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# Travel Analysis Process Report

## San Juan National Forest

## Dolores District

Responsible Official: Derek Padilla, District Ranger

### Abstract:

This Travel Analysis Process Report documents a route-by-route analysis of all National Forest System roads in the Dolores District and recommends the minimum road system needed for public access and forest management.

### Location:

Dolores Ranger District, San Juan National Forest

Dolores and Montezuma Counties, Colorado

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## EXECUTIVE SUMMARY

This document is the Travel Analysis Process (TAP) report for the Dolores Ranger District. This report compiles travel analysis that occurred at various times since the 2005. Travel Analysis is the Forest Service's science-based process developed in response to the 2005 Travel Management Rule 36 CFR 212. The Rule has three subparts: Subpart A — Administration of the Forest Transportation System; Subpart B - Designation of Roads, Trails and Areas for Motor Vehicle Use; and Subpart C — Use by Over-Snow Vehicles. This report responds to Subpart A – Administration of the Forest Transportation System. This report displays findings as opportunities and recommendations to inform future management and administration of the National Forest Transportation System.

Before the Forest Service adopted the Travel Management Rule, the Roads Analysis Process described in the Forest Service Manual (7712.1) and publication *FS-643, Roads Analysis: Informing Decisions about Managing the Transportation System* was used. In July, 2006, a Roads Analysis Report analyzing Maintenance Level (ML) 3, 4, and 5 roads across the San Juan National Forest was produced. This report included similar information as required for travel analysis.

In 2007 the Dolores District delineated three travel management planning landscapes. These landscapes were drawn based on forest types, topography and recreation uses and served as analysis area boundaries for all subsequent travel analysis and travel management planning accomplished on the District. The three separate landscapes are, 1) Boggy-Glade, 2) Rico-West Dolores and 3) Mancos-Cortez.

The travel analysis for Boggy Glade landscape was completed in April 2010 and has been re-formatted and incorporated into this report. Travel analysis for Rico West Dolores landscape was completed in draft in February 2014 and has been incorporated and finalized through this report. The Mancos-Cortez landscape travel analysis was undertaken in May of 2015 and is also written into this report. This report replaces previous final reports and drafts and provides a District-wide Travel Analysis Report (TAPR) and recommended Minimum Road System map.

Public Involvement in travel analysis on the Dolores District occurred at various times and is described in this report.

The relationship of Travel Analysis to Travel Management Planning on the Dolores District is as follows,

Boggy Glade Travel Management Decision 12/5/12 included consideration of recommendations in the 2010 Boggy Glade Travel Analysis Report, the 2010 Travel Analysis Report validated or changed recommendations in the 2006 ML3-5 San Juan Travel Analysis Report.

Rico West Dolores Roads and Trails (Travel Management) Proposed Action 12/15/14 included consideration of the recommendations in the Risk/Benefit spreadsheet completed in 2014. As this TAPR becomes final it will continue to inform the Travel Management NEPA process for this area.

Mancos Cortez Travel Management Plan Decision March, 2008 was informed by the 2006 ML3-5 San Juan Forest Roads Analysis Report.

This TAPR applies to National Forest system roads on the Dolores District. Trails designated for motor vehicle use are discussed separately in the above mentioned Travel Management Plans. The TAPR is tailored to local situations and landscape/site conditions as identified by forest staffs.

The TAPR neither produces decisions nor allocates National Forest System lands for specific purposes; it merely provides the analytical framework from which to make recommendations that may then be examined in the future. Future NEPA analysis that includes public involvement may carry forward, reject or change the recommendations in this report, and provides the basis for making specific transportation system related decisions.

A risk-benefit assessment was used to rank system roads based on risks (road or trail condition, impacts on water resources, etc.) and benefits (recreational opportunities, forest management access, etc.). The categories chosen to rank risk-benefit were based on issues and by criteria set by interdisciplinary team members. The risk-benefit criteria are consistent with criteria used across the San Juan National Forest providing consistency. Based on the risk-benefit assessment, the IDT identified roads that were “high value” to keep on the transportation system and those that were “low value” or not needed. This has resulted in the development of recommendations for what should constitute the District’s minimum road system, as well as other recommended changes to the District’s transportation system. When conducting the risk, benefits, problems assessment and setting priorities it was assumed that public cross-country travel would be prohibited.

To summarize, recommendations include 1) transferring future jurisdiction of the Dolores-Norwood Road to other entities, 2) maintaining other paved roads in their current location and condition to access recreation sites, 3) maintain many but not all of the graveled surface Level 3 and 4 roads, 4) downgrade some Level 3 graveled roads, or segments of Level 3 graveled roads to Level 2 native surface, and 5) decommission redundant or un-needed level 2 roads and 6) reconfigure the location of some Level 2 native surface roads to address resource issues.

The recommended minimum road system looks similar to the existing road system with minor to moderate changes as described above. The Dolores District requires a network of roads to serve demands for dispersed recreation, and to provide management access to ‘working forest’ multiple-use landscapes. The resulting minimum road system does not bridge the gap between available funding for maintenance and maintenance demands, but the minimum system does make strides toward narrowing that gap.

This document is organized according to the Travel Analysis process steps outlined in Forest Service Handbook 7709.15 Chapter 20. These steps include 1) Setting up the Analysis, 2) Describing the Situation, 3) Identifying Issues, 4) Assessing Benefits, Problems and Risks (spreadsheet), 5) Describing Opportunities and Setting Priorities and 6) Reporting (this document and the minimum system map).

Travel Analysis is an iterative, not a one-time, process. When conditions change, additional analysis may point to the need for revisions in the recommendations.

# INTRODUCTION

## Travel Management Rule

In 2005, the U.S. Forest Service adopted the Travel Management Rule. The rule changes the way that the Forest Service regulates motor vehicles on National Forests and Grasslands. There are three subparts to the Travel Rule: Subpart A — Administration of the Forest Transportation System; Subpart B – Designation of Roads, Trails and Areas for Motor Vehicle Use; and Subpart C — Use by Over-Snow Vehicles.

Subpart B provides for a system of National Forest System roads, trails and areas on National Forest System lands that are designated for motor vehicle use. Specific Travel Management Planning processes have been, and will be, conducted separately to determine how such use shall be designated by vehicle class and, if appropriate, by time of year, for specific roads, trails and areas within the San Juan National Forest. Subpart C provides for regulation of use by over-snow vehicles on National Forest System roads and National Forest System trails, and in areas on National Forest System lands.

This report responds to Subpart A – Administration of the Forest Transportation System. This report displays findings as opportunities and recommendations to inform future management and administration of the National Forest Transportation System, and documents compliance with Subpart A of the Travel Management Rule. The travel management regulations (36 CFR 212.5(b)(1) and (2)) require that the Forest Service “identify the minimum road system needed for safe and efficient travel and for administration, utilization, and protection of National Forest System lands”; and to identify the roads that “are no longer needed to meet forest resource management objectives and that, therefore, should be decommissioned or considered for other uses, such as for trails”. Subpart A information can be used to inform decisions under Subpart B.

## Travel Analysis Process

The outcome of the travel analysis process is a set of science-based recommendations for the forest transportation system, and is intended to inform subsequent National Environmental Policy Act (NEPA) processes, allowing individual projects to be more site-specific and focused, while still addressing cumulative impacts. The travel analysis process neither produces decisions nor allocates National Forest System lands for specific purposes; it merely provides the analytical framework from which to make recommendations that may then be examined in the NEPA process. It describes current conditions, risks, benefits, opportunities (needs for change), and priorities for action. Future NEPA analysis that includes public involvement may carry forward, reject or change the recommendations in this report, and provides the basis for making specific transportation system related decisions.

This document is organized according to the Travel Analysis process steps outlined in Forest Service Handbook 7709.15 Chapter 20.

# STEP 1 SETTING UP THE ANALYSIS (SCOPE)

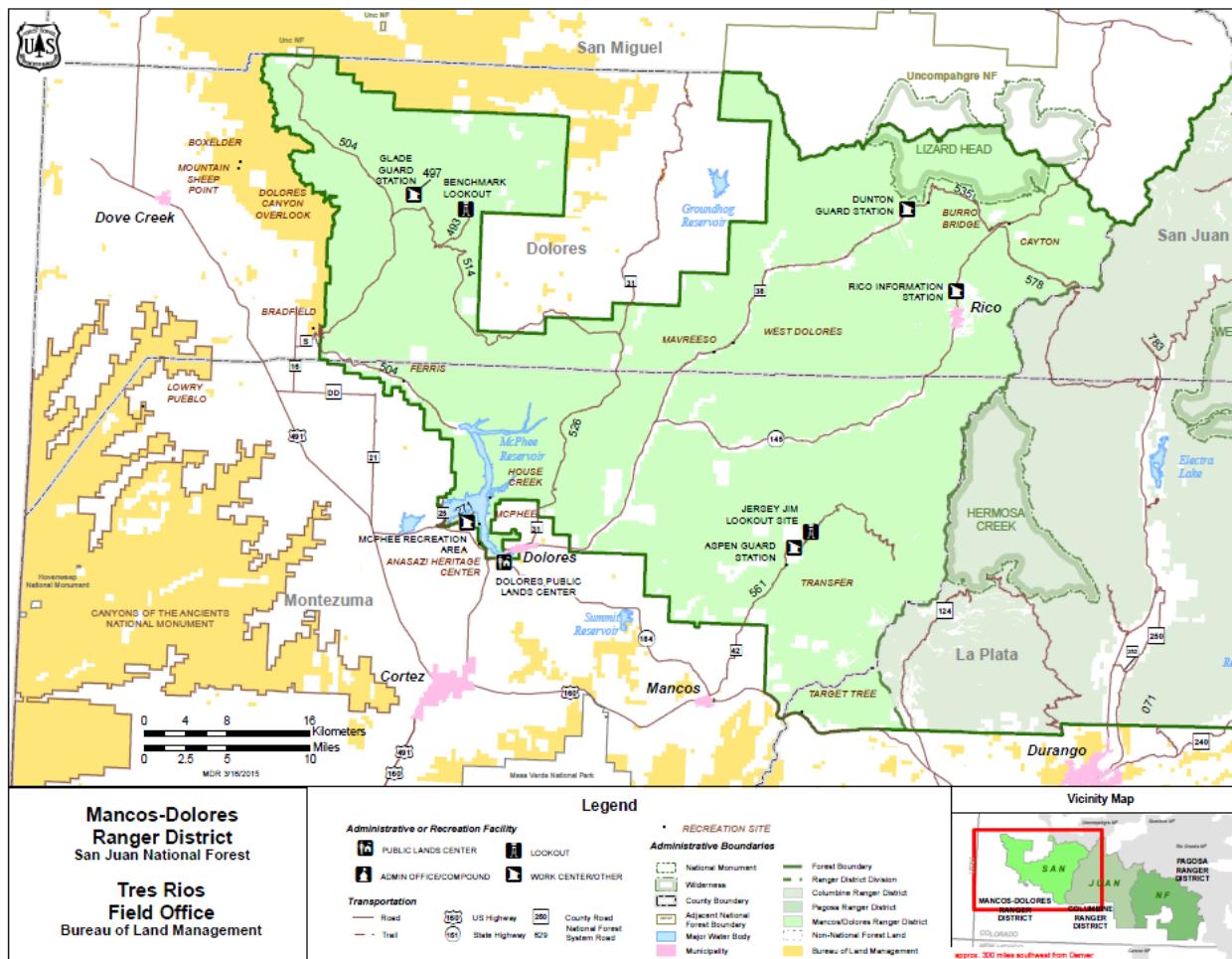
## 1.1 Purpose

The purpose of this step is to:

- Identify the analysis area
- Identify the roles of technical specialists
- Address information needs

## 1.2 Analysis Area

The analysis area for this report is the Dolores Ranger District. Information is described in three sections, one for each of the travel planning landscapes (Boggy-Glade, Mancos Cortez, and Rico West Dolores). There are 597,373 acres on the Dolores District.



## 1.3 Specialist Roles

The Interdisciplinary Team (IDT) members and their primary discipline(s) or function are listed below:

Deborah Kill – NEPA/Planning

Matt Rathbone or Mark Krabath – Timber

Chris Bouton, Bryce Paul, Tom Rice, Penny Wu – Recreation

Cody Jones – Engineering

Heather Musclow, Jenifer Jardine – Range

Cara Gildar, Heather Musclow – Ecology  
Ivan Messinger – Wildlife  
Scott McDermid, Patrick Seekins – Fire, Fuels, Emergency Access  
Joni Vanderbilt, Shauna Jensen – Hydrology  
Elaine Sherman – Archeology  
Tom Kochanski – GIS  
Patrick McCoy – Lands  
Derek Padilla, Steve Beverlin – District Ranger

## 1.4 Information Gathered for the Analysis

Travel analysis occurred in three separate efforts for the three landscapes, however, the data gathered was similar for each area.

Information gathered included GIS layers of timber suitability, allotment pastures, roadless areas, private land, vegetation type, riparian areas, fens, weed treatment areas, topography, NAIPs, big-game production habitat, big-game winter habitat, streams, 6<sup>th</sup> code watersheds, water bodies, developed recreation sites, road maintenance levels, trailheads, CNHP and cultural sites.

