Great Western Trail Association (GWTA) has identified two alternate routes for the Great Western Trail across the project area, and has requested the route for the trail be designated in the BLM transportation plan pursuant an existing Interagency Memorandum of Understanding²². The GWT is intended to accommodate travel by a variety of OHVs (4WD, ATV, UTV, motorcycle) from Mexico to Canada along semi-primitive back country routes. One route follows the Battle Axe-Coke Ovens corridor, and the other a Grayback Mtn. to South Butte corridor, crossing the Gila River near the Ashurst-Hayden Diversion Dam. Once designated, the GWT route may be posted with identification informational/interpretive signs, included in GWTA marketing materials, and partly maintained by volunteer contributions under a cooperative agreement.

2. *Visiting and sightseeing in primitive and semi-primitive outdoor places by non-motorized travel, seeing a variety of sonoran desert scenery, wildlife and historic attractions/points of interest:* The Arizona Trail (for foot, riding livestock, mountain bike travel), crosses the study area from the Picketpost trailhead on National Forest land along US60 to a planned trailhead along the Florence-Kelvin Highway. The planned route for the White Canyon Passage on public lands in the planning area was identified in 2006²³. This passage of the trail was designated into the Arizona State Trails System in November 2006, and is presently under construction with completion planned by 2011. Opportunities for non-motorized primitive travel are available in the White Canyon Wilderness Area and in other remote places away from roads. Opportunities for non motorized travel are also available on the roads and primitive roads, and off the roads and trails. Pressure for hiking, biking and equestrian use is presently light, mainly due to travel distance from population centers, opportunities elsewhere, and lack of awareness. The Pinal County trails plan includes several non-motorized trails linking the Town of Florence with the surrounding lands. Wildlife watching opportunities are found throughout the planning area, with frequent sightings of various species on any given trip.
3. *Driving for pleasure, exploration, challenge, and risk in semi-primitive settings, practicing and developing driving skills on extreme conditions:* The area's extensive

²² Great Western Trail, Memorandum of Understanding (MOU # 02-MU-11046000-037), BLM, USDA USFS and others, 2002.

²³ Arizona Trail White Canyon Passage Development, EA#AZ-420-2006-020, BLM, 2006.

travel route network provides abundant opportunities for driving for pleasure and sport in a variety of route conditions. Because of primitive route conditions, high clearance or 4WD, ATV, trail motorcycle, or specialized vehicles are needed to use most of the travel routes which makes the area attractive to OHV uses. Portions of the main access roads that receive periodic maintenance are generally passable by passenger car and combination trailer vehicle. The area attracts sport 4WD driving over obstacle courses (i.e. rock crawling) in a system of ‘technical trails’. ATV and motorcycle users have set up informal short tracks and play areas in several places. OHV and sport driving pressure is moderate to high, and increasing due to the high quality opportunities, accessibility and growing exposure. The planning area is among several destinations in Arizona that provide outstanding opportunities for OHV use important to many Arizona residents and out of state seasonal visitors. A review of popular OHV trail destinations based on widely available information and BLM route inventories suggests that the planning area is among the top destinations where opportunities for multiple trips on different routes would take over one to two weeks to visit them all. For a number of years, the area has been the venue for organized 4WD club OHV group events, particularly in the area north of the Gila River. Organized OHV events began to be permitted pursuant 43CFR8372 (now 43CFR2930) in the area in the year 2000. Past organized group events have been relatively large, requiring camping and staging areas large enough to accommodate 200-300 participants at a time. Participants in these events are from throughout Arizona, and out of state from throughout the country. Existing staging areas important for group events are located on State land along Mineral Mountain Rd. and Cottonwood Canyon Rd. at the sites used by the Arizona National Guard for military artillery training exercises where extensive disturbed area is available for parking, staging and camping. Several competitive rock crawling events have been permitted, and a commercial operation is permitted to conduct sightseeing ATV tours

4. *Hunting desert game species in semi-primitive and primitive settings, with good opportunity to encounter wildlife and to get away from crowds:* The planning area is within Arizona AGFD’s Game Management Unit 37B, with game species attracting hunters including javalina, deer, quail, dove, rabbit, waterfowl, and predators. Bighorn sheep introduced in the area in 2003 is not yet open to hunting. All hunting activities and taking of game is subject to AGFD’s regulations, which reference compliance with BLM travel management designations. Hunting pressure is moderate during the various hunting seasons, when hunters may be seen throughout the area along the roads and trails, and many turnouts are occupied by camps or trailhead staging activities. The extensive travel route network provides hunting access for a variety of vehicles to most of the lands in the area, and on foot away from roads and trails. Several places are available that provide primitive non-motorized settings with remote, difficult access, particularly in the vicinity of the White Canyon Wilderness. The initial days of hunting season see the greatest hunting pressure, and are the likeliest times conflicts could occur with sightseeing related travel, particularly along the more heavily traveled routes.

Under Arizona Game and Fish Department policies, hunters are allowed to drive cross country to retrieve large animal kills in order to facilitate efficient recovery and prevent

spoilage of game meat. This policy applies on State trust lands, but the practice of cross country motor vehicle travel for game retrieval is *prohibited* on BLM lands under current regulations. Exceptions to this prohibition may be authorized on a case-by-case basis by written permission of the Field Manager.

5. *Water based activities floating, boating, swimming/wading, fishing:* The Gila River provides floating or boating opportunities in Class 1 and 2 whitewater. Common navigation hazards include rocky, shallow shoals and overhanging or submerged tree or branch strainers, a barb wire fence across the river, and several bridges. The river is suitable for small craft (canoe, kayak, small raft or outboard at times), and floating/boating use is very light. Floating opportunities are available in the spring-summer months when flows are usually suitable, depending on the water year and irrigation practices of the SCIP. Unimproved river access points are found near the Florence-Kelvin bridge, at Cochran and Whitlow Ranch, and several other places on the north side of the river at the mouth of large side drainages. Access to adjacent land for stop-overs are limited by steep banks and dense vegetation, but are available at confluence of major side drainages and occasional gravel/sand bars or terraces. The river also provides warm water fishing opportunities for catfish and carp. Fishing pressure is light due to the relatively poor fishery and inaccessibility of the river. The pool above the Ashurst-Hayden dam is a relatively popular local fishing spot, with access at Cochran and a few other places along the river.

