

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 designations 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 for area locations).

S.2. Impact Analysis

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 have 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 either 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.

Table S.1. Description of SDNM Site-Specific Sample Areas

Area	Area Description
1	<u>Anza/Butterfield Trail</u> : This historic trail corridor is in the center of the monument and receives the highest amount of visitor use. This area corresponds to the Juan Bautista de Anza NHT, an NLCS unit, and traverses a valley bottom with soft loamy soils. The vegetation community is primarily Creosote-Bursage. This corridor is representative of the mixed use recreation areas within the monument.
2	<u>Butterfield Pass</u> : This historic trail corridor is in the center of the monument and receives the highest amount of visitor use. This area corresponds to the Juan Bautista de Anza NHT, an NLCS unit, and traverses a valley bottom with soft loamy soils. The vegetation community is primarily mixed-cacti / Palo Verde. This corridor is representative of the mixed use recreation areas within the monument.
3	<u>Campsites at Gap Well, North of State Route (SR) 238</u> : This area contains numerous campsites in the most heavily visited area of the monument. The area vegetation community is Creosote-Bursage. This area is representative of concentrated visitor use areas and the most easily accessible area of Anza NHT.
4	<u>North SDNM access from Pipeline road</u> : This area is representative of SDNM urban interface where high levels of use occur including target shooting and dumping. The area contains Espanto Mountain, a popular destination.
5	<u>Margie’s Cove West Loop Road</u> : This area is representative of a popular area for wilderness trailhead access and semi-primitive roaded settings for backcountry vehicle touring. The area is accessed for many uses including hunting, hiking, camping, sight-seeing using primitive roads. Upgrading the road to make trailhead accessible may be proposed during the lifespan of this plan.
6	<u>Access to North side of South Maricopa Wilderness</u> : This area is representative of access to areas within SDNM where both physical and legal access is very limited although not very far from a paved road. Use is low and the route conditions limit access to a large area of designated wilderness.
7	<u>Johnson Well to Papago Indian Chief Mine, south of Javelina Mountain</u> : This area is representative of remote, pristine and lightly used areas of SDNM that are difficult to access without aid of high clearance or specialized vehicles.
8	<u>Bighorn Station and Proposed Access Road</u> : 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.
9	<u>Vekol Valley Road to Johnson Well/Homestead</u> : 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.
10	<u>Access to Javelina Mountain</u> : 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.
11	<u>Sand Tank Wash, all branches inside Area A</u> : 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.
12	<u>Bender Wash, all branches west of Getz well</u> : 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.
13	<u>Vekol Valley Grasslands</u> : 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.
14	<u>Wilderness areas</u> : 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.
15	<u>Creosote-Bursage Flats</u> : 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 PM ₁₀ nonattainment area.
16	<u>Sand Tank Mountains</u> : This area is representative of large mountainous areas with few routes and good habitat and primitive recreation opportunity. The area is fairly pristine.

Area	Area Description
17	<u>Wilderness Characteristics:</u> These areas are under consideration for allocation as wilderness characteristic areas. These areas may be managed for solitude and recreational opportunities.
18	Remaining areas of the Monument that tend to be lower in elevation, are lightly visited, and have fewer access routes.