IDT members also referred to information for their resource such as field notebooks, allotment notes, trail crew reports, road crew maintenance logs, and timber sale files. Where appropriate past NEPA decisions for timber sales, allotment management plans or recreation projects were referenced.

Information about recreation current uses and future demands was qualitative based on field observations by recreation staff. National Visitor Use Monitoring Data was not used. Each ID team member spends time in the field each summer and fall and has seen first-hand the popular roads and recreation uses.

## 1.5 Databases

Two of the tools used to manage these routes are 1) a geographic information system (GIS), and 2) a corporate database known as INFRA. The GIS database spatially displays the routes and other information across the landscape. Using GIS, transportation routes may be overlaid with streams, wildlife areas, land ownership, and a host of other information. The INFRA databases include a variety of survey-based information about each route, such as route number, length, beginning and ending locations, ownership, ranger district, surface type, and other similar data. The database also includes features along the route, such as culvert pipes, signs, cattle guards, and gates. The INFRA database also includes maintenance information.

The INFRA and GIS databases are tools to help manage the transportation system. Over the years, they are being refined. Not all ML1 roads have been field-verified at this point in time, but as problems or mistakes are discovered, corrections are made. During travel management planning efforts additional corrections to data have and will continue to occur..

In a three year effort beginning in 2006, engineering employees field-verified 1,058 miles of ML2 roads across the San Juan National Forest, mapping current alignments with Geographic Positioning System units and comparing the data with INFRA and GIS. In addition, Road Management Objectives were reviewed or developed for all ML 2-5 roads. These are on file at the Engineering Office at the San Juan Public Lands Center, Durango, Colorado.

## 1.6 Future Information Needs

Additional information needs beyond the data described above were identified during this analysis process these included:

- 1) Areas where on-the-ground alignments did not match GIS need to be field checked
- 2) The District should continue to collect public input about uses and future demands.

# STEP 2 DESCRIBING THE SITUATION

## 2.1 Purpose

The purpose of this step is to:

- Describe the existing management direction
- Describe the existing road system

## 2.2 Existing Management Direction

### 2.2.1 Forest Plan

When the ID team reviewed the Boggy-Glade landscape, the 1983 Land and Resource Management Plan (Forest Plan) was in place. On September 2013 the Forest Plan was revised. The Boggy-Glade travel analysis has been reviewed against the updated Forest Plan for this report.

Excerpts from the Forest Plan are located in Appendix A of this report. Briefly, roads play an important role in progressing towards desired conditions outlined in the Forest Plan for recreation opportunities, forest health management, fire management, range management, and private inholding access. At the same time, roads can detract from desired conditions for watershed health, wildlife habitat, and scenic integrity if there are too many roads. The risk/benefit spreadsheet calls out high risk or resource problem roads while at the same time noting those high benefit roads that provide for forest management access, outdoor recreation or other services.

### 2.2.2 – Motor Vehicle Use Map

Restrictions, prohibitions, and closures on motor vehicle use are also part of the existing direction.

The Dolores Ranger District published a Motor Vehicle Use Map (MVUM) in September, 2013 with an update in September 2014. This map contains the existing direction for motor vehicle use on the District. All motor vehicle use (excluding over-snow travel) is limited to designated roads and trails shown on the MVUM. There are no designated motorized areas on the Dolores District at this time. The MVUM for the Dolores Ranger District is available on the web at: <http://www.fs.usda.gov/goto/sanjuan/home>.

States, counties, other Federal agencies, and private entities control roads that cross Forest land by obtaining easements from the Forest Service. Roads that have easements issued to other entities are generally not managed as National Forest System Roads. Hwy 145, the West Fork of the Dolores Road, and the Dolores County portion of the Dolores-Norwood Roads are all examples of roads currently under easement.

## 2.3 - Existing Road System

Many of the recommendations in the 2010 Boggy Glade Travel Analysis report have been carried forward in the Boggy-Glade Travel Management Decision. This decision converted 22 miles of ML2 roads to ML1 roads, decommission 71 miles of ML2 roads and 95 miles of ML1 roads thus removing them from the forest road system. The decision included a recommendation to transfer 17 miles of Forest system road to County jurisdiction. To date, 4.2 miles have been placed under easement to Dolores County. As of the writing of this report, roads to be decommissioned in the Boggy-Glade area have been closed to public use through the Motor Vehicle Use Map designations and on the ground signing and left to re-vegetate 'on their own'. Some areas however, have also included road bouldering, ripping, or drainage realignment to address resource issues. The map produced for the Dolores District displays the Boggy-Glade system roads that are no longer needed. The calculated mileages below do not include these roads.

The Mancos Cortez Travel Management decision converted 4 miles of system road to trail, added approximately 1 mile of ML 2 road to the system, and removed approximate 5.5 miles of system road (set for decommissioning). These changes have been implemented along with physical closure of a number of non-system routes that had existed in this landscape.

The Rico West Dolores road system has not been altered since 2005.

Non-system routes were automatically assumed to be un-needed and not recommended for future use by the public or administratively.

### 2.3.1 – Terminology for Existing Road System

National Forest System Roads are managed through road objectives that stipulate the uses for which the road was designed and currently managed, maintenance levels, target maintenance frequencies and tasks, and other information. Road objectives are currently described in the INFRA database based on input from Forest Service engineers.

National Forest System Roads are assigned a specific maintenance level that is based on a set of criteria which describes how each individual road will be maintained. These criteria include considerations for resource protection, season of use, user comfort and safety, travel speed, traffic volume and type, and surface type.

Discussions about roads in this TAPR will use the Forest Service Maintenance Level (ML) terminology which includes ML 1-5:

- ML 1, roads in storage for more than a year
- ML 2, high clearance vehicles, usually native surface;
- ML 3, suitable for passenger car travel, usually gravel surface;
- ML 4, suitable for passenger car travel, provides comfort at moderate speeds), usually gravel surface; and
- ML 5, paved, or chip sealed.

Maintenance levels 1-5 (operational and objective) are described in more detail in Forest Service Handbook (FSH) 7709.59, Section 62.32, and in Appendix B.

### 2.3.2 – Existing Road System

Currently the miles by maintenance level for each landscape are as follows,

## Total Miles for the Dolores District Road System

Road Maintenance Level	Miles
Maintenance Level 1	316.79
Maintenance Level 2	491.20
Maintenance Level 3	252.77
Maintenance Level 4	39.26*
Maintenance Level 5	14.19*
<b>Total System Roads</b>	<b>1114.21</b>

\*Assume Dolores Norwood Road transfers

### 2.3.3 Season of Use of the Existing Road System

Most roads on the Dolores District at the higher elevations are seasonally closed to overground motorized travel because of snow. At the lower elevations, seasonally closed roads are managed by gate closures to protect road surfaces. Seasonal restrictions usually occur from November thru April but this can vary. Motor vehicle travel is also managed by gates during specified time periods, in specified areas for winter wildlife habitat protection. Dates of winter wildlife seasonal restrictions are December thru April.

## STEP 3 IDENTIFYING ISSUES

### 3.1 Purpose

The purpose of this step is to:

- Identify key issues related to management of the existing road system.

### 3.2 Issues

The key issues identified below are common across the San Juan National Forest as well as specific to the Dolores District. These issues are listed in random order and do not represent a hierarchy of importance.

1. **Insufficient funding for maintenance of the existing system roads:** Inadequate maintenance reduces access for National Forest users and management, accelerates soil erosion by concentrating surface water flow, and affects water quality and aquatic habitat by increasing sediment into water courses and intermittent drainages. Funding for road and trail maintenance is not adequate to maintain the existing system and perform needed monitoring.
  - a. This was a major issue in the Boggy-Glade landscape where maintenance frequencies on Level 2 roads prior to 2005 were as long as 8-10 years between maintenance visits in some areas. Also, the Dolores Norwood road placed a large deferred maintenance

cost for upkeep of approximately eight miles of paved road. As a result of the 2012 decision the District recommended transfer jurisdiction of the Dolores Norwood road to Montezuma and Dolores counties. Additionally, the total miles of Level 2 road maintenance was reduced across the Boggy-Glade Landscape. However, insufficient funding for maintenance remains an issue for the Boggy-Glade area but this needs to be balanced with demands for recreation and forest management.

- b. This remains an issue for the Mancos Cortez Landscape because of the popularity of the road system for recreation coupled with forest management needs.
- c. The road system in the Rico West Dolores Landscape lies between extensive roadless areas thus the total number of miles is less than the other two landscapes. Maintenance issues in this landscape arise from the occasional wash out or slumping event on steep slope roads. Few changes are needed in the overall road system on the Rico West Dolores Landscape.

2. **Motorized Recreation Use:** Roads are used for various types of motorized recreation including driving for pleasure, 4-wheel driving, All Terrain Vehicle (ATV) and motorcycle riding, and snowmobile riding.
  - a. Local communities place a very high value on the road system in all three landscapes where roads provide for driving and ATV/UTV riding.
3. **Recreation Access/Connectivity:** Roads are often used to provide motor vehicle access to recreational activities occurring off roads, such as hiking, camping, hunting, firewood gathering, rock collecting, etc. Roads can also provide important connectivity to other roads and motorized trails.
  - a. Local communities place a very high value on the road system especially for hunting, firewood gathering, and access to trailheads. This District receives its heaviest recreation use during hunting season when local and out-of-town visitors fill the forest road areas with camps and drive the roads for scouting. Dispersed camping is popular in the Rico West Dolores and Mancos Cortez landscapes in the summer time.
4. **Forest Management:** Roads are used for access to forest management activities such as fuels reduction, timber harvest, grazing, mining, oil and gas development, noxious weed treatment, etc. Motorized trails are used for these same purposes to a lesser degree.
  - a. The Dolores District has an active timber management program aimed at forest health issues in aspen, pine, and spruce fir forests. Most of the District contains active grazing allotments. Recently seismic studies have been performed by oil/gas companies so there is potential for increased activity in the future. Roads also provide access for fire suppression and can serve as control lines for the prescribed fire program in the ponderosa pine.
  - b. One issue related to forest management is the increasing lack of funding from timber sales for road maintenance work associated with the sales. This trend is likely to continue.
5. **Emergency Access:** Roads and motorized trails facilitate responding to emergencies such as fire suppression and search and rescue.
6. **Need to obtain rights-of-way and access:** Some Forest roads that cross private property do not have legal rights-of-way. Public and administrative access may be barred in the future if legal rights-of-way are not acquired, or database errors need to be rectified. Conversely, private landowners may need to obtain authorization to use Forest system or non-system roads to access their property.

7. **Need to transfer jurisdiction to other entities:** The Dolores-Norwood road has been identified as a road better suited for management by County government.
8. **Impacts to water resources:** Erosion and sediment transport off roads in areas with perennial, intermittent, and ephemeral stream channels or wetlands may impair the ecological and hydrologic function of drainage channels.
  - a. This was an issue for the Boggy-Glade area where high road densities resulted in too many points of sediment when rain events caused water to run through the drainages. The overall amount of bare ground dedicated to road was high and many of the watersheds in Boggy Glade area were listed as sensitive to anthropogenic influences and functioning at risk. The 2012 travel management decision reduced overall route densities in these sensitive watersheds and eliminated cross-country travel. The issue of impacts to water resources continues but at a lesser scale than prior to 2005.
  - b. In the Mancos Cortez area the Chicken Creek Watershed was identified as a priority watershed under the Watershed Framework. This was, in part, to the number of roads in the watershed, combined with timber management, grazing issues, and potential for wildfire effects. In the 2009 travel management decision cross country travel was eliminated from the Mancos Cortez area. Many nonsystem routes were physically blocked, ripped and seeded for revegetation throughout this landscape.
  - c. Water related issues are in the Rico West Dolores area occur at localized spots where road culvert structures currently block fish passage and these points are under review for new culverts or re-configured roads. In the northwest corner of the analysis area the road system crosses wet areas. Many of these roads are incised and there is no opportunity to drain the water off. Vehicles drive around mudholes causing a braiding effect that promotes resource damage. See recommendations below related to this issue area.
9. **Soil and Geologic Hazards:** Portions of the analysis area have soils that erode easily. These soils are extremely susceptible to compaction, rutting, gullying, and development of mud holes. Some roads and trails are susceptible to mass movement, such as landslides and slumping. These occurrences can be costly to fix as well as cause resource concerns.
  - a. This issue occurs on portions of the Boggy-Glade landscape on the Mancos-Shale soils. This issue also occurs in the Rico West Dolores area on the Morrison Formation and on FR535 which crosses a talus slope and is subject to sliding. A recent slide also occurred on the Barlow Road.
10. **Fragmentation and wildlife security:** Motorized routes may fragment wildlife habitat, create barriers to movement, reduce wildlife habitat capability to sustain populations, and increase areas of disturbance.
  - a. This was a major issue in the Boggy-Glade travel management area in part due to cross country travel combined with the high density of roads. The 2012 travel management decision eliminated cross-country travel, thus eliminating use of nonsystem routes, and reduced the overall density of Forest system roads. Patches of wildlife security areas were created through these actions. This continues to be an issue for the Boggy-Glade landscape in some areas where densities were left high to achieve other recreation or forest management demands.
  - b. This issue also continues on some portions of the Mancos Cortez landscape. See the recommendations below.

