APPENDIX S

ROUTE EVALUATION METHODOLOGY AND IMPACT ANALYSIS
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APPENDIX S
ROUTE EVALUATION METHODOLOGY & IMPACT ANALYSIS

S.1 ROUTE EVALUATION METHODOLOGY

The evaluation of routes for the Lower Sonoran Field Office is the sum of route and resource inventories, the BLM specialists’ input, and the public’s input. The process of developing recommended route designations is part of a larger effort to use the best management techniques in an ever-changing environment. The action of designating specific routes as open, closed or limited is an implementation level action which tiers from the RMP level decisions which would include OHV Area Allocations, which determine how travel is to be administered on an area-wide basis. As the population of Arizona grows, trends must be identified and anticipated in order to best achieve the goals of successful land management and the protection of sensitive resources. Designating and managing a route system is a key component of those goals.

S.1.1 ROUTE INVENTORY

The roads, primitive roads and trails in the field office area were mapped using GPS. Areas were systematically reviewed by an inventory team comprised of government employees or contract employees. The team was tasked with driving each route and recording its location, condition and uses. Public route submissions received by BLM were given to the inventory team to objectively verify and record to BLM standards using high quality GPS units meeting national mapping standards. The route inventory was displayed at public scoping meetings. All areas were complete at the time of public scoping with exception of the Gila Bend Mountains and outlying parcels east of Phoenix.

S.1.2 ROUTE EVALUATION

Evaluating routes on the merits of their uses, values, and impacts is a difficult task. The method used by Lower Sonoran Field Office for evaluating each route is the Route Evaluation Process. Using the route inventory collected by BLM, geographic areas were reviewed by applying the Route Evaluation Process. This methodology systematically guides the evaluator through a series of questions that helps to assess the relationship of routes to sensitive resources and as well as to commercial and public access needs, both individually route by route, as well as collectively or cumulatively as a route network. Background data from state and federal agency inventories and Agency resource specialists, as well as the public, provides the basis for evaluation. In accordance with 43 CFR 8342.1, this methodology of evaluating and making recommended route designations considers and addresses as part of its evaluation, the means by which to minimize potential and known impacts of motorized use to a number of sensitive resources including but not limited to threatened, endangered and sensitive species, and their habitat, as well as cultural and historic resources, wilderness characteristics, various other users and adjoining land uses. These potential and known impacts are jointly evaluated in the context of providing reasonable
commercial and recreational public access as provided for and/or required by several State and Federal acts. Each route is systematically evaluated by taking into account the best information available, as well as any other pertinent guidance (e.g. Monument and RMP objectives).

Ultimately, recommended route designations are recorded (Open, Closed, or Limited) to create a recommended route network.

As specified in 43 CFR 8342.1, four designation criteria are considered through the identification of standardized or specific mitigations at the time of evaluation. These criteria, listed as subparts a-d, direct BLM to:

a. Minimize damage of off-road vehicles on sensitive resources such as soil, watershed, vegetation and air.

b. Minimize disruption of wildlife habitats including threatened and endangered species.

c. Minimize conflicts between off-road vehicle use and other recreational activities.

d. Not locate off-road vehicle use areas and trails in designated wilderness or primitive areas.

e. Locate trails in natural areas only if the use will not adversely affect the values for which these areas were established.

When the questions in the evaluation tree are answered by taking into account the best information available and RMP objectives, a route designation code is established and recorded. Routes are determined to be Open, Closed or Limited.

As the evaluation/designation process progresses, specific reasoning on each recommended route designation is documented. Additional management requirements (e.g. maintenance, mitigation, adaptive management monitoring) are incorporated into the recommended route designations and ultimately become a part of implementing the Travel Management Plan. Route designations are considered implementation decisions, which is in contrast to land use decisions (e.g. RMP decisions) and are therefore appealable.

The process for reviewing inventoried routes, proposing new routes, both motorized and non-motorized, and adding routes to the route inventory for consideration in the route designation process, is outlined below in six steps. Public participation will be requested during the scoping phase of the route designation process. Comments will be accepted on the draft plan.