6. *Recreational use amount and distribution:* Public lands in the planning area receive approximately 65,000 to 70,000 recreational visits annually, based on samples of traffic entering and leaving the project area from 2003-2006. While visitation fluctuates seasonally, it occurs year-round with the majority of the use in the fall, winter and spring months when climate conditions are favorable and snow birds and winter visitors are in the area. Visitation occurs throughout the week, with a noticeable increase on weekends and holidays. Arrivals and departures occur throughout the day and night, with the majority of activity between 06:00 and 17:00 hours. Visitors originate in the Phoenix and Tucson areas, and traffic is heaviest on the western part of the planning area, with most of the area's traffic entering via Cottonwood Canyon and Mineral Mountain and Price roads. The traffic data samples suggest there has been a noticeable increase (approximately 20%) in the volume of use in the project area since 2003. Recreational demand and visitation is influenced by external socio-economic factors like the price of fuel, availability of similar or other opportunities, and growth, marketing and other factors. Recreational use is expected to continue to increase as population grows in the region, as adjacent lands become urbanized, and as public awareness of the area increases.

The 2003 route inventory identified the apparent amount of use or traffic on the routes based on visual indicators, and the traffic count sampling conducted from 2003-07 indicate the majority of recreational use occurs in the western central part of the planning area. Map H-9 highlights the amount of use including the level of activity entering and leaving the planning area based on traffic sampling.

Table15: The table below shows the annual average daily traffic (ADT) and peak daily traffic (DT) for key public land access routes during a sampling period in 2007. This season showed a noticeable increase in the level of activity from previous years, . The highest amount occurs along Cottonwood Canyon Rd., Price/Box Canyon Rd.,

Cochran, Whitlow Ranch. More recent traffic samples on these and other access routes indicate increases in volume.

SAMPLE SITE	Annual ADT	Peak DT
Battleaxe Rd	0.6	10
Sandman Rd	9.4	29
Cottonwood Canyon	26.7	250
Box Canyon	18.4	57
Mineral Mtn Rd	20.9	369
Cochran Rd	17.6	41
Whitlow Ranch Rd	27.3	34

7. *Existing Recreation Activity Sites/Areas*: Dispersed recreation sites and activity areas were identified in the 2003 route inventory, and are shown on Map H-10, including small and large campsites, staging areas, trailheads, OHV play areas and tracks, hill climbs, target shooting sites, scenic overlooks and sites with historical or other interest. Under BLM custodial management, users may drive a vehicle off the roadway up to 100 ft. to park and set up a camp or other recreational activity. New campsites and target shooting sites have been created by users, causing new impacts on vegetation and accumulation of debris, particularly along the main access routes. Goals for management are to preserve vehicle access to dispersed recreation sites and activity areas, unless use restrictions are needed to prevent unacceptable impacts on resources or avoid conflicts with other uses. The area will be monitored for proliferation of impacts and problems and cleanups or corrective action will be taken as needed while preserving their undeveloped, primitive character.

8. *Current Recreation Management*: Public lands in the planning area are under basic custodial management, and are part of the Tucson Field Office Extensive Recreation Management Area Recreation management activities in the area include law enforcement, visitor services and permits, resource surveys, small projects and clean-ups and outreach activities with users. Current management is generally aimed at basic resource protection and accommodating allowable uses under current public land regulations and policy, and the Phoenix RMP, and developing an official access, transportation and travel management plan is a high priority. Policy and guidance for travel management is provided by national strategic plans for motorized vehicle use²⁴, for mountain bike use²⁵, for scenic and historic trails²⁶, and a handbook for comprehensive travel management²⁷. Law enforcement coverage is provided by the Gila District and Tucson Field Office Rangers, and the Pinal County Sheriff under a BLM agreement, and the Arizona Game and Fish Department. Visitor services and recreation management are provided by the Tucson Field Office manager.

Goals for recreation management include the continued availability of public lands for public recreational use, providing opportunities for visitors to engage in activities presently occurring, but with reduced potential impacts on areas with sensitive resource values. Under current travel management guidance, inventoried routes with extreme conditions serving primarily a recreational OHV purpose may be managed as special OHV sites, rather than designating them as transportation assets. A goal in the TTMP is to identify those that are most suitable for this use with the least potential impacts on known resources as special OHV sites, managed under site specific plans. Measures will be taken to reduce conflicts with other land use management objectives, other uses or users, promote safety and foster aware, sensitive, and responsible visitor behavior. Management practices that will be implemented include monitoring recreation use and impacts, signing, visitor education and interpretation, partnerships with other

²⁴ National Management Strategy for Motorized Vehicle Use on Public lands, USDI BLM, 2001

²⁵ National Mountain Bicycling Strategic Action Plan, USDI BLM, 2002

²⁶ National Scenic and Historic Trails Strategy and Work Plan, USDI BLM, 2006

²⁷ Comprehensive Travel and Transportation Management Handbook. Bureau of Land Management, Washington 2008 (Draft)

stakeholders (GFD, ASLD, State Parks, recreation groups, conservation groups, industry/business, etc.), road and trail condition surveys and maintenance to correct deficiencies, and easement acquisition/agreements for ensuring legal public access. BLM presence in the area will be expanded by working with partners and volunteers to address management needs, and providing law enforcement and visitor services, developing visitor information and education programs, completing road/trail maintenance or restoration.

9. *Visitor Information/Marketing:* General visitor information about access and recreation opportunities in the planning area is provided by the BLM, National Forest, State Parks, and Game and Fish Department, but no access guide is available for the planning area.. Current BLM visitor and user outreach is limited to working with volunteers and organized groups to promote Tread Lightly and Leave No trace ethics. Interpretation programs are limited to minor signing at a few special sites and occasional field trips. Access and area information is developed by users and shared with others through the internet and special interest publications²⁸, including books and magazines featuring places and attractions within the planning area for motorized and non-motorized recreation. Organized OHV groups maintain web sites with descriptions of the area and trip routes widely known by visitors.

A goal for management is to make available a visitor guide with a road map to promote awareness of legal access available, management concerns and designations, use restrictions, visitor use ethics, as well as interpretive information to enhance enjoyment of the area.

10. *Partnerships and Volunteers:* Current partnership agreements include the Arizona National Scenic Trail development project with Arizona State Parks and the Arizona Trails association; Arizona State Parks OHV Small Projects and OHV Ambassador Program for completing visitor outreach, monitoring, clean ups, abandone/inactive mine hazard assessments, and other small projects; and the Arizona Game and Fish Department for publishing an access guide and travel map following completion of the plan. Partnerships will be maintained and expanded under the proposed plan under the Bureau's challenge cost share or similar program to address other management needs and carry out planned actions.
11. *Accessibility for persons with mobility impairments:* The ability of OHVs to operate on extremely primitive road conditions make much of the area accessible to anyone who can operate or ride a 4WD, ATV or UTV, including persons with mobility impairments who enjoy outdoor recreation activities. The grounds at most of the recreation activity areas along the travel routes are relatively flat, but have uneven surfaces and obstructions from natural vegetation, soils and abrupt changes in grade, making walking and moving about with assistive devices difficult and in some cases unsafe. The BLM is required to comply with the Americans with Disabilities Act (ADA) must make reasonable accommodations for persons with disabilities in the agencies programs and activities, including recreation management programs. However, the planning area is undeveloped, and primitive

²⁸ Guide to Arizona Backroads & 4-Wheel Drive Trails, Wells, Charles A., FunTreks Inc., 2001

conditions are expected to be encountered by visitors. Goals for management of custodial, undeveloped areas include providing parking turnouts along the roads and primitive roads that are conducive to relatively barrier free conditions for pedestrian movement on the grounds while engaged in camping or activities, and preserving an extensive network of motorized route through various landscape settings to allow access for recreational sightseeing by everyone including persons with mobility impairments.