11. **Impacts to vegetation:** Motor vehicle use may cause the spread of invasive species by dispersing seed sources.
12. **Impacts to cultural resources:** Motorized routes and use of these routes may impact cultural resources.
13. **Inappropriate Jurisdiction:** Portions of some roads may not be under the appropriate jurisdiction and would be better managed within a county road system, particularly where they provide access to large private inholdings and developments. Additionally, some roads currently considered system roads are on private lands and there is no need for administrative or public use of the road.

Many of the issues identified above have been addressed in recent landscape-specific Travel Management Plan environmental analyses. Additional information can be found in the individual NEPA analyses and decisions.

## STEP 4 ASSESSING BENEFITS, PROBLEMS, AND RISKS

### Purpose

The purpose of this step is to:

- Describe the analysis process
- Describe the criteria and rankings used in the risk and benefit analysis
- Summarize the results of the risk and benefit analysis

### The Analysis Process

Appendix C contains the spreadsheets for each of the three travel analysis landscapes. Risk and benefit criteria developed for other Travel Analysis on the Columbine and Pagosa Districts of the San Juan Forest was also used for the Dolores District landscapes which provides continuity across the San Juan Forest.

Each risk and benefit criteria was applied to each road to create an overall rating system. After reviewing the roads spreadsheet independently, team members convened in a set of meetings with GIS information displayed on the screen. Values were assigned for each risk and benefit category for each road.

High risks/benefits were assigned a numerical value of three (3), medium risks/benefits were assigned a numerical value of two (2), and low risks/benefits were assigned a numerical value of one (1). Where cultural resource risk was rated as “unknown”, this category was not assigned a numerical value. Assignment of a High (3), Medium (2), or Low (1) rating for each risk and benefit category generally followed the guidelines presented below.

Once a numerical value was assigned to each category, an average was calculated for each route that is represented by the “overall risk (or benefit) ranking”. Those rankings in the upper 1/3 (with a numerical value of 2.34 or greater) were assessed as “High”, those rankings in the middle 1/3 (with a value between 1.67 and 2.33) were assessed as “Medium”, and those rankings in the middle 1/3 (with a value less than 1.67) were assessed as “Low”. These categories were calculated

mathematically and did not consider the severity of the impact beyond the guidelines listed above. Additional information was also listed in the comments and remarks sections of the spreadsheets when an IDT member had on-the-ground knowledge of impacts or other information not addressed in the criteria.

In the “Recommendations” column of the spreadsheets of Appendix C, the IDT recorded their recommendation for any changes to the road. The “Comments” column was used to note additional information about the road. The “Comments” column was also used to note potential future changes to a route where current information is inadequate to definitively make a recommendation.

## **Criteria and Rankings Used in the Risk and Benefit Analysis**

The criteria and rankings used for this analysis are described below.<sup>1</sup>

### **RISKS**

#### **Condition/Maintenance and Repair Costs**

Road and motorized trails are rated based on their existing condition. Routes in good condition are meeting the standards for the route. Although all routes require annual or routine maintenance, routes in poor condition also have deferred maintenance and repair needs in order to bring them back up to standard. Routes in poor condition may also be causing soil and watershed impacts as discussed below.

**A risk rating of 3 was assigned to routes currently in poor condition and with high levels of deferred maintenance and repair needs as based on the presence of three or more of the following conditions: washboarding; surface deterioration; landslides; roadbed slumping; slope raveling; drainage problems; rutting or gullyng; mud holes; poor condition drainage structures or culverts; and design deficiencies. A risk rating of 2 was assigned to routes with moderate levels of deferred maintenance and repair needs as based on the presence of two or more of the above conditions. A risk rating of 1 was assigned to routes that are in fair or better condition with little or no deferred maintenance and repair needs, no existing damage, or one of the above conditions present.**

#### **Water Resources**

Motorized use can affect water resources primarily by sediment being transported off road and trail surfaces into streams or wetlands. Open roads are devoid of vegetation and have compacted surfaces. A variety of drainage structures are used where they cross drainages and stream channels, such as fords, culverts, and log culverts. Areas of poor drainage can develop mud holes which are deepened and churn up sediment every time vehicles pass through them. Poor route location and inadequate drainage when the route was constructed can exacerbate watershed impacts. For example a route that is adjacent to and parallels a stream is more likely to have poor drainage and direct sediment inputs to the stream than a route that is located further away from the stream and contours along a slope. Drainage structures need to be maintained on a regular basis in order to remain fully functional. Inadequate maintenance can result in increased sediment being transported to streams or wetlands. Closed roads are mostly vegetated and have fewer impacts to water

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<sup>1</sup> A new spreadsheet was completed for the Boggy-Glade area based on information from the 2010 analysis. However, the risk/benefit rating numbers for the new spreadsheet reflect the reduced road system that resulted from the 2012 travel management decision and thus represents a ‘version 2’ travel analysis.

resources, although drainage structures can fail and cause sediment to be introduced to streams or wetlands if the roads are not inspected periodically and maintained as needed.

**A risk rating of 3 was assigned to routes located in close proximity to surface water and/or with a history of drainage problems or sediment being transported off the road or trail. A risk rating of 2 was assigned to routes that have some vegetated buffer between the route and surface water and/or have some history of drainage problems or sediment being transported off the route. A risk rating of 1 was assigned to routes that are distant from surface water and/or have a minimal history of drainage problems or sediment being transported off the route.**

### **Soil/Geologic Hazards**

Motorized use can affect soils primarily by causing erosion and loss of soil. Erosion from roads and trails is increased in areas with soils with high erosion ratings, steep slopes, or routes with steep gradients. Poor route location, inadequate drainage structures, and inadequate maintenance can exacerbate soil impacts. Closed roads are mostly vegetated and have fewer erosion problems and impacts to soils, although drainage structures can fail and cause erosion if the roads are not inspected periodically and maintained as needed.

Roads and trails can either be affected by or cause impacts to geologic hazards, such as landslides, slumps, mudflows, or rockfalls. Poorly located routes can exacerbate landslides. Routes can also be damaged by landslides, slumps, mudflows, or rockfalls, thereby increasing maintenance and repair costs.

**A risk rating of 3 was assigned to routes with a history of road damage from landslides, slumps, mudflows, rockfall, retaining wall failure, gullying, soils that are unstable or extremely susceptible to erosion. A risk rating of 2 was assigned to routes that have a history of minor route damage from soil or geologic hazards. A risk rating of 1 was assigned to routes with no history of damage from soil or geologic hazards.**

### **Wildlife Resources**

Three risk ratings were identified for wildlife resources. The three ratings were low, moderate, or high, with a single risk rating provided for each route analyzed. The ratings focus on risks to habitat rather than risks to species as there are many species utilizing the diversity of habitats across the Rico-West Dolores area, and species response to disturbance associated with motorized use varies tremendously. A single risk rating that focuses on disturbance impacts to species would not suffice for all species, and a single risk rating that considers risks to both habitat and species would be difficult as individual routes are located in multiple habitats used by multiple species. Risk ratings focus on impacts to wildlife habitat based on road densities and use in a given area as explained below.

The effects of motorized use on wildlife habitat depend on several important factors including their location within suitable habitat, densities within suitable habitat, and amount and type of use occurring. Roads and trails provide access into areas that provide opportunities for an array of recreational use such as firewood collection, rock and mineral collection, collection of medicinal and edible plants, camping in dispersed and in designated areas, and other motorized and non-motorized uses year-round. Roads and trails also provide access and opportunities for an array of forest

management activities such as timber management, wildland and prescribed fire management, livestock grazing, oil and gas exploration, lands and special uses, and other activities. Recreational and forest management activities have the ability to negatively or positively affect wildlife habitat depending on their overall affect to key habitats (riparian and wetlands) and habitat attributes utilized for foraging, breeding, and security such as trees and shrubs, grass-forb vegetation, snags, and downed logs and other woody debris.

**Based on the above rationale, areas with high road and motorized trail densities are expected to receive higher levels of public and administrative use. In this scenario, there is higher probability of direct and indirect impacts to habitat or habitat attributes utilized by species for breeding, foraging, and security resulting in high risk to the resource (assigned a 3). In contrast, areas with low road densities are expected to receive less use; therefore, the degree and probability of impacting habitat and/or key habitat attributes is expected to be less resulting in low risk to the resource (assigned a 1 rating). Areas with moderate road densities are expected to receive moderate levels of public and administrative use, therefore resulting in moderate risk to the resource (assigned a 2)**

#### Ecological Resources

Motorized use could impact ecological resources by crushing or uprooting vegetation (resulting in deformation or mortality to plants and loss of ground cover), by removing plants and litter (resulting in mortality to plants and loss of ground cover), by causing soil erosion or soil compaction, and by introducing and/or spreading invasive plants that compete with native plants for space, water, and nutrients. These impacts (which are often associated with unauthorized cross-country travel) could adversely affect the composition, structure, and function of the ecosystems in which they occur, and (in addition to affecting general ecological resources) could adversely affect sensitive ecological resources including rare plants, rare plant communities, alpine ecosystems, riparian area/wetland ecosystems, and aquatic ecosystems.

**The risk of these impacts occurring is high where there are high road densities, high levels of motorized use, and high concentrations of sensitive ecological resources because more roads likely means more motorized use and more use likely means more impacts, and because high concentrations of sensitive ecological resources means more potential for affects to these resources (assigned a rating 3). The risk of these impacts occurring is low where there are low road densities, low levels of motorized use, and low concentrations of sensitive ecological resources because less roads likely means less motorized use and less use likely means less impacts, and because low concentrations of sensitive ecological resources means less potential for affects to these resources (assigned a rating 1). The risk of these impacts occurring is medium where there are moderate road densities, moderate levels of motorized use, and moderate concentrations of sensitive ecological resources because moderate road densities likely means moderate motorized use and moderate use likely means moderate impacts, and because moderate concentrations of sensitive ecological resources means moderate potential for affects to these resources (assigned a rating of 3).**

#### Invasive Species

Motor vehicle use has the potential to spread invasive species by dispersing the seed source. The three risk ratings identified for invasive species were low, moderate, or high, with a single risk rating

provided for each road and trail analyzed. Risk ratings were tied to both the size and distribution of existing noxious weed populations, as well as the potential for spread of invasive species. The invasive species considered for this analysis are the plant species listed on the Colorado Noxious Weed List.

**Risk level 1 was assigned to routes with only a few, small known noxious weed populations, or no known noxious weed populations. These populations do not appear to be spreading. Risk level 2 was assigned to routes with several known noxious weed populations, of any size. These populations have the potential to spread. Risk level 3 was assigned to routes with numerous, often large and contiguous, known noxious weed populations. These populations are often known to be spreading.**

#### Cultural Resources

Continued use and maintenance of roads and motorized trails has the potential to affect historic properties. Impacts are most commonly found within the route disturbance itself as sites are exposed and damaged through use. Specific site types outside of the road area can also be adversely affected by the presence and use of routes (e.g., rock art panels, structures, Traditional Cultural Properties). Many roads and trails have been in use since before the National Historic Preservation Act (1966) was passed or were constructed as standards for NHPA analysis were in development; many have not been formally inventoried for the presence of cultural resources according to modern standards. Roads and trails which have already resulted in significant ground disturbance through their construction and maintenance (Road Maintenance Level 3 and higher) have already probably done the damage they are going to do to any sites which were located within the route prism.

Previous cultural resource evaluations were reference along with previous linear survey. Block survey was not used because it would not have covered the linear feature completely. **Where linear surveys occurred and sites were identified within the linear corridor the road was given a 2 rating. Where linear surveys and evaluation of sites determined direct impact to a site eligible for listing on the NRHP or a ‘needs data’ site then the road was given a risk rating of 3. An example of a 3 rating would be road that passes through a site. Where linear survey occurred and no sites were in proximity to the road a risk rating 1 was used. For roads where no linear survey has been completed, a ‘unknown’ category was used. These ratings were provided as described above regardless of maintenance level. Additionally, historic maps were consulted to determine if a road was historic; making it highly likely that it would qualify as an historic property. In the event a road was historic, risks were rated as “high.” (3). The “unknown” category is not weighted in the risk analysis.**

#### Jurisdiction

Roads that access private property where the majority of traffic on the road is related to the private property are better suited as County roads. **Roads that provide access to multiple private parcels or large private development(s) were generally rated as 3. Roads that provide access to few private parcels were generally rated as 2. Roads that have no private access were generally rated as 1.**

#### Rights-of-Way Acquisition

Rights-of-way issues occur when private entities desire to use Forest Service Roads to access private property, and when the Forest Service does not hold an easement for roads providing access to

National Forest System lands that cross private lands. It is critical for the Forest Service or counties to acquire easements where a formal deeded right-of-way does not exist for public access. **Roads that have multiple or complex unresolved right-of-way issues are rated as 3. If only simple issues are unresolved, the rating is 2. If no unresolved right-of-way situations exist, the rating is 1.**

## **Benefits**

### **Motorized Recreation Use**

Roads and motorized trails are used for various types of motorized recreation including driving for pleasure, 4-wheel driving, ATV and motorcycle riding, and snowmobile riding. To evaluate the general level of benefit provided by each route to motorized recreationists, each route was assigned a benefit rating of 1, 2, or, 3 according to its present level of use for recreation purposes. **Routes that are frequently used for motorized recreation purposes were rated as 3, routes that are occasionally used for motorized recreation were rated as 2, and routes that are seldom or never used for motorized recreation were rated as 1.** Use levels were based on the combined professional judgment and field experience of the District specialists, as there was little quantitative data on actual road or trail usage on the District available to the specialists at the time of analysis.