All routes, inventoried or proposed will be integrated and evaluated as follows:

1. Locations submitted by the public will be mapped or located using accepted global positioning system devices and presented to the BLM office for consideration as both a gps file and hardcopy map. Locations of route proposals off existing motorized routes must be mapped by hiking or horseback to avoid cross country travel. The route proposal submitted to BLM will include a description of the route including its width, its proposed use(s) and a rationale for its need.
2. The route location will be analyzed for potential conflicts such as, but not limited to: wildlife habitats, cultural resources, visual resources, other recreation uses, mining claims or leases, grazing facilities, rights-of-way, and proximity to other jurisdictions such as private land. A structured process such as the one described above will be used to evaluate and document the known or foreseeable route conditions.

3. If the route has few conflicts identified during analysis, an on-the-ground review may be initiated. At this stage, the proposed route must be flagged and staked on the ground by the public for BLM review. If a route has irresolvable conflicts, it may be removed from further consideration.

4. Pending favorable on-the-ground review, a conflict assessment would lead to possible mitigation actions or alternative locations or design.

5. An environmental assessment (EA) would be prepared to determine the environmental effects of the proposal on the proposed route system and any alternatives and mitigation suggested. In the case of new route proposals brought forth during the initial route designation period, all routes will be analyzed together in the same EA.

6. A decision identifying the route system and mitigations will be issued by the authorized officer based on the Land Use Plan compliance, resource objectives and environmental impacts.

To assist the resource specialists in analyzing impacts related to designating route systems within the SDNM, the Monument was divided into 18 site specific sample areas. These sample areas were identified by the BLM travel specialist's as areas where there are known travel issues and public use concerns. Each resource specialist selected sample areas representative of the objects managed by their program and analyzed impacts from the designation of individual routes as opened, closed, and limited within selected sample areas. A more detailed description of each of these site specific sample areas is displayed below (refer to Map 4-1, SDNM Analysis Area in Chapter 4, Environment Consequences for area locations).

S.2 Changes to Route Designations

Routes may be added to or deleted from the designated route network to address changing conditions and demands. The process for requesting the addition or deletion of routes from the designated route network, motorized or non-motorized, will include a structured analysis approach combined with the appropriate level of NEPA.

All requests will be processed when the following process is followed:

1. Route locations will be mapped or located using accepted Global Positioning System (GPS) devices and presented to BLM for consideration. Locations for new route proposals that are off of designated motorized routes must be located and mapped on foot. No motorized cross-country travel is permitted.
2. The route proposal submitted to BLM will include a description of the route changes requested. For new routes, this would include the proposed width, proposed use(s) and a rationale for its need. For deletions or downgrading of designated routes, a well-documented rationale is required.

3. The route location will be staked and flagged by the proponent for on-the-ground review by BLM resource specialists.

4. The proposal will be quickly reviewed for potential conflicts such as, but not limited to, Resource Management Plan compliance, wildlife habitats, cultural resources, visual resources, other recreation uses, mining claims or leases, grazing use, ROWs and proximity to other jurisdictions such as private land. A structured process will be used to evaluate and document the review of the proposed action.

5. BLM will review the request for change and make a decision to either deny the request or move the request forward into the annual work plan. A plan for external funding will be discussed with the proponent as necessary.

Pending BLM’s agreement to move the request forward:

1. A conflict and needs assessment may lead to alternatives including, but not limited to, development of mitigation actions or alternative locations or designs proposed by BLM.

2. An EA or possibly an EIS would be conducted.

3. A decision will be issued by the authorized officer. The Travel Management Plan will be updated according to the decision record.

### S.3 Impact Analysis

#### S.3.1 Methodology for Determining Adequate Protection of Monument Objects

Effects to monument objects, the natural resources and use conflicts were considered by identifying the issues using an interdisciplinary team approach while applying Best Management Practices and site specific knowledge to reduce human effects.

Each of the 18 study areas in SDNM has a unique assemblage of monument objects requiring different management techniques to adequately ensure monument object protection. By identifying the objects that occur in each area and what could affect each object, a management regime can be developed and an assessment of human impacts completed.

The eight monument objects were identified where they existed in the 18 monument areas. An excel spreadsheet table was devised to display the assessed level of impact to that object for the given plan alternative and corresponding route alternative. A justification for the assessed level of impact accompanies the impact determination. The combination of route alternatives and management actions
for each alternative create the management framework for protecting monument objects and following the four designation criteria in 43 CFR 8342.1.