I. Related Land Use and Transportation Improvement Plans and Projects:

1. *Local Land Use Planning:* The planning area is adjacent to the Superstition Vistas Study Area investigated by the Morrison Institute²⁹ for potential future high density development (residential, commercial, industrial, and associated infrastructure). Development in the area is subject to the Pinal Comprehensive Plan, which is presently undergoing revision³⁰ to anticipate major development and growth from Apache Junction towards Florence (and elsewhere in eastern Pinal County) within the next 10 to 20 years. Pinal County has adopted an open space and trails plan, which identifies several motorized and non-motorized trails in the planning area, including several routes important for access to the planning area. Pinal County has conducted transportation studies related to land use planning and anticipated growth in the eastern part of the county. Major changes are foreseen in the area's public highways within the next 10 to 20 years, including significant changes in regional and local traffic, and widening of roadways identified in Pinal County's transportation studies and recommended plans³¹. The Copper Basin Railway has been studied by the Town of Florence and Pinal County interests for its scenic excursion tours and commuter train potential³². The scenic tour route would originate in Florence and travel up the Gila River to Kerny, with potential stop over sites within the planning area for hiking, picnicking or camping³³.
2. *Arizona State Parks Statewide Trails Plan:* The Arizona Trail was designated into the State Trails system. The Arizona State Park's statewide trails plan approved in 2005 identifies priorities for State Parks in providing motorized and non-motorized trail opportunities. Studies and surveys conducted for the plan identify motorized trail and non-motorized trail needs, demographics and priorities³⁴. Top priorities in the State motorized trails plan are to Develop New Trails and Motorized Recreation Opportunities; Protect Access to Trails/Keep Trails Open; Renovation and Maintenance of Existing Trails, and Education and Trail Etiquette. Secondary

²⁹ The Future at Pinal, Making Choices / Making Places. Morrison Institute for Public Policy, Arizona State University, July 2007.

³⁰ We Create our Future, Pinal County Comprehensive Plan, Draft, Pinal County Board of Supervisors, June 2008.

³¹ Pinal County Small Area Transportation Study Final Report. Prepared For: Pinal County Development Services, Department Of Public Works, Kirkham Michael Consulting Engineers (Km Project # 0504900), August 2006.

³² State of Arizona Railroad Inventory and Assessment 2007, A Final Report To Arizona Department of Transportation. R.L. Banks & Associates, Inc., March 2007

³³ Town of Florence, Florence Area General Plan Update, 2003

³⁴ Arizona Trails 2005. Statewide Motorized and Nonmotorized Trails Plan, November 2004

priorities are Enforcement of Existing Rules and Regulations/Monitoring; Trail Information and Maps; and Comprehensive Planning.

Top priorities in the non-motorized trails plan are Renovation and Maintenance of Existing Trails; Protecting Access to Trails/Acquiring Land for Public Access; Developing Signage and Support Facilities. Secondary priorities are Comprehensive Planning; Trail Information/Maps; Education and Trail Etiquette.

3. *Other Projects:* In the short term, several road improvement projects on existing roads on public land and adjacent lands are anticipated to accommodate changing land uses. These projects are in the planning stages and will be completed under pending applications for BLM authorizations:
 - a. Cottonwood Canyon Road and a side road are proposed for major reconstruction and paving to accommodate garbage hauling truck traffic from SR79 to the proposed landfill on private land on Mineral Mountain³⁵). A portion of the road proposed for reconstruction is on BLM lands, and a right of way will be required for use, maintenance and operation of the road.
 - b. Sandman Road may be widened and improved for quarry haul truck traffic from Price Road to potential quarry development. The proposed KJC quarry on BLM lands was not authorized, but development may occur on non-BLM lands.
 - c. Battle Axe Road will be relocated from SR177 to Walnut Canyon to accommodate Asarco's Copper Butte Mine development. This relocation is contingent on development of Asarco's mining operations and the Ray Land exchange. New road construction and abandonment of the existing road will be according to future project planning and mitigation, NEPA review, surveys and clearances.

Goals for management related to future road improvement projects are to consider them on a case by case basis in accordance to current public land laws and regulations, and to implement management practices identified in the proposed plan as needed through project development requirements or stipulations. Practices include attaching terms and conditions to rights of ways to project public safety, prevent, avoid or mitigate environmental or land use impacts and conflicts. Developing projects in partnership with other transportation, trail and recreation interests that have similar goals and programs.

J. Rangeland Health:

Land health standards were established to describe the condition of biological and physical components and characteristics of public lands³⁶. The standards address upland sites, riparian and wetland sites, and the desired resource conditions, and apply to all resources and uses including recreation and transportation. Existing roads and trails, their use and maintenance, require changes in natural conditions to support traffic, and typically a loss of normal soil function, drainage and production of vegetation in the travelway is required on approximately 1.25 acres per mile of primitive single lane road. Roads can affect stream

³⁵ Proposed Mineral Mountain Landfill, Pinal County Zoning Case, 2007.

³⁶ Arizona Standards for Rangeland Health and Guidelines for Grazing Administration, USDI BLM, 1997.

channel morphology, and turn into ditches by diverting and concentrating surface runoff, and triggering erosion. Recreation use causes soil/vegetation disturbance on abutting lands, which can be seen on a number of rangeland health indicators (loss of vegetation and ground cover, organic litter, loamy topsoil, erosion rills and gullies, etc.). Guidelines for OHV recreation are being developed by the Arizona BLM Resource Advisory Council to ensure standards are achieved, or that progress is made towards achieving them³⁷ while managing public land to accommodate OHV recreation.

Goals for management are to implement the OHV guidelines and recommended practices in Appendix K in addressing route and activity area conditions a case by case basis. Effects of transportation and recreation use will be considered when conducting rangeland health assessments on grazing allotments. Erosion and drainage problems will be corrected for the route system, and routes identified for reclamation.

³⁷ Arizona BLM Guidelines for Off Highway Vehicle (OHV) Recreation Management, BLM Resource Advisory Council, February 2007.