### **Recreation Access/Connectivity**

Roads and motorized trails are often used to provide motor vehicle access to recreational activities occurring off roads, such as hiking, camping, hunting, firewood gathering, rock collecting, etc. Roads and trails also can provide important connectivity to other roads and motorized trails. **To evaluate the level of this type of benefit, routes were assigned a rating of 3 if they provided access to numerous or high value recreation opportunities and/or connectivity to many other motorized routes, a rating of 2 if they provided access to some recreation opportunities and/or connectivity to other motorized routes, and a 1 if they provided access to limited recreation opportunities and/or connectivity to other motorized routes.**

### **Range Management**

Range management utilizes constructed features such as fences, gates, cattleguards, stock ponds, etc., to facilitate livestock distribution, regulate grazing impacts, and maintain livestock health and productivity. Roads and motorized trails are used to more efficiently move equipment and supplies into new construction projects, to access existing facilities for maintenance or reconstruction, or to remove unneeded or obsolete facilities. **Routes that provide access to numerous range improvements, or large or critical areas are rated as 3. Routes that provide access to several range improvement, or moderately-sized areas are rated as 2. Routes that provide access to few range improvement, or only small or non-critical areas are rated as 1.**

### **Timber Management Access**

Roads provide motorized access to areas that periodically undergo various forest management activities such as timber harvest, biomass production or mastication, sale of miscellaneous forest products such as firewood, posts and poles or cones, reforestation, timber stand improvements, and forest restoration treatments. The Forest Plan contains direction to construct and maintain roads to support timber management activities along with a mix of other resource activities. Within those lands comprising the suitable timber base where a high forest cover is to be maintained, Forest Plan

direction also established planned re-entry schedules of 10-40 years depending upon the forest cover type.

**Roads that provide access to areas that periodically undergo management in multiple timber program areas (e.g. timber, biomass, forest products, forest restoration), primarily within the suitable timber base) were rated a 3. Roads that provide access to areas that infrequently have active management in more than one resource program area were rated a 2. Roads that provide access to areas that rarely have active management or serve only one resource program area were rated a 1.**

### **Fuels**

Fuels treatments involve removal or treatment of forest vegetation (fuels) through various means such as timber harvest, removal of biomass, mastication (mowing) of brush and small trees, and prescribed burning. To be most effective, it is usually recommended that mechanical treatments be followed with one or more prescribed burns. Once an area is treated, repeated prescribed fire treatments are often desired for both fuels management and ecosystem restoration and maintenance. Forests of ponderosa pine and warm-dry mixed conifer within the Wildland Urban Interface (WUI) are the primary target of these initial fuels and restoration treatments. Roads and motorized trails can provide ready access for deployment of prescribed burning personnel and equipment such as engines, dozers, and crew rigs, and often serve as permanent fire containment lines.

**Routes that provide numerous opportunities for repeat access and prescribed fire control lines are rated a 3. Routes that provide some opportunities for repeat access and prescribed fire control lines are rated a 2. Routes that provide few opportunities for repeat access and little functionality as prescribed fire containment lines are rated a 1.**

### **Emergency Access**

Roads were rated as to their benefit for motor vehicle use for emergency access, primarily fire suppression and search and rescue. To evaluate the general level of benefit provided by each route to emergency access, each route was assigned a benefit rating of 1, 2, or, 3 according to its past use or expected future use for emergency access. **Routes that receive high public use, provide access to areas with high public use, or provide access to or are adjacent to private property generally were rated as 3, routes that receive moderate public use, provide access to areas with moderate public use, or provide access to or are adjacent to sparsely populated private property generally were rated as 2, and routes that receive little or no public use, provide access to areas with low public use, or do not provide access to or are adjacent to private property generally were rated as 1.** Past and expected future emergency access use levels were based on the combined professional judgment and field experience of the District specialists, as there was little quantitative data on actual emergency access usage on the District available to the specialists at the time of analysis.

The table below summarizes ranking criteria for Risks followed by a table for Benefits.

Risks		
Issue	Rating	Criteria Guidelines
Condition / Maintenance and Repair Costs	High	High levels of deferred maintenance and repair needs as based on the presence of three or more of the following conditions: washboarding; surface deterioration; landslides; roadbed slumping; slope raveling; drainage problems; rutting or gullying; mud holes; poor condition structures or culverts; and design deficiencies.
	Medium	Moderate levels of deferred maintenance and repair needs as based on the presence of two or more of the above conditions.
	Low	Little or no deferred maintenance and repair needs; no existing damage or one of the above conditions present and condition fair or better.
Water Resources	High	Close proximity to surface water, history of drainage problems or sediment being transported off road.
	Medium	Some buffer between route and surface water, some history of drainage problems or sediment being transported off route.
	Low	Distant from surface water, minimal history of drainage problems or sediment being transported off route.
Soil/Geologic Hazards	High	Forest Service knowledge of road damage from landslides, slumps, mudflows, rockfall, retaining wall failure, gullying, soils that are unstable or extremely susceptible to erosion.
	Medium	Knowledge of minor road damage from soil or geologic hazards.
	Low	No knowledge of damage from soil or geologic hazards.
Wildlife Resources	High	High levels of motorized and non-motorized use on roads in highly roaded area.
	Medium	Moderate levels of motorized and non-motorized use on roads in moderately roaded area.
	Low	Low levels of motorized and non-motorized use on roads in minimally roaded area.
Ecological Resources	High	High road densities, high levels of motorized use, and high concentrations of sensitive ecological resources.
	Medium	Moderate road densities, moderate levels of motorized use, and moderate concentrations of sensitive ecological resources.
	Low	Low road densities, low levels of motorized use, and low concentrations of sensitive ecological resources.
Invasive Species	High	Numerous known populations of noxious weeds in vicinity of route corridor.
	Medium	Some known populations of noxious weeds in vicinity of route corridor.
	Low	No or few known populations of noxious weeds in vicinity of route corridor.
Cultural Resources	High	Where surveys and evaluations determined direct impact to a site eligible for listing on NRHP or a 'needs data' site.

Risks		
Issue	Rating	Criteria Guidelines
	Medium	Where linear surveys occurred and sites were identified with the linear corridor
	Low	Where linear surveys occurred and no sites were in proximity to the road
	Unknown	Roads with no linear survey complete. This rating was not weighted in the risk average.
Jurisdiction	High	Access to multiple private parcels or large private development(s).
	Medium	Access to few private parcels.
	Low	No private access.
Rights-of-Way	High	Multiple or complex right-of-way issues
	Medium	Few or non-critical rights-of-way issues.
	Low	No rights-of-way issues.

Benefits		
Issue	Rating	Criteria Guidelines
Motorized Recreation Use	High	Roads that are frequently used for motorized recreation activities (includes driving for pleasure, 4X4, ATV, motorcycle, or snowmobile use).
	Medium	Roads that are occasionally used for motorized recreation activities.
	Low	Roads that are rarely or never (ML1 roads) used for motorized recreation activities.
Recreation Access/Connectivity	High	Roads that provide access to numerous or high value recreation opportunities and/or connectivity to many other motorized routes.
	Medium	Roads that provide access to some recreation opportunities and/or connectivity to some other motorized routes.
	Low	Roads that provide access to limited recreation opportunities and do not provide connectivity to other motorized routes.
Range Management Access	High	Roads that provide access to numerous range improvement, or large areas.
	Medium	Roads that provide access to several range improvement, or moderately-sized areas.
	Low	Roads that provide access to few range improvement, or only small areas.
Timber Management Access	High	Roads that provide access to areas that periodically undergo management in multiple timber program areas (e.g. timber, biomass, forest products, forest restoration, primarily within the suitable timber base).
	Medium	Roads that provide access to areas that infrequently have active management in more than one resource program area.
	Low	Roads that provide access to areas that rarely have active management or serve only one resource program area.

Benefits		
Issue	Rating	Criteria Guidelines
Fuels Management Access	High	Roads that provide numerous opportunities for repeat access and prescribed fire control lines.
	Medium	Roads that provide some opportunities for repeat access and prescribed fire control lines.
	Low	Roads that provide few opportunities for repeat access and little functionality as prescribed fire control lines.
Forest Management Access	High	Roads that provide access to areas that periodically undergo management in multiple resource program areas (e.g. timber, range, fuels, fire, minerals, law enforcement etc.).
	Medium	Roads/trails that provide access to areas that infrequently have active management in more than one resource program area.
	Low	Roads/trails that provide access to areas that rarely have active management and serve only one resource program area.
Emergency Access	High	Roads that are frequently used or will likely be needed for emergencies (such as fire suppression, search and rescue, etc.).
	Medium	Roads that are infrequently used or needed for emergencies.
	Low	Roads that are rarely used and will likely not be needed for emergency access.

## Public Involvement in Travel Analysis

Communicating with the public about roads has become an ‘every-day’ occurrence on the Dolores Ranger District whether it be sign improvements, field contacts by FPO’s, range permittee meetings or answering questions at the front desk. In addition, the following events occurred separate from public involvement undertaken during the travel management NEPA processes.

- In summer, 2011 staff from the Wilderness Society visited the Dolores District for the purpose of discussing travel analysis. Meetings were held at the District Office to discuss the Boggy-Glade travel analysis and report. In addition, a field trip was held in the Mancos Cortez Landscape to view ARRA funded decommissioning actions that were underway at the time. Staff from the Wilderness Society provided suggestions for improving the travel analysis process.
- A draft of the Boggy-Glade Travel Analysis report was mailed to Jimbo Buickerood of San Juan Citizens Alliance for comment prior to finalizing the 2010 report.
- A 2011 ‘After Action’ Field Review of road decommissioning work in the Mancos-Cortez landscape was attended by local officials, state agencies and organization representatives.
- During hunter patrols each fall since 2010 staff from the Dolores District contacted hunters and explained travel planning was underway at the District. Staff informally noted popular roads for hunter access and camping.
- Road discussions occurred at public land committee meetings for Montezuma County from 2011-2012.
- In the summer of 2012, a field trip was held in the Boggy-Draw area to discuss specific roads Dolores and Montezuma counties desired to see remain open for public use.

- In 2012 and 2013, the Travel Analysis process, relative to the Boggy/Glade landscape, was discussed at Board of County Commissioner meetings at both Dolores and Montezuma counties.
- A field trip with Montezuma County commissioners was held in the Boggy-Draw area in 2013 to discuss implementation techniques for road decommissioning after a timber sale.
- A pre-NEPA workshop held in June 2014 for the Rico West Dolores area included a presentation by various stakeholder group representatives as to the uses and values of the Rico West Dolores Roads.
- Montezuma and Dolores County staff discussed roads in meetings with FS staff.
- The Rico West Dolores travel analysis spreadsheets were displayed in a meeting with representatives from Trout Unlimited and San Juan Citizens Alliance in March of 2015
- Each ID team member had knowledge of public demands related to the transportation system because of past planning projects and ongoing administration of the timber, range, lands, and recreation programs on the District.

### **Results of the Risk and Benefit Analysis**

This analysis resulted in nine possible risk/benefit pair categories: High Risk/High Benefit; High Risk/Medium Benefit; High Risk/Low Benefit; Medium Risk/High Benefit; Medium Risk/Medium Benefit; Medium Risk/Low Benefit; Low Risk/High Benefit; Low Risk/Medium Benefit; and Low Risk/Low Benefit.

The tables below list the current miles of ML2 through 5 roads that fell within each risk/benefit category. ML1 roads were not rated.