Each travel route and RMP alternative potentially has negligible, minor, moderate or major impacts on monument objects. “Adequate Protection” means impacts on monument objects by travel management designation from specific open routes and the range of alternatives is moderate, minor, or negligible. Impacts in the moderate range would need to be mitigated to reduce them to that of minor.

By assessing the impacts and confirming that none of the action alternatives rise above a Minor assessment after mitigation, a “Finding of Adequate Protection” can be issued for each RMP alternative.
### Description of SDNM Site-Specific Sample Areas

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<th>Area</th>
<th>Area Description</th>
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<td>8</td>
<td>Bighorn Station and Proposed Access Road: This area is representative of an easily visible historic area with physical, but not legal access and serves as a major access point to SDNM. A new access road is proposed in two alternatives to resolve the legal access issue.</td>
</tr>
<tr>
<td>9</td>
<td>Vekol Valley Road to Johnson Well/Homestead: This area represents easily accessible campsites from a main road. Camp trailer access is common and the area receives heavy use during winter and lighter, yet consistent, use during the hot season. It provides access to the southern area of SDNM.</td>
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<tr>
<td>10</td>
<td>Access to Javelina Mountain: This area is representative of a destination mountain range in SDNM where vehicle access occurs from all sides. Use level is low to moderate depending upon season.</td>
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<td>11</td>
<td>Sand Tank Wash, all branches inside Area A: This area is representative of remote areas of the SDNM where the only available vehicle routes are in sand washes. This area is considered to be some of the best desert wash habitat in SDNM. Wash travel inside Area A was prohibited by previous Air Force land use plan. Designating these routes as primitive roads is being considered.</td>
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<tr>
<td>12</td>
<td>Bender Wash, all branches west of Getz well: This area is representative of remote areas of SDNM where vehicle routes exist in sand washes and use prior to monument proclamation is well known. This area is outside the area A permit area.</td>
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<td>13</td>
<td>Vekol Valley Grasslands: This area is representative of areas with sensitive species, rare grassland, and existing routes in highly erodible soils. This area has been closed to vehicles for many years.</td>
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<td>14</td>
<td>Wilderness areas: These areas are representative of protected areas where vehicle use is prohibited. Routes may exist along boundaries or inside as ‘cherry stem routes’, approved through congressional action at the time of wilderness designation.</td>
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<tr>
<td>15</td>
<td>Creosote-Bursage Flats: This area is representative of large areas where the vegetation community is Creosote-Bursage and routes exist, varying in use level from light to heavy. Soils are silty and erodible and similar to soils in the PM10 nonattainment area.</td>
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<tr>
<td>16</td>
<td>Sand Tank Mountains: This area is representative of large mountainous areas with few routes and good habitat and primitive recreation opportunity. The area is fairly pristine.</td>
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<td>17</td>
<td>Wilderness Characteristics: These areas are under consideration for allocation as wilderness characteristic areas. These areas may be managed for solitude and recreational opportunities.</td>
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<tr>
<td>18</td>
<td>Remaining areas of the Monument that tend to be lower in elevation, are lightly visited, and have fewer access routes.</td>
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S. Route Evaluation Methodology & Impact Analysis

Months 0-2
Prework for TMP

- BLM selects the travel management area (TMA) sub regions for which planning is to begin. TMAs are described in the RMP.
- BLM conducts a review of the route inventory for the LSFO area as shown in Existing Environment Chapter 3 of the RMP.
- BLM begins pre-work to collect information necessary to begin the planning such as RMP decisions, trends, changes in resource conditions and other pertinent information.
- BLM gathers a mailing list to notify the public and affected parties that planning will begin.

Months 3-4
Scoping and Public Involvement

- BLM holds coordination meetings with internal BLM staff, Arizona Game and Fish Department, tribal communities, and affected governments.
- BLM notifies the public for scoping meetings. This is the public's opportunity to give input and identify issues that BLM should consider.
- Public gives information and helps to define travel management issues and concerns within the planning area.
- Public offers proposals for travel management planning within the selected planning area.
- BLM then internally develops a range of alternatives, as necessary under NEPA, based on public comment and RMP decisions.
- BLM internally creates the necessary alternatives for the plan and begins writing the Travel Management Plan including proposals to create assets (roads, primitive roads, and trails).
- BLM decides to prepare either an Environmental Assessment (EA) or an Environmental Impact Statement (EIS), whichever is deemed appropriate.