K. Air Quality:

The Environmental Protection Agency (EPA) established primary and secondary National Ambient Air Quality Standards (NAAQS) for six criteria pollutants (carbon monoxide, nitrogen dioxide, particulate matter, ozone, sulfur dioxide, and lead). Primary standards are adopted to protect public health (the health of "sensitive" populations such as asthmatics, children, and the elderly). Secondary standards are adopted to protect public welfare (protection against decreased visibility, damage to animals, crops, vegetation, and buildings). Arizona's Department of Environmental Quality (ADEQ) has adopted the federal NAAQS as the state Ambient Air Quality standards. The Pinal County Air Quality Control District (PACQCD) administers the County's air quality program and regulations pursuant ARS 49-402, and operates a particulate matter monitoring station near Riverside. The eastern part of the study area is within the Hayden PM10 non-attainment area (T2S R13E, T3S R13E, T4S R13E, T5S R13E). Air quality standards are likely to change in the western part of the planning area, with pollution from fugitive dust a major concern.

Travel routes in the planning area are all unpaved, natural surfaced. The travelway material varies according to the soil type traversed, and ranges from silt, sand, and gravel/cobble to bedrock and was noted on the 2003 travel route inventory. Approximately 100.6 miles were noted in the study area wide route inventory as having fine grained soils prone to generation of fugitive dust, with approximately 11.7 miles occurring on BLM lands, according to the soil survey recently completed for eastern Pinal County³⁸. A relatively small percentage of the motorized route inventory is on dust prone soils on BLM lands as shown on the Table below. Fine-grained silts and silty clay soils are highly prone to generating fugitive dust under traffic, or when otherwise disturbed. Dust prone soils are primarily found in the Gila River floodplain, and in the creosote flats and limy bajadas, particularly west of Mineral Mountain on adjacent State Trust lands traversed by the access routes to the project area.

Table 16. Motorized route inventory in the study area and planning area on soils with characteristics prone to fugitive dust (WEG 2 - 6).

WIND ERODIBILITY GROUP	ENTIRE STUDY AREA MILES	BLM PLANNING AREA MILES	COMMENTS
2	0.8	0.4	MOST SUSCEPTIBLE TO WIND EROSION
3	293.4	105.5	
4	41.8	8.0	
5	39.7	14.0	
6	229.7	101.3	SUSCEPTIBLE TO WIND EROSION
7	24.6	3.1	
8	213.3	156.8	LEAST SUSCEPTIBLE TO WIND EROSION
NR	44.9	27.0	NOT SUSCEPTIBLE TO WIND EROSION
TOTAL	888.2	416.1	

Goals for management related to air quality factors include minimizing fugitive dust emissions related to transportation and public use on public lands in the planning area. Practices include avoiding designating motorized vehicle routes in highly dust-prone soils (soils with Wind Erodibility Group of 1 to 6 as defined by the USDA/NRCS. Capping with aggregate or other pavement routes and intensive use activity areas that must be located on highly dust-prone soils; restoration of vegetation cover on disturbed areas not serving an access or land use purpose or activity. Speed limit of 25 MPH on unpaved routes in dust-prone soils.

L. Water Quality:

The Clean Water Act establishes standards for water quality of streams and lakes that provide the basis for controlling discharge of pollutants to waters of the United States, which includes perennial and ephemeral streams. The Arizona Department of Environmental Quality (ADEQ) is the regulatory agency responsible for administering water quality programs, including the Arizona Pollutant Discharge Elimination System (AZPDES) Permit Program. A Permit is required for facilities that discharge pollutants from any point source into waters of the United States, including construction activities and certain industrial activities. There is no regulatory program for non-point source pollution discharges.

Roads, trails and public use activity areas contribute pollution carried into drainage courses the Gila River, existing ditches/canals, and livestock water reservoirs. Pollution includes sediment from disturbed areas related to the existing roads and trails, road maintenance activities, bacteria from grazing livestock, wildlife and/or recreational use, metals from historic mines and mineral prospects, road cuts through ore bodies, and motor vehicle lubricants and fluids from accidents or leaks due to improper vehicle maintenance. Under current management, BLM may implement actions to generally increase ground cover and ultimately reduce erosion, sediment yield and salinity contributions from public land.

Storm runoff with sediment from the travel route network enters drainages, some of which eventually enter the Gila River. The Ashurst-Hayden dam diverts the river flows into the Florence-Casa Grande canal, and the Florence Canal, and the North Side Canals operated by the Bureau of Indian Affairs' San Carlos Irrigation Project. There is potential for pollution of springs, pool habitat, and perennial streams from sediment and possible leaks of motor vehicle fluids on routes in desert wash and canyon bottoms. Leaky vehicles dripping engine oil, transmission fluid, or coolant are used in area. Vehicle fluid spills occur in rollovers. Because the area attracts sport 4WD driving over extreme obstacles, rollovers and damage to vehicles are common on the technical trails. Since extreme 4WD trails are in washes or canyon bottoms, there is a risk of toxic spills entering seasonal running water, and pool habitat that supports wildlife.

Goals for management related to water quality factors include minimizing watershed impacts related to transportation and public use, and correct any significant problems that may exist. Practices include: inventory/evaluation of sediment sources related to transportation or public use causing water quality problems. Corrective action on roads and trails with high to moderate erosion risk. Road/trail maintenance or improvement projects to control drainage

and stabilize erosion. Installing sediment traps/detention basins. Containment and clean up stipulations/requirements for vehicles using an extreme primitive road.

M. Threatened and Endangered (T&E) and Special Status Species:

1. **Threatened and Endangered Species:** Critical habitats designated by the USFWS for the spikedace and Southwestern willow flycatcher, both T&E species, are found along the Gila River within the planning area³⁹. The spikedace has not been collected during surveys since the early 1990's is not present, but the southwestern willow flycatcher has been found in recent surveys. Several T & E species may occur in the area, including yellow-billed cuckoo, lesser long-nosed bat, and candidate species Mexican garter snake and Acuna cactus. Under current management, Gila chub will eventually be introduced into Martinez Canyon; this action has been consulted on already with the USFWS. Both longfin dace and speckled dace have already been introduced and appear to survive in upper Martinez Canyon. Monitoring of the reintroduced fish population failed to find any fish in February 2010 due to loss of pool habitat caused by persisting drought.
2. **Special Status Species:** Several Special Status Species occur in the Gila River including longfin dace, Sonora sucker, desert sucker and lowland leopard frog. The spikedace is a federally listed species (threatened) considered to have a small resident population⁴⁰. The habitat for spikedace was considered to be adequate for designation of 39 miles of the Gila River from the Ashurst-Hayden Dam to the confluence with the San Pedro River. Habitat is limited by drought and interruption of base flows which cause the river to practically dry up. Stream flows, critical for listed species habitat quality on the section of the Gila River through the project area, are controlled by water management practices required for the San Carlos Irrigation District. Water is stored by the Coolidge Dam, released as needed, and diverted at the Ashurst-Hayden dam to meet irrigation demands in the farms west of Florence in the Coolidge area. At times, the river dries up in the project area and the stream bed is exposed. When this happens, OHV driving occurs up/down the river in dry sections, and in remaining pools.