Rico-West Dolores Landscape - Miles by Risk/Benefit Category

<b>Risk/Benefit</b>	<b>Miles</b>
High Risk/High Benefit	10
High Risk/Medium Benefit	31.1
High Risk/Low Benefit	6.3
Medium Risk/High Benefit	26.1
Medium Risk/Medium Benefit	104.1
Medium Risk/Low Benefit	88
Low Risk/High Benefit	0
Low Risk/Medium Benefit	36.8
Low Risk/Low Benefit	50.2

## Boggy-Glade Landscape – Miles by Risk/Benefit Category

Risk/Benefit	Miles
High Risk/High Benefit	0
High Risk/Medium Benefit	0
High Risk/Low Benefit	0
Medium Risk/High Benefit	4.8
Medium Risk/Medium Benefit	9.2
Medium Risk/Low Benefit	1.5
Low Risk/High Benefit	140.5
Low Risk/Medium Benefit	121.1
Low Risk/Low Benefit	91.9

## Mancos-Cortez Miles by Risk/Benefit Category

Risk/Benefit	Miles
High Risk/High Benefit	32
High Risk/Medium Benefit	160.3
High Risk/Low Benefit	0
Medium Risk/High Benefit	160.3
Medium Risk/Medium Benefit	16.3
Medium Risk/Low Benefit	1.4
Low Risk/High Benefit	17
Low Risk/Medium Benefit	11.6
Low Risk/Low Benefit	.4

**A note about Level 1 Stored Roads**

Because Level 1 stored roads are not available for public driving the risk/benefit rating in the spreadsheets could not be applied to each Level 1 road. Rather than a spreadsheet, a list of Level 1 roads to maintain on the road system is provided.

The Dolores District defines Level 1 roads as roads placed in storage and not used by the public or administratively for one year or more. Most of the Level 1 roads on the District were created through timber management. Over the years, Level 1 roads were kept 'on the books' and over time the mileage of Level 1 routes in our database became extensive. Some of the roads mapped from the database remained physically open as a result of cross country driving policies that allowed the

public to drive on the routes. Other level 1 roads became overgrown and re-vegetated with the road prism barely visible.

The 2012 Travel Management decision in Boggy-Glade eliminated cross-country travel and thereby prohibited public driving on routes not shown as open on the Motor Vehicle Use Map. In addition, the 2012 Decision eliminated 95 miles of Level 1 roads from the road system. .

The 2009 Travel Management decision in Mancos Cortez landscape did not evaluate Level 1 roads. In 2015 the Level 1 roads were evaluated and recommendations were provided for whether or not there is a future management need or known environmental concern. Recommendations were made to remove some Level 1 roads from the system.

The results of recent recommendations regarding ML1 roads are listed in the Minimum Road System section of this document below.

## **STEP 5 DESCRIBING OPPORTUNITIES AND SETTING PRIORITIES**

### **Purpose**

**The purpose of this step is to:**

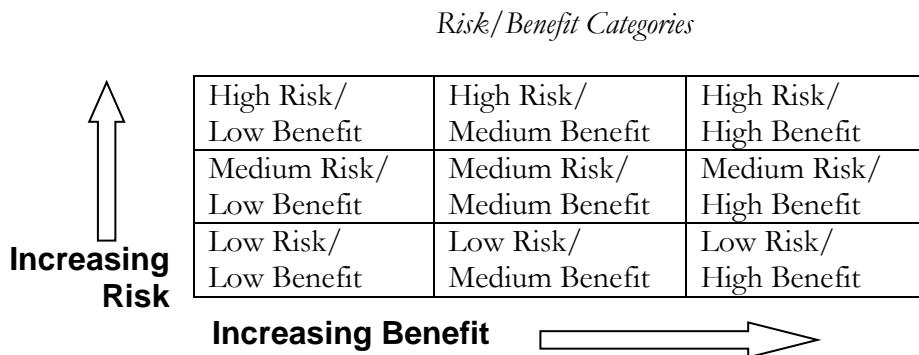
- List opportunities for roads
- Determine the minimum road system
- Describe future actions

### **Opportunities for Roads**

Below is a general list of opportunities for changing the transportation system:

1. **Change Jurisdiction**
2. **Close to Public Motorized Use and Place Road in Storage**
3. **Change Maintenance Level**
4. **Convert to Another Use**
5. **Remove from the Forest Road System**
6. **Aggressive Storm-proofing**

General actions for roads and motorized trails that fall within each of the nine risk/benefit categories (Table 6) are described below. These are general recommendations and are not necessarily applicable to all routes that fall within each category.



### Possible Actions based on Risk/Benefit

- ✓ High Risk/Low Benefit – Place in Storage or Take off System
- ✓ High Risk/Medium Benefit – Place in Storage, Take off the System, or Mitigate/Maintain
- ✓ High Risk/High Benefit – Mitigate/Maintain
- ✓ Medium Risk/Low Benefit – Place in Storage, Take off System, or Mitigate/Maintain
- ✓ Medium Risk/Medium Benefit – Mitigate/Maintain
- ✓ Medium Risk/High Benefit – Mitigate/Maintain
- ✓ Low Risk/Low Benefit – Take off the system, or place in storage
- ✓ Low Risk/Medium Benefit – Maintain
- ✓ Low Risk/High Benefit – Maintain

### Minimum Road System

#### Definition

36CFR212.5 (b) (1) which states,

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

The Dolores District minimum road system is based on consideration of the risk/benefit analysis described above. The minimum road system is not a decision.

It is important to note that recent funding allocations are adequate to perform annual maintenance on many, but not all, roads on the Dolores District. However, the deferred maintenance costs are considerably higher than the appropriated funding. See Appendix B for more information on road

maintenance costs. There is no precise number of miles of road that can be maintained under any given future budget scenario. By Forest Service policy (FSM 7705), passenger car roads open to public use (ML 3-5) are subject to the Highway Safety Act; and roads need to be maintained to prevent significant resource damage. However, beyond those requirements, there is a range of how well roads must be maintained and, therefore, a range of how many miles can be maintained with any given budget level. Nonetheless, current and future allocations will be inadequate to maintain the existing system to the prescribed level; and therefore reducing the size of the road system will allow for better maintenance.

Federal regulations require the Agency to identify roads that are no longer needed to meet forest resource management objectives and those that should be decommissioned or considered for other uses, such as conversion to trails. Roads that are not part of the recommended minimum road system are roads that are no longer needed, as best identified at this point in time; the list of roads that are no longer needed might include roads that will be part of the minimum road system identified in the future. Future NEPA analyses for various projects will consider the recommendations in this travel analysis report and will implement or revise the recommendations based on more site specific information.

## **Process Used to Develop the Minimum Road System**

Recommendations for the minimum road system used the guidelines described above for the different types of roads, high risk/low benefit, medium risk/medium benefit etc. Key questions discussed were,

1. Is a Forest system road redundant with another road that leads to the same area? If so, one of the roads is likely not needed.
2. Is there an overriding need to use the road, and/or improve a road?
3. Can a resource issue be addressed through removal, improvement or maintenance?

The IDT based their previous and current recommendations on risks to natural and cultural resources, and benefits to recreation use and forest management access. A net decrease in overall road miles results from a number of actions: 1) converting roads to trails, 2) converting segments to County jurisdiction (no loss of public use), 3) taking private jurisdiction roads off system (no loss of use for private landowners), and 4) removing redundant roads where road densities have negative impacts on resources, 5) addressing resource issues by removing roads.

No new road construction was recommended through this analysis.

**The minimum road system in this report consists of,**

- The travel management changes recently implemented in the 2012 Boggy Glade Decision
- The ML 2-5 road system in place after the 2009 Mancos Cortez Travel Management Decision.
- Eliminating 30.60 miles of ML1 roads in the Rico West Dolores Area
- Eliminating 6.6 miles of ML1 roads in the Mancos Cortez Area with recommendations for future review of the remaining ML1's.
- Eliminating 7.38 miles of ML 2 roads in the Rico West Dolores Area
- Reducing 9.86 miles of ML2 to ML1 roads in the Rico West Dolores Area

- Reducing 5.19 miles of ML3 to ML2 roads in the Rico West Dolores Area
- 2013 SCarver T.S. decision to convert 2.9 miles of ML2 (FR393A, B &C) to ML1

## Recommended Minimum Road System

The mileages for the minimum system are as follows,

Road Maintenance Level	Existing	Minimum	Change
Maintenance Level 1	316.79	289.45	-27.34
Maintenance Level 2	491.20	479.15	-12.05
Maintenance Level 3	252.77	247.58	-5.19
Maintenance Level 4	39.26*	39.26*	
Maintenance Level 5	14.19*	14.19*	
<b>Total System Roads</b>	<b>1,114.21</b>	<b>1,069.63</b>	

\*Assume Dolores Norwood Road transferred

## How the minimum road system achieves forest management needs

The current system (all Maintenance Levels) generally provides adequate access for fire management, both suppression and prescribed fire.

Management of the forest for fuels reduction, forest health, and wood products is an ongoing need on the Dolores District. Re-entry timeframes for vegetation treatments in ponderosa pine ranges 20-40 years and 80 years in aspen. Maximum skidding distances from any road has traditionally been 800 feet in most cases and beyond that distance temporary roads have been used. If many existing roads are closed, this could mean longer skid distances and/or temporary roads. There comes a point where resource damage from long skid distances is of greater concern than a well-located and maintained forest road.

Special forest products popular in this area are posts, poles and firewood. Access under the minimum road system is adequate for the public to reach areas for these products.

There are active range allotments across the Dolores District. Most cattle are brought onto the allotments each year by trailer on the main roads. Grazing permittees currently use the Forest road system along with permitted cross-country travel to access fences, reservoirs and place salt blocks for their livestock. An overabundance of roads can add to the cost and maintenance of cattleguards and wire gates. The minimum road system reduces but does not eliminate that cost.

## How the minimum road system meets recreation access needs

The minimum road system provides a well-distributed system of roads to access National Forest lands on the Dolores District for a variety of recreation uses. This includes opportunities for scenic forest driving, ATV/UTV riding, and access to trailheads for horse, hike, mountain bike and motorcycle use. Hunting is extremely popular throughout the District and hunters disperse camp

and scout game along the Forest roads. The minimum road system continues to provide for these demands.

Recreation access is the highest demand on the road system and communities in the local area often argue against reductions in road mileages for fear of losing access. The minimum system is well-distributed across the district and provides ample access. Future 'minor changes' to the system could occur and still maintain access (see recommendations below).

### **How the minimum road system meets resource protection needs**

Although localized resource issues will likely continue under the recommended minimum road system, overall resource values improved from the pre-2005 situations. Roads interact with the environment in a variety of ways.

The minimum road system would reduce wildlife disturbance and increase habitat security compared to the road system in place prior to 2005. However, some areas continue to cause somewhat high levels of disturbance in order to meet recreation demands especially during hunting season.

The minimum road system would continue localized 'problem spots' where level 2 roads cross wet areas. The maintenance frequency remains less than ideal for addressing maintenance issues in a timely manner.

### **Watershed Condition Framework**

Reductions in system road miles that were recommended in the 2010 Boggy Glade Travel Analysis and approved through the 2012 Boggy Glade Travel Management Plan decision addressed watershed concerns. The 2011 Watershed Condition Classification identified eleven watersheds as functioning at risk and one watershed as impaired. Roads were identified as a major factor related to watershed health. In the Boggy Glade area, the minimum road system improves watershed conditions in four ways compared to the road system prior to 2005. First, the minimum system represents a reduction in the total number of routes that create impermeable surfaces that channel water off the watershed. Second, the total number of drainage crossings by roads is reduced, thereby reducing points of sedimentation that can occur during rain events. Third, the roads recommended to remain on the forest system, where feasible, were located away from riparian vegetation and stream valleys and fourth, it there could be slight increase in the maintenance frequency of the road system, given funding trends.

In the Mancos Cortez area, the Chicken Creek Watershed was identified for the Watershed Condition Framework as a priority watershed for the San Juan National Forest. Roads were one of the factors identified as detracting from watershed health. The 2009 Travel Management Decision and 2011 implementation resulted in re-vegetation of unauthorized routes throughout this watershed. The ML2-5 road system identified in this report manages road related impacts to improve watershed conditions through road engineering and maintenance. Continued work is needed to identify the long-term needs for ML1 and ML2-Admin roads in this watershed. See recommendations section below.

Most of the watersheds in the Rico West Dolores landscape are classified a function properly and there are localized 'problem area' where cross country travel or current road layout impacts wet meadows. See the recommendations section below.

### **How the minimum road system reduces the road maintenance burden on the District**

Other demands listed in the minimum system definition (forest management, recreation access) result in a minimum system that remains less than ideal when considering trends in road maintenance funding. However, the minimum system closes the gap between maintenance resources and miles to maintain. One major reduction in deferred maintenance costs will occur when the entire Dolores Norwood Road is successfully transferred to the Counties.

The cost of gravel and annual maintenance on the Level 3 road system will remain an issue on the District. At times, there have been commensurate use projects such as the recent KM Doe Canyon Seismic Study and some timber sales that have resulted in road maintenance and gravel replacement. However, those sources are not consistent.

It should be noted that road maintenance needs and expenses must be considered together in developing the minimum road system. The road maintenance costs in Appendix B indicate that the appropriated funding is adequate to perform annual maintenance on many, but not all, roads on the Dolores District. The deferred maintenance costs are considerably higher than the appropriated funding. As a result, most of the deferred maintenance needs are not currently being addressed. However, creating a road system to match the available funds by simply decommissioning or removing roads from the system will not result in a road system that meets the access needs for public and administrative purposes.