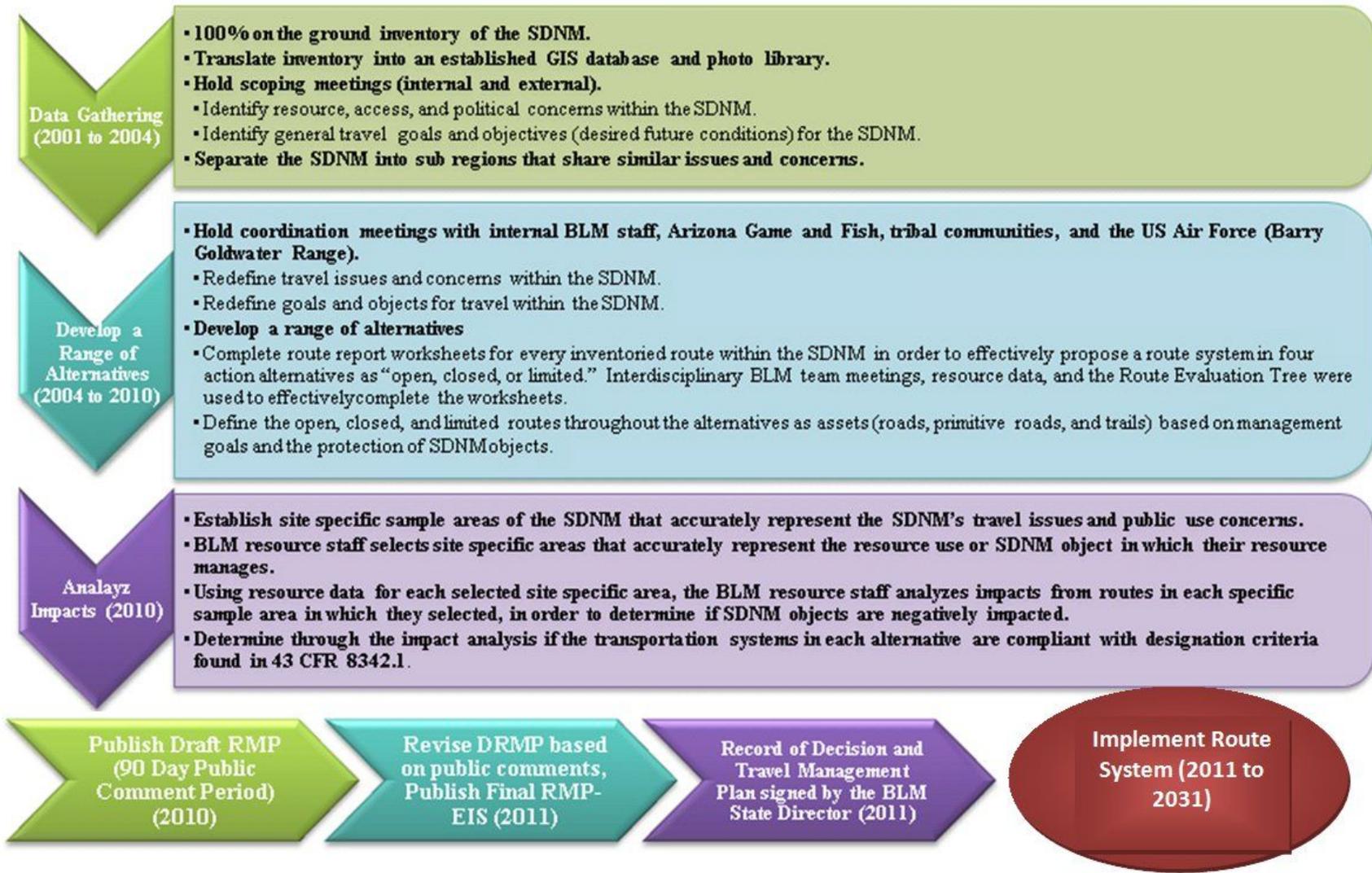


Figure S.1. SDNM Route Evaluation Process Flow Chart

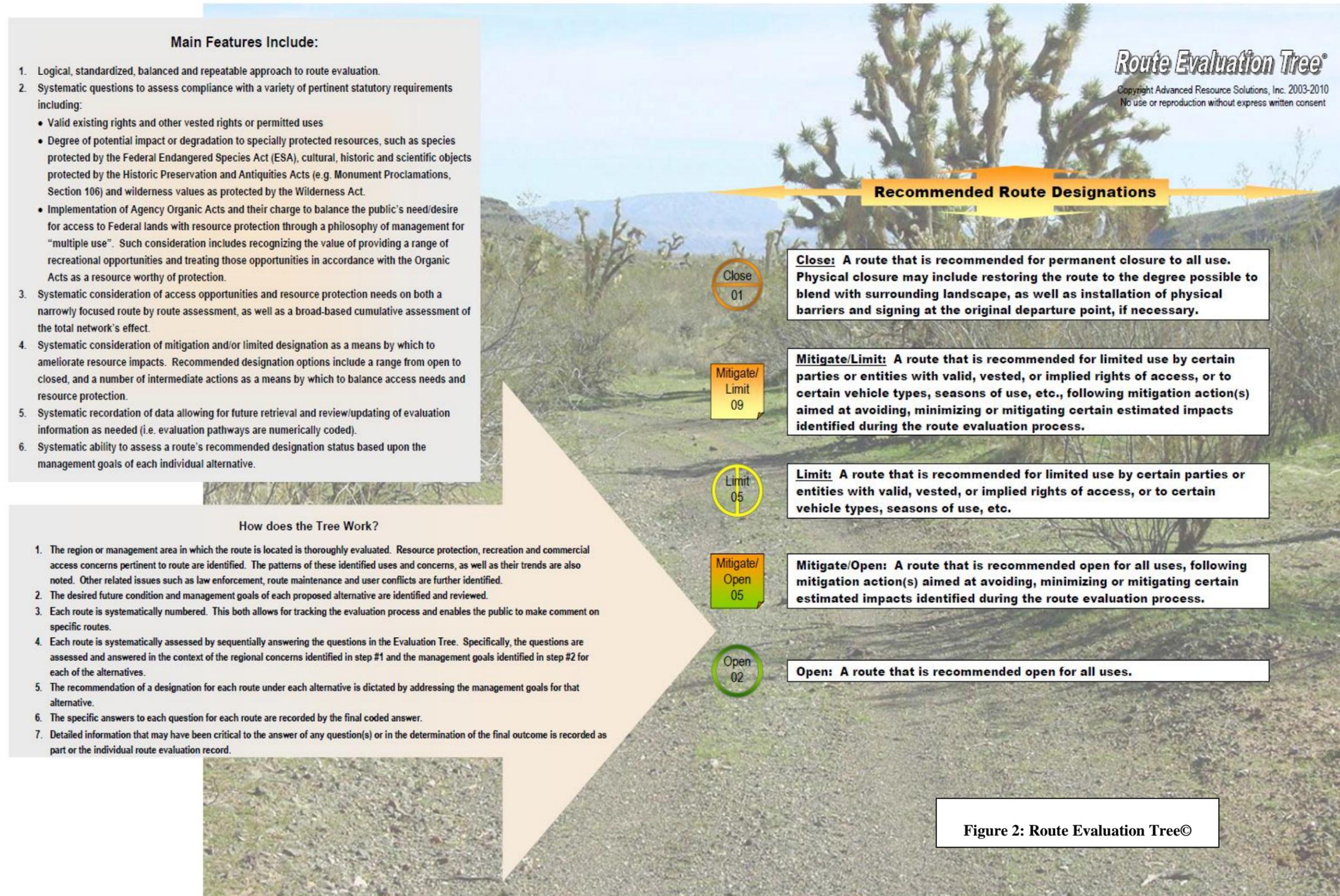


Figure 2: Route Evaluation Tree©