The existing travel route network has altered over time the habitat characteristics along the routes from travelway clearing, traffic and use/human activity along the travel routes. Increasing traffic and human could alter existing habitat characteristics further which may affect wildlife including threatened and endangered species.

N. Floodplains:

Floodplain land is found along the relatively narrow Gila River valley, generally coinciding with the Gila River Riparian Management Area (see Special Management Areas). High flows on the Gila River typically occur from March to September winter months, with peaks occurring in the fall and winter months, depending on water calls for irrigation by the San Carlos Irrigation District. Major flood events with flows over 40,000 cubic feet per second

³⁹ USFWS, 2008.

⁴⁰ Federal Register 2000 65(80) 24328, USFWS, 2000.

(cfs) occurred in 1983 and 1993, when the river stage overtopped the Florence-Kelvin Bridge and the entire valley was inundated. River flows have been in drought cycles since the 1998 water year. Flooding in the area's intermittent washes normally occurs during the summer monsoon rains, but may also occur during winter storms, during events with precipitation of 1 to 2 inches an hour. The steep mountainous terrain drains water rapidly and flash floods can occur during intense storms, posing hazards to travelers/visitors, and causing erosion of travel routes and other disturbed areas.

Goals for management related to floodplain management include protecting resource values and reducing public hazard risk by minimizing transportation and public use activity related disturbance and occupancy in flood plain or flood prone areas. Practices include monitoring the Gila River access points and taking corrective action on a case by case basis. Restoration of existing disturbance related to transportation, OHV use will be completed on routes not designated in the transportation network.

O. Cultural Resources:

Surveys conducted over the past 30-40 years identify extensive historic and prehistoric cultural resource values throughout the planning area, with much of the area remaining unsurveyed for cultural resources. The Gila River corridor and adjacent land, and the Reymert-DeNoon Townsite are identified as Cultural Resource Management Areas (CRMAs) in the current RMP. Surveys along the Gila River were conducted in the 1970's for the Bureau of Reclamation Twin Buttes Dam project, and other surveys have been conducted related to various land use authorizations over time. Recently, surveys have been conducted on approximately 100 miles of route inventory on public lands for transportation planning purposes⁴¹.

Historic sites present include historic townsites (Price, Cochran, Reymert-DeNoon), mines (notably the Martinez, Columbia, Silverbell, Ajax, Woodpecker, Sunset, Herring, Red Mtn. and others), mineral prospects, homesteads, 'Coke' ovens, stagecoach roads and stops, trails, telegraph and electric lines, ditches, range improvements, windmills, and the railroad. Some of the historic sites are popular sightseeing attractions, with visible remnants of structures, equipment and artifacts. Prehistoric sites include agricultural and habitation areas, and petroglyph sites. Some of the cultural sites identified in the surveys are considered eligible for listing in the National Register of Historic Places, and many are identified as valuable for research. The condition of cultural resource sites varies, with some being degraded by weathering and vandalism, digging by animals, looting, and artifact collection.

Throughout the study area, approximately 292 miles of inventoried motorized travel route are in areas previously surveyed, and approximately 166 miles on BLM lands have been surveyed. Of the surveyed routes, approximately 41 miles are located on or across a known cultural resource site in the study area, and 21 miles are on BLM lands.

Goals for management related to cultural resource management factors include preserving resource values, avoiding designating routes on or across significant sites (those found eligible for listing in the National Register of Historic Places). Practices include on-going

⁴¹ Arizona State Museum data, BLM TFO Archaeological surveys, 2007.

survey and resource evaluation, monitoring and documentation of known sites. Visitor education, interpretation and signing to promote sensitivity and sense of stewardship or responsibility for protecting resource values among visitors. Consultation with the Arizona State Historic Preservation Officer and Arizona Southern Tribes in accordance with current procedures.

P. Native American Religious Concerns:

Some of the prehistoric archaeological sites found in the project area may be of Native American Religious Concern (NARC), particularly petroglyph sites. Representatives of the Four Southern Tribes visited some of these sites being impacted by motorized travel (particularly on Cottonwood Road) with BLM employees during plan preparation to discuss concerns. BLM also met with Tribal representatives to present information with regard to the travel plan as a whole. Tribal representatives will continue to be consulted during the planning and environmental review of the transportation plan, and during plan implementation. Known sites of concern are avoided by the motorized route designations, and potential impacts and mitigation measures will be identified as needed.

Goals for management related to NARC factors include avoiding designating routes on or across significant sites (those found eligible for listing in the National Register of Historic Places). Practices include additional cultural resource surveys/studies, monitoring and documentation of known sites, visitor education, interpretation and signing to promote sensitivity and sense of responsibility for protecting resource values among visitors. Consultation with the Arizona State Historic Preservation Officer and Arizona Southern Tribes will continue in accordance with current procedures.

Q. Wetlands/Riparian Zones:

The Gila River from the Kelvin Bridge to the Ashurst-Hayden Dam is identified as a Special Management Area (SMA), and the White Canyon ACEC is designated in the current RMP in part due to riparian resource values. In addition to the Gila River, riparian areas are found along Mineral Creek, Walnut Gulch, White Canyon, Martinez Canyon, Box Canyon, and at scattered springs and seeps, totaling approximately 1,510 acres on BLM land. Proper functioning condition assessments have been conducted on some of the riparian areas, and their condition varies from properly functioning, functioning at risk, to not properly functioning. Factors causing riparian areas to be functioning at risk, or not properly functioning include livestock grazing, presence of roads, recreational and OHV use. The current USFWS biological opinion on grazing requires fencing to exclude livestock from the Gila River SMA, except at approved water access lanes in various places.

Map H-11 shows the motorized travel route inventory in relation to riparian habitat areas on public lands and desert wash (xero-riparian) areas throughout the study area. Study area-wide, approximately 25 miles of inventoried motorized route are in or across a riparian area, with 21 miles located on BLM land. Throughout the study area, there are approximately 1,218 miles of desert washes with xero-riparian values, and 523 miles are located on BLM land. Study area-wide, approximately 247 miles of inventoried motorized travel routes are in washes, with 130 miles on BLM land. Motorized use occurs in the Gila River channel when stream flows are low enough that gravel bars and the river bottom are exposed, which

typically occurs during the fall, winter and spring, especially during periods of drought. The Gila River flows seasonally depending on irrigation demand and operation by the San Carlos Irrigation Project, and provides opportunities for small craft boating. The River is lightly used for canoeing and kayaking, with boating access points at the Kelvin Bridge, Cochran and Whitlow Ranch. Several Gila River ford crossings that are passable during low river flows are found below the Ashurst-Hayden dam, near North Butte, Cochran, and near Copper Butte.