### **Recommendations for Next Steps or Further Review**

Future updates to the Motor Vehicle Use Map on the Dolores District are likely to be minor changes compared to the landscape level changes recently accomplished through travel management planning across the District. Nevertheless there are a few places where the minimum road system could be re-assessed for potential further reductions in road system miles. The report recommends future travel management planning could consider further reductions in some locations.

For example,

1. Revisit areas within the Mancos-Cortez landscape to see if some open roads could be removed from the system. One place where level 2 routes may be redundant is west of the Spring Creek subdivision private lands.
2. Consider further reductions in the Level 1 stored roads currently listed in the Forest Service databases in the Mancos Cortez Area.
3. Continue discussions with Montezuma County to address the desired transfer or jurisdiction of the Dolores Norwood Road.
4. The minimum system map displays roads in their entirety. However there are some places where the road terminus could be adjusted, or where the road maintenance level could be reduced. See the spreadsheets in Appendix C for some road specific recommendations.
5. In the Rico-West Dolores landscape there is a need to address wet meadow areas and re-configure the road system to decrease maintenance issues, reduce impacts to wet meadow areas, while continuing to provide access through the areas.
6. In the Rico-West Dolores area travel management planning should reduce barriers to fish passage where high priority species are present.
7. The revised 2012 San Juan Forest Plan provides guidelines for motorized route densities within certain types of wildlife habitat; however these route density guidelines include trails. The revised guidelines will be applied during travel management planning. The Mancos

Cortez and Boggy Glade landscapes should be reviewed for route densities in the key habitat areas recently provided in the revised Forest Plan. Proposals for change to the road or trail systems as a result of those reviews should be addressed through travel management planning NEPA processes focused on those areas.

8. Implementation of road reductions has largely occurred by signing roads closed to vehicle traffic and allowing the roadbed to re-vegetate 'on its own'. The Boggy-Glade Travel analysis in 2010 and subsequent Travel Management Plan decision in 2012 provide priorities for places where physical manipulation of the roadbed would be necessary to 'speed up' the revegetation process or restore natural drainage patterns. Similar priorities exist on the Mancos Cortez landscape in some locations where roads cross streams. It is the recommendation of this TAPR to continue active decommissioning and watershed improvement actions at localized 'problem spots' across the District.
9. Continue implementation of road easement and road use agreements to either transfer jurisdiction of roads used primarily for private land access or require maintenance assistance from the landowner.
10. Use this TAPR to prioritize road maintenance on the Dolores District as follows,
  - a. High-Value/Low-Risk Routes: The route condition should be preserved through annual maintenance. Roads in this category that have high value for private access should be considered for transfer to the appropriate jurisdictional managing entity.
  - b. High-Value/High-Risk Routes: These routes should receive first priority for investment and maintenance funding (in order for them to be restored to appropriate standard[s] and to reduce resource risks). Roads in this category that have a high value for private access should be considered for transfer to the appropriate jurisdictional managing entity.
  - c. Low-Value/High-Risk Routes: These routes should receive the highest priority in order to reduce maintenance level or maintenance intensity. Roads in this category may be considered for conversion to trails or otherwise be considered for decommissioning.
  - d. Low-Value/Low-Risk Routes: These routes should receive the lowest priority for maintenance funding. Consideration should be given to converting the roads to trails. These routes should be considered for decommissioning or reduction in maintenance level or intensity.

## STEP 6 REPORTING

This document serves as the Travel Analysis Process Report for the Dolores Ranger District.

## APPENDIX A – EXCERPTS FROM FOREST PLAN

The following excerpts from the Forest Plan relate to road management, italic text are notes related to this TAPR.

### Terrestrial Ecosystem Desired Conditions

2.2.2 Non-climate ecosystem stresses (e.g., high road densities, water depletions, air and water pollution) are reduced to improve the resilience and resistance of ecosystems to the future dynamics of a changing climate.

### Terrestrial Ecosystem Objectives

2.2.64 Over the next 20 years, enhance the resiliency of alpine ecosystems and provide refugia for alpine-dependent species by removing non-climate stressors that result in adverse impacts to alpine ecosystems (e.g., unmanaged livestock grazing, unmanaged motorized recreation) from 100 acres on SJNF lands that are forb-dominated alpine habitat.

*As a result of travel management planning, all motorized recreation on the Dolores District is managed (i.e. restricted to designated routes).*

### Terrestrial Ecosystem Standards

2.2.65 The construction of new permanent roads and utilities must not occur in protected areas in order to protect the ecological integrity of the terrestrial ecosystems within them, prevent ecosystem fragmentation, prevent the disruption of wildlife travel corridors, and prevent the establishment and spread of invasive plants.

*No new road construction in protected areas is recommended in this TAPR. .*

### Terrestrial Wildlife – Guidelines

*The Risk ratings for wildlife habitat used in this TAPR generally address the guidelines below. However additional analysis through travel management planning is necessary to include motorized trails and specifically assess habitat conditions. Habitat effectiveness is influenced by cover, water and forage availability, disturbance and weather. This kind of analysis is more appropriately analyzed under travel management planning.*

2.3.59 Projects or activities that adversely impact pronghorn (*Antilocapra americana*) and elk production areas should be limited or avoided. This will keep reproductive success from being negatively impacted from management activities by using access restrictions during the following periods:

- Pronghorn: May 1–July 1
- Elk: May 15–June 30

2.3.60 Management activities and access should be limited or avoided in critical winter range, severe winter range, and winter concentration areas for pronghorn, elk, and mule deer during the following times to keep survival and reproduction from being negatively impacted (see Figures 2.3.1, 2.3.2, and 2.3.5):

- Pronghorn: December 1–April 30
- Elk: December 1–April 30
- Mule deer: December 1–April 30

2.3.62 **Ungulates:** Projects or activities in big game critical winter range, winter concentration areas, severe winter range, production areas, and important migration corridors should be designed and conducted in a manner that preserves and does not reduce habitat effectiveness within those mapped areas.

**2.3.63 Ungulates:** In order to provide for healthy ungulate populations capable of meeting state population objectives, anthropomorphic activity and improvements across the planning area should be designed to maintain and continue to provide effective habitat components that support critical life functions. This includes components of size and quality on the landscape providing connectivity to seasonal habitats (wildlife travel corridors), production areas, critical winter range, severe winter range, and winter concentration areas, along with other habitat components necessary to support herd viability.

**Route Densities for Wildlife Habitat:** The intent of this guideline is to ensure no net loss of existing habitat effectiveness within the areas listed below. In order to maintain wildlife habitat effectiveness of SJNF lands, road and motorized trail densities should be addressed when analyzing and approving management actions that affect motorized routes. Where management actions would result in road and motorized trail densities exceeding 1 mile/square mile on SJNF lands in the areas listed below, actions should be designed to maintain habitat effectiveness on SJNF lands throughout each mapped polygon. Habitat effectiveness for this guideline is considered maintained when road densities within the CPW mapped areas on SJNF lands listed below are less than or equal to 1 mile/square mile. When road densities exceed 1 mile/square mile within the CPW mapped areas on SJNF lands listed below, densities should not be increased without mitigation designed to maintain habitat effectiveness.

Roads used to develop route density calculations include roads on NFS lands only, regardless of road ownership, that are a) open year-long or seasonally to public use and b) closed to public use, but are used for administrative access or are authorized by contract, permit, or other written authorization. Included in these calculations are maintenance level 2–5 NFS roads. Also included for this calculation are NFS trails that are designated for motorized use.

Roads and motorized trails with design features sufficient to maintain habitat effectiveness (such as seasonal closures that are determined to be sufficient mitigation), as determined by the USFS biologist, should not be used for final density calculations.

Non-motorized trails and those roads that are closed to all motorized use and/or are in storage are not used for route density calculations. Temporary roads to be used for 5 years or less are not included in these calculations.

#### Riparian and Wetland Ecosystems – Desired Conditions

*Risk ratings for water related issues generally address the proximity of roads to riparian and wetland ecosystems.*

2.4.1 Riparian area and wetland ecosystems have a diverse composition of desirable native hydrophytic plants that are vigorous and self-perpetuating. Invasive plant species are absent or rare.

2.4.2 Riparian area and wetland ecosystems have vegetation cover sufficient to catch sediment, dissipate energy, prevent erosion, stabilize stream banks, enhance aquatic and terrestrial wildlife habitat, and promote floodplain development.

#### Riparian and Wetland Ecosystems – Standards

2.4.20 Agency actions in protected areas must not adversely affect the long-term ecological integrity of the riparian area and wetland ecosystems within them.

2.4.21 Management actions must not cause long-term change away from desired conditions in riparian or wetland vegetation communities.

### Aquatic Ecosystems – Desired Conditions

- 2.5.1 Long-term sustainability of aquatic ecosystems is maintained.
- 2.5.2 Streams, lakes, riparian vegetation, and adjacent uplands provide habitats adequate to maintain healthy aquatic ecosystems capable of supporting a variety of native and desired non-native aquatic communities.

### Aquatic Ecosystems – Guidelines

- 2.5.23 Except where barriers are beneficial and necessary to achieve conservation goals for certain aquatic species, fragmentation of aquatic habitats and isolation of aquatic species should be avoided.
- 2.5.24 Sediment delivery to streams occupied by MIS or threatened, endangered, or sensitive species should be avoided.
- 2.5.25 Activities that may cause sedimentation to amphibian habitats should be minimized.

### Watershed and FloodPlain Function

- 2.6.23 Annually decommission 6 linear miles or more of unneeded routes that may consist of roads and/or trails on SJNF lands. ...Watersheds listed in Volume III, Appendix I could be considered priority for decommissioning efforts. Watersheds designated as priority through the USFS Watershed Condition Framework should also be focus areas for route decommissioning.

### Standards

- 2.6.29 Land use activities (new projects, or replacement/retrofitted/reconstructed/reauthorized projects) must not impact potentially useable groundwater quality or quantity to the extent that groundwater-dependent features are adversely affected. Examples of some groundwater-dependent features are springs, seeps, fens, and intermittent or perennial streams.

- 2.6.30 Activities must not be allowed within aquatic management zones that will cause a long-term change from desired conditions. The protection or improvement of riparian values, water quality, aquatic community, and for long-term stream health in these areas must be emphasized. Aquatic management zones have a minimum horizontal width from the top of each bank of 100 feet or the mean height of the mature late-seral vegetation, whichever is greater.

### Guidelines

- 2.6.32 Roads and trails that are removed from the SJNF transportation network, as well as maintenance level 1 roads (i.e., roads that have been closed to the public but may be used in the future principally for administrative purposes), should be treated sufficiently where no further management intervention would be necessary in order to sustain long-term natural processes. This will avoid future risks to watershed functions, water quality, and/or aquatic habitat. Sufficient treatments may include removal of unstable fills, effective and permanent breaching of drainage ditches, elimination of persistent in-sloped road surfaces; complete removal of stream-crossing structures and associated fills with restoration of floodplains, and the maintenance or restoration of fish passages.

## Invasive Species

### Desired Conditions

*Risk Rating for Weeds addresses this topic in general terms. Site specific implementation of road recommendations require additional steps to manage invasive species.*

- 2.8.2 Federal lands have a transportation system composed of specific roads and trails that do not contribute to the spread of invasive species along travel corridors.

2.8.3 Invasive species, both terrestrial and aquatic, are absent or rare within the planning area, and are not influencing native populations or ecosystem function.

2.8.4 Invasive species are not introduced or spread within protected areas.

2.8.5 Management activities do not contribute to the spread of invasive annual plants or other invasive species

#### Guidelines

2.8.15 Project planning and implementation should consider the need to prevent the introduction and spread of aquatic invasive species. The SJNF and TRFO Invasive Species Action Plan (USFS et al. 2012) provides a useful reference for appropriate management and mitigation measures.

### Transportation and Access

*Motorized Recreation, Recreation Connectivity, Timber Management, Fuels Management are all part of the Benefits side of the Risk/Benefit analysis.*

#### Program Emphasis

Access and opportunity to experience areas through both motorized and non-motorized travel is a key component of recreation, as well as a primary management emphasis for the SJNF and TRFO. Efforts will focus on the designation of effective motorized and non-motorized travel routes over the long-term, consistent with desired conditions. Signing, enforcement, public information, and route maintenance and restoration will take place, as appropriate.

The transportation system program will emphasize a minimum transportation system that provides safe and efficient public and agency access to the public lands. Agency-specific travel management planning processes will be used to identify management opportunities for ensuring that the systems are efficiently maintained, environmentally compatible, and responsive to agency and public needs. Agency managers will work towards aligning the total miles of roads and trails within SJNF and TRFO lands with fiscal constraints. Opportunities will be sought to shift road management to the appropriate public road authority when it is determined that a specific road is primarily used for purposes other than SJNF (FRTA) access, is used for mail delivery, school bus routes, or some other local governmental purpose, or is used for year-round residential access to private property within or adjacent to SJNF.

Reconstruction and maintenance activities will focus on diminishing impacts to resources, particularly water resources and aquatic ecosystems, and improving roadway safety while reducing the backlog of deferred maintenance.