Months 5-11
Write the Plan

- BLM writes the Travel Management Plan using an interdisciplinary team. The range of alternatives and the proposed management plan is analyzed.
- BLM develops route report worksheets for every inventoried route within the travel management area in order to document the proposed route system. Route reports would be available for public review in the Phoenix District Office Public Room.
- Determine, through the impact analysis, if the transportation systems in each alternative are compliant with designation criteria found in 43 CFR 8342.1.

Month 12
Plan is Issued with Decision

- If an EA was prepared, BLM issues the TMP/EA with a final Decision Record. A minimum 30 day appeal period begins.
- If an EIS was prepared, BLM issues the TMP/EIS with a Record of Decision. A minimum 30 day protest period begins.

**Figure S-1.** LSFO Route Designation Process Flow Chart (1 year process)
Data Gathering (2001 to 2004)

- 100% on the ground inventory of the SDNM.
- Translate inventory into an established GIS database and photo library.
- Hold scoping meetings (internal and external).
- Identify resource, access, and political concerns within the SDNM.
- Identify general travel goals and objectives (desired future conditions) for the SDNM.
- Separate the SDNM into subregions that share similar issues and concerns.

Develop a Range of Alternatives (2004 to 2011)

- Hold coordination meetings with internal BLM staff, Arizona Game and Fish, tribal communities, and the US Air Force (Barry Goldwater Range).
- Redefine travel issues and concerns within the SDNM.
- Redefine goals and objectives for travel within the SDNM.
- Develop a range of alternatives.
- Complete route report worksheets for every inventoried route within the SDNM in order to effectively propose a route system in four action alternatives as "open, closed, or limited." Interdisciplinary BLM team meetings, resource data, and the Route Evaluation Tree were used to effectively complete the worksheets. Route report worksheets are available for public review in the Phoenix District Office Public Room.
- Define the open, closed, and limited routes throughout the alternatives as assets (roads, primitive roads, and trails) based on management goals and the protection of SDNM objects.

Analyze Impacts (2011)

- Establish site specific sample areas of the SDNM that accurately represent the SDNM’s travel issues and public use concerns.
- BLM resource staff selects site specific areas that accurately represent the resource use or SDNM object in which their resource manages.
- Using resource data for each selected site specific area, the BLM resource staff analyzes impacts from routes in each specific sample area in which they selected, in order to determine if SDNM objects are negatively impacted.
- Determine through the impact analysis if the transportation systems in each alternative are compliant with designation criteria found in 43 CFR 8342.1.

Publish Draft RMP/Draft EIS (90-day Public Comment Period) (2011)
Revise DRMP/DEIS based on Public Comments, Publish Proposed RMP-Final EIS (2012)
Record of Decision and Travel Management Plan signed by the BLM State Director (2012)
Implement Route System (2013 to 2031)

Figure S-2. SDNM Route Designation Process Flow Chart
Main Features Include:

1. Logical, standardized, balanced and repeatable approach to route evaluation.
2. Systematic questions to assess compliance with a variety of pertinent statutory requirements including:
   - Valid existing rights and other vested rights or permitted uses
   - Degree of potential impact or degradation to specially protected resources, such as species protected by the Federal Endangered Species Act (ESA), cultural, historic and scientific objects protected by the Historic Preservation and Antiquities Acts (e.g. Monument Proclamations, Section 106) and wilderness values as protected by the Wilderness Act.
   - Implementation of Agency Organic Acts and their charge to balance the public’s need/desire for access to Federal lands with resource protection through a philosophy of management for “multiple use”. Such consideration includes recognizing the value of providing a range of recreational opportunities and treating those opportunities in accordance with the Organic Acts as a resource worthy of protection.
3. Systematic consideration of access opportunities and resource protection needs on both a narrowly focused route by route assessment, as well as a broad-based cumulative assessment of the total network’s effect.
4. Systematic consideration of mitigation and/or limited designation as a means by which to ameliorate resource impacts. Recommended designation options include a range from open to closed, and a number of intermediate actions as a means by which to balance access needs and resource protection.
5. Systematic reconstitution of data allowing for future retrieval and review/updating of evaluation information as needed (i.e. evaluation pathways are numerically coded).
6. Systematic ability to access a route’s recommended designation status based upon the management goals of each individual alternative.

Figure 3: Route Evaluation Tree©
Figure S-4. LSFO Route Evaluation Decision Tree - Overall Process