Goals for management related to wetlands and riparian area factors include: avoid designating transportation assets in wetland and riparian areas, localize and minimize potential impacts when unavoidable. Practices include monitoring and baseline conditions surveys and studies on existing resource values, traffic control and barriers on routes across sensitive areas, restrictions on adjacent turnouts (closure to camping, parking, campfires), visitor education and interpretation, signing, fencing, restoration of existing disturbed or damaged areas, realignment or reconstruction of roads to minimize damage. Coordination with the SCIP on management of the Gila River corridor. Compliance with Corps of Engineers permitting requirements for projects and activities within jurisdictional areas. Consultation with USFWS according to current procedure.

R. Soils:

The planning is characterized by rugged mountains, canyons and valleys, and rolling terraces and bajada slopes. Soil survey is available for the western part of study area, with surveys in the development stage for most of the planning area. Soils vary from deep valley alluviums along the Gila River and side drainage basins to shallow soils with rock outcrop. Soil types along the limy fans, loamy terraces, and valley bottoms are fine grained (silts and clays) and are extremely susceptible to gully erosion if the vegetation cover has been reduced by land use activities. These soils may also lack sufficient cover of surface cobbles and stones to protect the soils from wind erosion. Vehicle use can produce large amounts of dust on fine grained soils when dry. These soils are poorly drained and prone to muddy conditions that can get a motorist stranded, have low bearing strength and rut easily when wet. Soils in the mountainous portions of the project area, although steep and rocky, are generally more resistant to erosion due to gravel and rock cover on the soil and roadbed surface. Mountain roads wash out at side drainage crossings and the travelway cover is downcut and washed away by intercepted flows where drainage is ineffective.

Past construction and continued maintenance, and traffic keeps susceptible soils compacted and vegetation cover may be completely lost in the travel-way for the life of the travel route, with impacts more severe as traffic volume increases. Vegetation cover on many routes that were constructed for mineral exploration or other past activities in the early 1900's have begun to naturally reclaim the bare ground, but some disturbed areas are still discernible. The travel-way on nearly all the routes in the project area are of natural soil surface, which varies according to soil type from silt to gravelly and stony, and bedrock in places. Because some soils are more resistant to erosion than others, some routes or sections of routes are in stable condition while others are eroding and becoming impassable.

Roadways in the planning area tend to intercept and redirect storm surface runoff as it flows overland towards the natural washes and drainages. Soil erosion in and along the travel-way is common on many travel-routes and has led to roadbeds to become wide flat bottom ditches below the adjacent ground. Fine material cover in the road bed has been lost down to bedrock in places, and head cutting commonly occurs across and along the travel-way especially during the summer monsoon storms with high precipitation in a short duration. Storms with precipitation over 2” in an hour can cause widespread road damage in the area. The loss of roadbed material has affected the usability of some routes over the past five year, becoming rougher and changing the type of vehicle that can use them.

Road drainage is absent or inadequate on most roads in the area, with water bars and water turnouts absent or breached by erosion. Rills and gullies spread outward from the roadway as the water breaks through berms and continues downhill, eroding embankments in places. Roads intercepting and diverting water cause additional deterioration of ecological sites by removing some moisture from dependent plant communities.

The soil survey⁴² for public lands in the planning area was completed by the USDA NRCS in 2009, and provided new information used in the proposed plan and environmental assessment. Of particular importance to transportation and travel management are soils with characteristics prone to generation of fugitive dust.

Goals for management related to soil factors include ensuring usability of routes for intended purposes by stabilizing erosion by improving road drainage. Controlling or reducing fugitive dust related to transportation routes and public use activity areas. Controlling or reducing loss of soil productivity and sedimentation sources on public land. Practices that will be implemented include: condition surveys to identify damage or safety problems, inventory roads and trails with high to moderate erosion risk, corrective road and trail maintenance to minimum standards based on resource protection priorities and erosion risk. Maintenance activities may include the travelway, drainage, ditching, waterbars, sediment traps, hardening low water crossings, and other measures depending on site conditions.

S. Vegetation:

The study area is mostly in the Sonoran Basin and Range Major Land Resource Area (MLRA 40-2AZ in the western flats, and 40-1AZ in the central mountains), with Arizona Interior Chaparral (38-1AZ) in the White Canyon – Picketpost area⁴³. Vegetation in the planning area is typical of the upper Sonoran Desert at elevations ranging from 1,200’ to 3,800’, with dominant plants including saguaro cactus, bursage, desert wolfberry, ocotillo, cholla, desert saltbush, mesquite, palo verde, ironwood, brittlebush, burroweed, pricklypear, desert broom, mormon tea and creosotebush, acacia, and jojoba. The general major vegetation types are shown on Map H-12. The climate is hot and dry in the summer and winters are mild. The average annual precipitation of 8 to 12 inches occurs about 50% in the summer ‘monsoon’ storms, and 50% in the winter storms. Summer monsoons storms occur from July - August usually as brief, intense thunderstorms. Cool season moisture tends to

⁴² Soil Survey of Eastern Pinal and Southern Gila Counties, Arizona; USDA Natural Resources Conservation Service, 2009.

⁴³ Land Resource Regions and Major Land Resource Areas of the United States, the Caribbean, and the Pacific Basin, Handbook 296, USDA, 2006.

fall in more widespread storms of longer duration and lower intensity and produces a variety of annual grasses and forbs. Vegetation productivity is often low and seasonal, and in response to precipitation with desert plants leafing out or blooming at various times of the year depending on the species. Riparian vegetation associations are found along the Gila River and a spots along a few side drainages and springs/seeps. Showy wildflower blooms of many plant species, annual, perennial, trees and cacti, are showy and attracts attention in the spring and summer. The vegetation cover contributes to the area's wildlife habitats, scenic qualities, and outstanding sightseeing opportunities.

Table 17: General vegetation types in the planning area, and their extent.