Road construction and reconstruction requirements needed to support resource development activities will be determined and evaluated at the project level. These roads will be designed and constructed to minimize surface disturbance by collocating new facilities, when feasible, and using the existing road networks to the maximum extent possible. Roads will be constructed or reconstructed to a standard commensurate with the planned use.

Design and construction BMPs will be used to minimize impacts to wildlife, water resources, aquatic ecosystems, and other resource concerns identified at the project level. Unless

designated as part of the SJNF or TRFO transportation system, roads constructed for resource development will

- be temporary;
- be maintained to standard by the permittee or responsible party through written authorization;
- be decommissioned and revegetated with SJNF - or TRFO-approved native species; and
- be monitored for success for 3 years following project completion.

Travel management planning during LRMP implementation will result in the designation of a system of roads, trails, and areas for motorized use by vehicle class and season of use. The principal goal of travel management planning is to reduce the development of unmanaged roads and trails and the associated impacts to water resources and aquatic ecosystems, wildlife conflict impacts, and user conflicts. The travel management planning process aims to provide a variety of road and trail access for recreation, special uses, other forest resource management, and fire protection activities. Planning, design, and operation will seek to maximize user experience while addressing safety and resource protection needs.

### **Desired Conditions**

2.13.1 The transportation system within the SJNF and TRFO planning area consists of roads, high-clearance or primitive roads, trails, and bridges that are fiscally sustainable and safe as appropriate for the designated use or desired user experience; they allow for the use of, and enjoyment by, the public, and they meet resource management objectives. Sufficient condition surveys and inspections are conducted to promote road safety and prioritize road maintenance expenditures.

2.13.2 The SJNF and TRFO transportation system provides reasonable and legal access for resource management and recreation; it is dynamic and adaptable to resource and user needs.

2.13.3 SJNF and TRFO destination and loop trails exist for motorized and non-motorized recreation users. New trail development within the planning area focuses on the creation of loop opportunities and when feasible, using existing routes to do so, when such use does not compromise the intent and sustainability of the route. New routes within the planning area are designed with the goals of preserving settings, complementing the landscape, and providing the desired user outcomes/benefits.

2.13.4 Public access to SJNF or TRFO lands that cross private lands and/or cross other jurisdictions is acquired, retained or improved through proper authorization and coordination with adjacent landowners.

2.13.5 The road and trail systems on the SJNF and TRFO have adequate destination signage, mapping, and route markers to assist transportation system users in navigating throughout the planning area.

2.13.6 The public has access to information about the SJNF and TRFO transportation system (including specific travel route designations, available recreational opportunities, environmental stewardship guidelines, and safe travel information).

2.13.7 Motorized use on SJNF and TRFO lands occurs only on designated roads and trails, as well as in small designated open areas (except as exempted by 36 CFR 212.51 and 43 CFR

8340). No new unauthorized or user-created routes develop within SJNF or TRFO lands. Any addition of new designated routes to the transportation system will be analyzed using the appropriate planning process and level of environmental analysis. Final San Juan National Forest and Proposed Tres Rios Field Office Land and Resource Management Plan 100

2.13.8 Roads and trails within the SJNF and TRFO that are identified for closure are decommissioned and re-established with native vegetation cover.

2.13.9 Roads on SJNF lands are managed by the appropriate public road authority when any one of the following conditions exists:

- the road serves predominantly non-SJNF traffic;
- the road is necessary for mail, school, and/or other local governmental purposes; or
- the road provides year-long residential access to private property within, or adjacent to, the planning area.

2.13.10 Travel management plans are complete for all SJNF and TRFO lands within 5 years of adopting this LRMP. Travel management planning remains a continuous process designed to improve the transportation system on SJNF and TRFO lands.

2.13.11 Motorized and non-motorized users, as well as local, state, tribal, and other federal agencies, are actively engaged in travel management planning, route designation and implementation, and route monitoring on SJNF and TRFO lands.

2.13.12 Transportation system components on SJNF and TRFO lands are designed, constructed, and maintained to avoid encroaching onto streams and/or onto riparian areas and wetland ecosystems in ways that impact channel fluctuation or channel geometry (the relationships between channel discharge and channel cross-sectional factors, such as area, width, and depth). Sediment delivery from the transportation system does not measurably impact pool frequency, pool habitat, and/or spawning habitats.

2.13.13 The character of roadless areas on the SJNF is maintained in order to preserve large expanses of undeveloped lands that can be managed for wildlife habitat, scenic quality, and recreation.

2.13.14 On SJNF and TRFO lands, ensure that all year-round accesses to private in-holdings are authorized by the applicable agency. Roads are upgraded by the proponent, when deemed necessary to meet SJNF or TRFO road standards for traffic type, volume, and season of use.

2.13.15 All commercial users, including timber purchasers, land stewardship contractors, and fuels management contractors, perform road maintenance commensurate with their use of SJNF NFS roads in accordance with 16 USC 537 and FSM 7732.22.

## Objectives

*This TAPR recommends transfer of jurisdiction for the entire Dolores Norwood Road (17 miles).*

2.13.16 On the SJNF, transfer jurisdiction of roads identified through travel management planning as having predominant use that is inconsistent with the mission of the jurisdictional managing authority to a managing authority whose mission is consistent with the road use

and is willing to accept the road transfer. The SJNF will identify in each travel management planning decision those roads, if any, that are priority for jurisdictional transfer. The SJNF will seek transfer of ownership, to the appropriate managing authority, of 50% of the roads identified as priority for jurisdictional transfer through travel management decisions that are made within the first 5 years following the date of the LRMP's implementation. These jurisdictional transfers will be completed within 15 years of LRMP implementation.

2.13.17 Perform maintenance activities annually on 75% of SJNF roads maintained for passenger vehicles (NFS maintenance level 3, 4, and 5 roads).

### ***Road and Trail Maintenance***

*The following priorities for road maintenance have been incorporated into the Recommendations section of this TAPR.*

2.13.25 Road and trail maintenance investment on SJNF lands should be prioritized by a travel analysis that categorizes investment priority based on route value to public lands and loss of agency investment, as well as risk to the environment and the traveling public. The following risk categories and strategies should be used to categorize management and investments:

- **High-Value/Low-Risk Routes:** The route condition should be preserved through annual maintenance. Roads in this category that have high value for private access should be considered for transfer to the appropriate jurisdictional managing entity.
- **High-Value/High-Risk Routes:** These routes should receive first priority for investment and maintenance funding (in order for them to be restored to appropriate standard[s] and to reduce resource risks). Roads in this category that have a high value for private access should be considered for transfer to the appropriate jurisdictional managing entity.
- **Low-Value/High-Risk Routes:** These routes should receive the highest priority in order to reduce maintenance level or maintenance intensity. Roads in this category may be considered for conversion to trails or otherwise be considered for decommissioning.
- **Low-Value/Low-Risk Routes:** These routes should receive the lowest priority for maintenance funding. Consideration should be given to converting the roads to trails. These routes should be considered for decommissioning or reduction in maintenance level or intensity.

### ***Route Density***

*A high, medium, low road density levels were used for risk rating during travel analysis and also proximity to water.*

2.13.27 **Road Density Guideline for Water Quality and Watershed Health on SJNF Lands:** In order to protect water quality and watershed function, road densities on SJNF lands should not exceed 2 miles/square mile within any U.S. Geological Survey (USGS) 6th level Hydrologic Unit Code (HUC) watershed. In order to protect major surface source water protection areas for municipalities within USGS 6th level HUC watersheds, road densities on NFS lands should not exceed 1.5 miles/square mile. If new road construction is necessary on NFS lands within an area exceeding this density guideline, management actions should be considered that would result in post-construction road densities that are equal to or less than the pre-construction density. The following parameters and constraints will be used to calculate road density for water quality and watershed health:

2.13.27a Roads used to develop road density calculations include those roads on NFS lands only, regardless of road ownership, that are a) open year-long or seasonally to public use and b) closed to public use, but are used for administrative access or are authorized by contract, permit, or other written authorization. Included in these calculations are NFS maintenance level 2–5 roads. Non-motorized and motorized trails and those roads that are closed to all motorized use and/or are in storage are not used for road density calculations. Temporary roads to be used for 5 years or less are not included in these calculations.

2.13.27b Road densities will be calculated within USGS 6th level HUC watersheds on NFS lands only.

2.13.27c Municipal watersheds are USGS 6th level HUC watersheds where the surface source water intake exists for an incorporated town, city, or other municipality with a public water supply. The MOU between the USFS Region 2 and the CDPHE states, “Revised Forest Plans will provide direction and desired conditions for municipal supply watersheds/source water areas to protect water quality while allowing for multiple use outputs (per 36 CFR 251.9 and FSM 2542).”

2.13.27d Data used for density calculations will be based on the best available information at the time of analysis.

**2.13.28 Road Density Guideline for Water Quality and Watershed Health on TRFO Lands:** In order to protect water quality, watershed function, major surface source water protection areas for municipalities, and to ensure compliance with the Colorado River Basin Salinity Control Act, use the best available information for determining the appropriate level of road density when analyzing and approving management actions that affect motorized routes. Final San Juan National Forest and Proposed Tres Rios Field Office Land and Resource Management Plan 103

## Cultural Resources

*A risk rating include cultural resource impacts in general terms for this TAPR*

2.16.22 Activities that could adversely affect sites eligible or potentially eligible for the NRHP should avoid these sites by a minimum of 300 feet, unless otherwise specified by the Authorized Officer, and/or unless other mitigating measures are developed. If a project is specified by the Authorized Officer to be within 100 feet of an eligible or unevaluated site, all ground-disturbing activity should be monitored by a qualified archaeologist.

## Lands

*A risk rating for jurisdiction issues or right of way needs is described in the risk/ benefit spreadsheets in Appendix C.*

### Desired Conditions

2.18.6 Road use authorizations for roads that serve predominantly non-SJNF purposes are provided to local road jurisdictions (reserving public access, where appropriate).

### Guidelines

2.18.19 NFS roads, where private use substantially dominates public use, should be conveyed to the appropriate local government jurisdiction.

## 3.2 Dolores Ranger District Geographic Area

*Recommendations for the minimum road system included consideration of recreation and forest management demands on the Dolores District.*

### **Desired Conditions**

3.2.3 A variety of looped single- and two-track opportunities for motorized and mechanized recreation exist at a range of elevations, offering different levels of difficulty. Motorized and mechanized opportunities are balanced with opportunities for foot and horseback access to areas of relative quiet and solitude at a variety of elevations. Much of the primary access to these areas is shared, based on mutual courtesy and on a strong stewardship ethic that is primarily self-enforced and maintained by individuals and user groups.

## APPENDIX B – ROAD MAINTENANCE COSTS

Previous travel analysis used road funding estimates from the time period 2008-2010. These costs were reviewed and it was determined that there has been no significant change since 2010. While salaries have increased slightly, the cost of fuel has decreased. Today's road maintenance cost per mile is within 1% of the costs in 2010. What is significant is that the roads budget has decreased 53% over this time period. While this does not affect the cost per mile in this analysis, it has increased the fixed costs for the engineering program from 40% to 90%. This leaves very little money left for projects such as crushing gravel, roadside brushing, retaining walls and other deferred maintenance needs. The discussion about road maintenance costs in this TAPR is consistent with estimates made for the other Districts on the San Juan Forest.

Maintenance is the act of keeping fixed assets (such as roads or trails) in acceptable condition. It includes preventive maintenance normal repairs, replacement of parts and structural components, and other activities needed to preserve a fixed asset so that it continues to provide acceptable service and achieves its expected life. Maintenance excludes activities aimed at expanding the capacity of an asset or otherwise upgrading it to serve needs different from, or significantly greater than those originally intended. (Financial Health – Common Definitions for Maintenance and Construction Terms, September 29, 1998)

Maintenance includes both annual maintenance and deferred maintenance. Annual maintenance is work performed to maintain serviceability, or repair failures during the year in which they occur. It included preventative and/or cyclic maintenance performed in the year in which it is scheduled to occur. Unscheduled or catastrophic failures of components or assets may need to be repaired as a part of annual maintenance. (Financial Health – Common Definitions for Maintenance and Construction Terms, September 29, 1998)

Deferred maintenance is maintenance that was not performed when it should have been or when it was scheduled and which, therefore, was put off or delayed for a future period. When allowed to accumulate without limits or consideration of useful life, deferred maintenance leads to deterioration of performance, increased costs to repair, and decrease in asset value. (Financial Health – Common Definitions for Maintenance and Construction Terms, September 29, 1998)

### Road Maintenance Budget

The San Juan National Forest appropriated budget allocation for road maintenance has been in decline since 2010. The San Juan National Forest appropriated budget allocation for road maintenance and management of roads averaged \$1,385,000 over the years 2008-2010. The FY 2015 budget was \$944,076. Of this amount, approximately 90% goes towards road maintenance activities Forest-wide, and one-third of that (about \$283,000) goes towards all road maintenance activities on the Dolores District, including annual and deferred maintenance.

In prior years, appropriated road funding was supplemented by road construction and maintenance work performed by timber purchasers through the commercial timber sale program. This program has steadily declined over the past 20 years thus increasing demands on appropriated dollars for road maintenance.