VEGETATION TYPE	ACRES	PCT
Interior Chaparral (Mixed)/Sonoran Paloverde-Mixed Cacti	6162	3%
Interior Riparian/Mesquite Forest	2332	1%
Sonoran Riparian/Cottonwood-Willow Forest	320	<1%
Sonoran Creosotebush-Bursage Scrub	967	<1%
Sonoran Creosotebush-Bursage-Paloverde-Mixed Cacti (wash)	5907	3%
Sonoran Paloverde Mixed Cacti/Sonoran Creosote-Bursage	17445	8%
Sonoran Paloverde-Mixed Cacti-Mixed Scrub	187401	81%
Sonoran Paloverde-Mixed Cacti/Semidesert Grassland-Mixed Scrub	4625	2%
Agriculture	6798	3%
Industrial	91	0%
Urban	530	0%
TOTAL	232577	100%

Extensive areas of sparse vegetation and flat soils make it easy to drive vehicles off road/cross country, leading to proliferation of off road vehicle use in places, particularly in the sparse creosote flats and bajada uplands. Poaching of protected desert plants is occurring in the project area, with plants hauled off with vehicles capable of going on rough roads or off-road terrain. Vegetation damage caused by recreational use typically is found along the area travel routes, and dispersed recreation activity areas/sites. Off road driving and parking, errant vehicles, target shooting, and campfire building activities are associated with most of the damage.

Goals for management to vegetation factors are to allow natural revegetation processes to continue on past transportation related disturbances that are presently not serving an access purpose. On a case by case basis, a reclaiming route may be re-designated for transportation purposes following appropriate surveys and environmental review. Use of reclaiming routes for dispersed non-motorized travel/access will be allowed, unless specifically closed off, posted or barricaded to facilitate reclamation.

Practices that will be implemented under the include revegetation projects of disturbed sites, soil treatments to promote revegetation, maintaining minimum clearance along roadways depending on type of route.

T. Noxious Weeds/Undesirable Plants:

The predominant undesirable plants found in the planning area is tamarisk (*Tamarisk aphylla*), found in extensive woodland along the Gila River and in patches at seep/spring or ponds. Other invasive plants are found in the area, colonizing disturbed areas along travel routes and around public use activity area, including buffelgrass and russian thistle, but a comprehensive noxious weed inventory is not presently available. Noxious weed and other undesirable plant seeds can be introduced, or spread along roads and trails by traffic and use. Weed seed can be transported or spread on soil and debris in a vehicle's frame/undercarriage, as well as riding livestock feed and on a person's apparel as well. Since the area receives recreational use by visitors from throughout the state and out of state, there is potential for weed seed to be introduced from all kinds of places. Illegal dumping of household backyard debris is also a potential source of weed infestations on public land.

Goals for management related to weeds and undesirable plants include detection, prevention and control of infestations along transportation routes and adjacent public use activity areas. Practices include completing a weed inventory, monitoring for infestation, appropriate treatment to control infestation, visitor education aimed at preventing introduction of seeds from off-site. Compliance with BLM pesticide use policy and regulations.

U. Water Resources/Developments:

The planning area includes water developments and natural water sources, and associated water rights. Water use is for livestock and wildlife, domestic, agricultural and mining related purposes. Many water developments or improvements are accessed by vehicle, and were identified in the travel route inventory for the area. A portion of the Central Arizona Project canal crosses the western part of the planning area, which is fenced and a barrier to travel, with its service roads closed to public use. The Ashurst-Hayden diversion and associated canals administered by the SCIP have service access roads which are at times locked to public use. Water related improvements found in the project area include springs, wells, windmills, pipelines, water storage tanks and watering troughs. The Gila River poses a barrier to north/south travel, with a few unimproved crossings. River flows are largely controlled by water management practices required for SCIP irrigation operations, which stores water at the Coolidge Dam, released as needed, and diverted at the Ashurst-Hayden dam to meet irrigation demands in the farms west of Florence in the Coolidge area. At times, the river runs very low or dries up and the stream bed is exposed. When this happens, OHV driving occurs up/down the river in dry sections, and in remaining pools.

Much of the planning area drains into the Gila River, with several major drainages and numerous washes branching on both sides. The side drainages can carry large amounts of sediment into the river, eventually contributing to filling of the channel in the tailwaters of the Ashurst-Hayden dam. The part of the planning area south of the Gila River has highly erodible soils that can produce large amounts of sediment that enters the river during intense storm events, and causes damage to the railroad.

Concerns related to public use and water developments include vandalism of livestock and other water facilities, recreation use in the vicinity of range improvements, using stock tanks as mud pits and bowl tracks for OHVs, camping near livestock waters, and wildlife waters.

Map H-13 shows identified water sources and facilities, (wells, stock tanks, wildlife waters) and hydrography, highlighting routes in washes.

Goals for management include accommodating access to existing facilities and improvements for maintenance and operation. Reducing potential conflicts from public use and recreation. Minimize sediment sources from erosion related to the travel route system. Practices include monitoring for problems, conducting sediment source surveys and assessments, taking corrective action on a case by case basis. Visitor education and interpretation themes related to watershed condition and erosion in the landscape. Signing to prevent potential conflicts with water developments.

V. Visual Resources:

The planning area is under Visual Resource Management Class I in the White Canyon Wilderness, and Class III elsewhere under the current RMP. The objective for Class I areas is to retain the character of the existing landscape, and keep visual modifications to very low visual contrast levels. The objective for Class III areas is to partially retain the character of the existing landscape, and allow landscape modification within moderate visual contrast levels⁴⁴. Scenic quality is high, with many outstanding landform, vegetation, wildlife and historic developments that attract sightseeing. The landscape is viewed from the public highways bordering the project area, from adjacent towns and rural residential areas, and from the areas roads and trail network. The landforms include creosote flats, bajada slopes, rugged mountains and steep walled canyons. Outstanding features include the Gila River, Mineral Mountain, Box Canyon, North and South Butte, Copper Butte, Grayback and White Canyon. Elevation ranges from 1,600 to 3,800 ft locally from the river bottoms and creosote flats to the peaks and uplands, with numerous high places along the travel routes offering outstanding panoramic views for hundreds of miles to the south and west. Vegetation includes several plant communities of the upper Sonoran Desert and mixed chaparral (see Vegetation section), commonly including Palo Verde, ironwood, mesquite, creosote, acacia, saguaro, prickly pear, barrel cactus, ocotillo, and bursage and other plants. Riparian vegetation is found along the Gila River and in a few patches in side drainages and springs. Cultural features that contribute to the visual quality of the landscape and recreational experience include its relatively natural and rural character, with isolated developments. Developments with visual impacts in the planning area are related to utilities (transmission lines, microwave tower), roads, isolated ranch houses, the historic Copper Basin Railway and wooden trestles, irrigation canals, historic town sites and mines, homesteads, the 'coke ovens', historic Twin Buttes Dam project site, mining exploration remnants, old windmills and other range improvements (fences, tanks, pipelines. Prehistoric sites with visible features include petroglyphs on weathered rock outcrops at several locations. Visible impacts related to public land visitors include dumping of refuse and litter and debris, vehicle tracks, campfires, vegetation damage from cutting and shooting. Visitor impacts are concentrated in the most visible part of the landscape experienced by visitors, along the roads and trails.

Goals for management are to provide for scenic sightseeing in the designated route system, with routes through the various landscape settings represented in the area, to avoid or

⁴⁴ Visual Resource Management, Bureau of Land Management H-8400.

minimize visual impacts from transportation related use, and to restore sites detracting from the natural or rural character of the area. Hill climbs on slopes or mountain sides in highly visible sites will be closed and rehabilitated at a few locations (Windy gap along Martinez Canyon Rd.). Site clean ups, and site restoration projects will be conducted on a case by case basis.

W. Management Costs:

The equivalent of about 10 work months annually are expended on work related to transportation and recreation use management in the planning area, mainly related to law enforcement, Arizona trail development project, travel management planning, visitor services, permits, volunteer projects and outreach activities. Incidental costs include project materials/supplies, and transportation/vehicles from Tucson headquarters (approx. 4 hour, 200 mile round trip). Transportation operations maintenance costs for the planned functional classes, maintenance intensity and type of access of the identified roads, primitive roads and trails ranges from \$1,000 to \$3,000 per mile, depending on route and site conditions. Current Field Office budget allocations limit the frequency of coverage for law enforcement and visitor services, maintenance, signing, and visitor services needed in area. Goals under the proposed plan are to increase overall agency presence in the area, and leverage resources from partners using appropriated funds. Increased presence in law enforcement and visitor services on the ground will be required initially following approval of the plan, and for ongoing management. Increased labor related to small projects and public outreach as well as signing and small road and trail projects to address problem conditions along the roads and trails, and recreation activity areas. The equivalent of 9 to 10 work months annually have been expended in the past 3 years to address needs related to transportation and visitor management, with associated transportation, equipment and materials costs.

Table 18: Estimated annual workload expenditures related to travel management and public use in the planning area over the past three years:

LABOR	Work Months
L.E. Ranger	4
Rec. Tech.	4
ORP.	2
Force Account Crew	3
Administration	1
Support, other specialists	1
TOTAL	9.25

X. Climate and Climate Change:

The planning area is in the southwestern US , at a latitude of 32° to 33° North, with elevation ranging from 1,500’ to 3,600’ above sea level. According to climate summaries for the nearby towns of Florence and Superior⁴⁵, annual precipitation ranges from 9 to 19 inches with 0.1 to 1.4 inches of snow in December to April. The average minimum annual temperature ranges from 53° to 59°F with occasional freezes. The average maximum temperature ranges from 79° to 86°F,

⁴⁵ Western Regional Climate Center, wrcc@dri.edu.

with average highs ranging from 97 to 105° in the summer. Precipitation in the summer typically occurs in intense, short duration storms.

Climate conditions influence public use in the planning area, with cooler temperatures in the fall through spring preferred by outdoor recreation visitors leading to most of the annual traffic on the road network in the planning area occurring from October to April.

Recent assessments by the Intergovernmental Panel on Climate Change describe the human and natural drivers of climate change, observations of climate change, climate processes and attribution, and estimates of projected future climate change. The Panel's reports suggest that air pollution by 'greenhouse gases' (including carbon dioxide, methane, nitrous oxide, water vapor, other trace gas emissions, and particulates) may be contributing to global climatic changes, driving a net warming effect on the atmosphere primarily by decreasing the amount of heat energy radiated by the earth into space, typically referred to as global warming. The Panel projects an average global surface temperature rise of 1 to 4.5°F in the next 50 years, with significant regional variation and uncertainties on how climate change may affect different regions. Potential impacts from global warming include changes in regional temperature and rainfall patterns, with major implications on the natural environment. Trends attributed to global warming include warmer and fewer cold days and nights; warmer and more frequent hot days and nights; warm spells and heat waves; more frequent heavy precipitation events, and increases in areas affected by droughts⁴⁶.

Transportation related activities in the planning area, primarily the use of vehicles with internal combustion engines, generate 'greenhouse gas' emissions which contribute to emissions from other sources, and consequently may contribute to drivers of global climate change. Additionally, wind erosion from disturbed areas and fugitive dust from dirt roads may contribute to atmospheric dust with the potential to darken glacial surfaces and snow packs resulting in faster snowmelt, also contributing to drivers of global warming.

Estimated annual traffic levels on the road network in the planning area are relatively low, with approximately 24,180 vehicles travelling 3.61 million vehicle miles related to public use. Based on information from the Environmental Protection Agency on average annual emission rates for light trucks⁴⁷, at current use levels in the planning area, approximately 210,729 gallons of fuel are consumed, resulting in approximately 2,086 tons of carbon dioxide emitted, along with other gases. These emissions are equivalent to those of approximately 259 vehicles operated under average annual US fleet conditions, and comprise a very minimal contribution to human caused drivers of global warming.

Under projected global warming conditions, increased temperatures in Sonoran desert environments, including the planning area, may change the behavior of visitors and traffic patterns to avoid less desirable and more frequent extremely hot days, and a possible reduction in the length of the favored cool month visitation season. An increase in heavy precipitation

⁴⁶ Climate Change 2007: Synthesis Report, Fourth Assessment Report of the Intergovernmental Panel on Climate Change; Core Writing Team, Pachauri, R.K. and Reisinger, A. (Eds.); IPCC, Geneva, Switzerland, November 2007 (<http://www.ipcc.ch>).

⁴⁷ Emission Facts, US Environmental Protection Agency, EPA420-F00-013, April 2000 (<http://www.epa.gov/oms/consumer/f00013.htm>)

events may increase the frequency of storm related road damage, particularly on routes with poor drainage in vulnerable soils, requiring greater attention on road maintenance to keep roads passable and prevent resource damage. Increases in droughts could cause declines in the productivity of the ecological sites in the planning area, with loss of vegetation and possible change in plant species composition and cover, changing the recreational setting in subtle ways. Declines in ecological site conditions could also change the associated wildlife habitat, making areas less suitable for species presently found in the planning area, and some of the recreational values associated with wildlife.

List of Maps:

Map H-1 – Existing OHV Area Designations

Map H-2 – Existing Special Management Areas

Map H-3 – Land status, Surface and Subsurface

Map H-4 – Desert Tortoise Habitat Categories

Map H-5 – Desert Bighorn Sheep Habitat

Map H-6 – Cactus Ferruginous Pygmy Owl Habitat and Recovery Area

Map H-7 – Grazing Allotments and Range Improvements

Map H-8 – Minerals,

Map H-9 – Recreation Use Levels Estimate

Map H-10 – Recreation Sites and Activity Areas

Map H-11 – Riparian Habitat and Xeroriparian Areas

Map H-12 – Vegetation, Major Types

Map H-13 – Water Developments