## Road Annual Maintenance

Annual road maintenance costs may be calculated by two methods, the INFRA database or the estimated actual costs as determined by the San Juan National Forest engineering staff. These estimated actual costs include Forest-wide costs associated with the force account road crew (salary, purchase of heavy equipment, fleet costs, fuel, maintenance, and overhead) and the costs related to county cooperative agreements (dust abatement, asphalt patching, and cost for counties to blade the roads). Annual maintenance work accomplished through contracts is not included in the estimated actual costs. FY2010 accomplishment miles were used for a baseline on how much work the crew could do annually. The costs were then divided by accomplished miles resulting in an average Forest-wide cost per mile by maintenance level for annual maintenance. The following is a description of the estimated actual annual road maintenance costs for each maintenance level as determined by the SJNF engineering staff.

### Maintenance Level 1 Roads:

ML1 roads are closed to public and administrative motorized uses. Typically no maintenance other than a condition survey may be required so long as no potential exists for resource damage. Most of these roads are in a stable, revegetated condition with functioning drainage; however, a few have drainage and erosion problems. In general terms these roads cost very little to maintain. Installation and maintenance of closure devices such as gates, berms, and boulders is needed on these roads. Condition surveys are done very infrequently. Maintenance needs on ML1 roads are identified by the Districts when inspections reveal site-specific issues. Currently the force account crew spends approximately five weeks of equipment and operator time correcting drainage problems, reshaping rolling dips and lead-off ditches, blading the surface for temporary access, and maintaining and installing closure devices on an annual basis, which equates to approximately \$14,025. Approximately 5% (57 miles) of ML1 roads are maintained annually Forest-wide for an annual cost per mile of \$246.

### Maintenance Level 2 Roads:

ML2 roads are open for use by high clearance vehicles. Passenger car traffic, user comfort, and user convenience are not considerations. Warning signs and traffic control devices are not provided with the exception that some signing may be posted at intersections. Motorists should have no expectations of being alerted to potential hazards while driving these roads. Maintenance consists of maintaining the road prism for passage of high-clearance vehicles, maintaining drainage facilities, removing/repairing slides and slumps, brushing, and installing/repairing seasonal closure gates. ML2 roads range from rocky roads that require little maintenance to incised roads in erosive soils that require frequent attention. Some of these roads require armoring of drainage dips to handle the traffic loads and minimize resource impacts. Condition surveys are done only sporadically. Currently, a minimum of 10% of the ML2 roads are maintained Forest-wide on an annual basis. Work typically includes reshaping dips, filling in deep ruts, pulling lead-off ditches, and maintaining culverts. Current program direction has de-emphasized maintenance on ML2 roads; the target for miles maintained is less than half of what it was in 2010. Subsequently the Forest devotes approximately \$40,250 to maintain these roads for an annual cost per mile of \$671.

### Maintenance Level 3 Roads:

ML3 roads are open and maintained for travel by a prudent driver in a standard passenger car. User comfort and convenience are not considered priorities. Warning signs and traffic control devices are provided to alert motorists of situations that may violate expectations. These roads are typically

surfaced with aggregate but can be native surface. A combination of drainage dips and culverts provide drainage. Potholing or washboarding may occur. These roads are subject to the requirements of the Highway Safety Act. Maintenance guidelines include replacing the surface course, surface blading, cleaning ditches, cleaning/replacing culverts, cleaning/replacing cattleguards, controlling the vegetation to provide for sight distance, repairing/removing slides and slumps, installing/maintaining regulatory signs per the Manual on Uniform Traffic Control Devices (MUTCD), and installing/repairing seasonal closure gates.

**Surface blading and ditches:** Currently the force account crew blades these roads a minimum of once per year. Higher traffic roads require blading more than once per year. Cooperative agreements with the counties (Schedule A) help to keep running surfaces smooth. Severe washboarding and potholing can create a safety hazard causing drivers to lose control of their vehicles. The aggregate surface on some of the roads has deteriorated to a point that they are no longer bladeable. Gravel that should be replaced every ten years has now gone beyond the 20 year mark. Site specific surveys indicate that although the road surface is deteriorating, resource impacts are generally not occurring. Ditches are pulled only when the drainage is no longer functioning.

**Culverts, cattle guards and gates:** 100 percent of ML3 roads are evaluated on an annual basis by the force account crew. Plugged culvert inlets, full catch basins, full cattleguards, and bent or broken gates are cleaned or repaired. Slumps, slides, and boulders in the road are removed and culverts are replaced when necessary.

**Signing:** The sign crew is responsible for installing, replacing, and straightening regulatory, warning, and guide signs on the Forest. The MUTCD requirement that all signs be evaluated for retro-reflectivity has been completed. Deficient signs have been replaced and the Forest has moved to the monitoring phase. The sign program costs the Forest around \$30,000 per year for salary, vehicles and supplies.

**Dust abatement:** The Forest has abandoned contributing to the purchase of magnesium chloride; however, other alternative dust abatement products are being evaluated. In 2014 the Forest spent \$62,000 on a product called Pine Bind and applied it to 1.5 miles of a heavily used road.

The total cost of maintaining ML3 roads equates to approximately \$520,400 on an annual basis. In FY2014, 485 miles of ML3 roads were maintained Forest-wide for an annual cost per mile of \$1,073.

#### Maintenance Level 4 Roads:

ML4 roads are open roads that provide a moderate degree of user comfort and convenience at moderate travel speeds. Most roads are double lane and aggregate surfaced. However, some roads may be single lane with turnouts. Some roads may be paved and/or dust abated. MUTCD is applicable. These roads are subject to the requirements of the Highway Safety Act. The Forest relies heavily on county cooperators to help maintain these roads as many of them are high-use forest access routes that require multiple motor-graders, rollers and water trucks to maintain. In 2014 54 miles were maintained by the force account crew at an annual cost of \$1,200 per mile.

#### Maintenance Level 5 Roads:

ML5 roads are open roads that provide a high degree of user comfort and convenience. These roads are normally double lane with paved or chip-sealed surfaces. However, some may be aggregate surfaced and dust abated. MUTCD is applicable. Maintenance on these roads consists of

asphalt patching, crack sealing and generally a chip seal coat every ten years. Cost per mile to maintain these roads is approximately \$1,500 annually.

### Road Deferred Maintenance

Beginning in 1999, the Forest conducted road condition surveys to determine the actual cost of maintaining the road system to standard. Work items were also recorded to determine the cost of road maintenance deferred in previous years due to lack of funding. Finally, road improvement work necessary to bring the roads up to the desired maintenance level was identified and documented in INFRA. The INFRA database is used by the Forest as a bookkeeping tool to document and track deferred maintenance needs on National Forest System Roads. An example illustrated here is aggregate replacement on a ML3 road: a four-inch deep aggregate lift costs approximately \$80,000 per mile, and for tracking purposes it can be assumed to be necessary every 10 years. In practice, a particular road may need aggregate replacement more or less often, and a suitable aggregate surface may often be adequately maintained by spot surfacing and by application of dust abatement which extends surfacing life and protects the investment while providing for safe access and resource protection. Detailed surveys and investigation are required on aggregate surfaced roads in optimizing aggregate replacement and investment; utilizing appropriate surface maintenance procedures critical to maximizing surfacing life and ensuring maximum return on the surfacing dollar. Thus, deferred maintenance numbers in INFRA may not be indicative of the actual funding needed for adequate road maintenance.

Deferred maintenance costs were determined from the INFRA database as of October 2011. Average District-wide \$/mile were determined using only those roads for which costs had been entered into INFRA. There are many miles of ML1 and ML2 roads for which cost information is not available in INFRA.

### Road Maintenance Costs

Annual and deferred maintenance costs for both the existing road system and the recommended minimum road system are displayed in the tables below. These are average and approximated costs. The costs vary widely from road to road based on site specific conditions. The "Annual \$/mile" was calculated by dividing the \$/mile by the maintenance interval. The "Total \$" columns for both annual and deferred maintenance were calculated by multiplying total miles by the Annual \$/mile. Currently, it is anticipated that the engineers' estimated actual costs provide a low estimate and that the INFRA costs provide a high estimate. The actual maintenance costs are likely between the two numbers.

*Dolores District Annual Maintenance Costs for Minimum Road System*

Maintenance Level	Total Miles	Engineers' \$/mile	INFRA \$/mile	Maintenance Interval	Engineers' Annual \$/mile*	INFRA Annual \$/mile*	Engineers' Total \$	INFRA Total \$
1	289.45	\$246	\$2,000	20 years	\$12	\$100	3,473.40	28,945.00
2	479.15	\$671	\$3,500	5 years	\$134	\$700	64,206.10	335,405.00
3	247.58	\$1073	\$7,000	Annually	\$1073	\$7,000	265,653.34	1,733,060.00
4	39.26	\$1,200	\$10,000	Annually	\$1,200	\$10,000	47,112.0	392,600.00
5	14.193	\$1,500	\$45,000	See below	\$1,500	\$45,000	21,289.50	638,685.00
Total	1069.63							

\*Calculated for a 5 year interval on Level 2 roads and a 20 year interval on Level 1 roads. Costs for Level 5 roads include blade patching annually and chip sealing every 10 years. All costs are based on Forest-wide averages.

*Deferred Maintenance Costs*

Minimum Road System			
Maintenance Level	Total Miles	INFRA \$/mile	Total \$
1	289.45	\$2,000	578,900
2	479.15	\$20,000	9,583,000
3	247.58	\$75,000	18,568,500
4	39.26	\$100,000	3,926,000
5	14.193	\$0	32,656,400

The appropriated funding is adequate to perform annual maintenance on many, but not all, roads on the District. The deferred maintenance costs are considerably higher than the appropriated funding. As a result, most of the deferred maintenance needs are not currently being addressed. This TAPR will inform subsequent site-specific NEPA analyses that may carry forward for implementation, reject, or change the recommendations in this report. These NEPA analyses, in combination with strategic prioritization of anticipated allocated funding, will determine how this report is implemented or modified. As additional information is gathered in the future, this information may result in future modifications to the recommendations in this TAP.

### **Other Road Maintenance Funding Sources**

Other funding sources supplement the appropriated funding. The Forest Service, the counties, and the State of Colorado have signed agreements (Schedule A) whereby the counties are paid to perform road maintenance on Forest Service roads (primarily blading of Level 3 and 4 roads). The counties are funded to perform this work through State of Colorado allocations of the Highway User Tax Funds. The work performed by the counties partially offsets the deficit in appropriated road maintenance funding.

The Federal Lands Transportation Program (FLTP) is a Federal funding source in which Forests compete for dollars to complete deferred maintenance projects. The Piedra road re-route was completed with FLTP dollars. The Secure Rural Schools program provides money to the counties that are generally used Forest roads or roads that provide access to National Forest land. The counties have been receiving roughly \$25,000 - \$35,000 annually. Surface rock replacement money is collected on Districts that pursue commercial use permits or have active timber sales. This money is then reinvested on District roads. The Dolores district currently has \$67,000 in SRR dollars.

Commercial undertakings such as timber sales, oil and gas wells, hauling from private lands, etc. are required to contribute their commensurate share of road maintenance. Road maintenance is provided through these activities for the locations and timeframes when the commercial activity takes place.

ERFO are emergency relief funds provided by the federal government when an environmental catastrophe occurs on the Forest. In the past the San Juan has applied for these funds to repair a large landslide and construct multiple retaining walls.

A limited amount of road maintenance or decommissioning has occurred after timber sales are complete through the collection of Knudsen-Vandenberg (KV) funds for sale area improvement.

In addition, Forest Service Legacy Funding has also been secured for these activities.

## **APPENDIX C – RISK/BENEFIT SPREADSHEETS**

[see separate document titled *Dolores District Final Road Risk Benefit Spreadsheets*]

## APPENDIX D – ROAD LISTS

### ROADS TO KEEP ON SYSTEM

#### Mancos Cortez Roads to Keep on System

Number	Name	Miles
184.A	DOLORES WAREHOUSE	0.092
184	DOLORES OFFICE	0.151
	<b>TOTAL ML5 MILES</b>	<b>0.243</b>

350	SPRUCE MILL	6.394
557	INDIAN RIDGE	3.4
558	HAYCAMP	3.842
967	TARGET TREE CG	1.02
316	MADDEN PEAK	4.73
559	MILLWOOD	5.296
561.F	WEST MANCOS F	0.04
184	DOLORES OFFICE	0.445
566.A	ECHO BASIN A	0.602
390	GROUSE POINT	1.838
566	ECHO BASIN	0.017
565.B	RIM B	0.038
565	TRANSFER	0.81
566	ECHO BASIN	6.862
327	SPRING CRK	1.8
694	TRANSFER CG	0.28
385	CHICKEN CRK	1.24
561.G	BOX CANYON G	0.029
331	BOX CANYON	1.941
561	WEST MANCOS	13.52
556	ROCK SPRINGS	18.79
561.A	TRANSFER HORSE CAMPING	0.104
560	LOST CANYON	4
	<b>TOTAL ML3 MILES</b>	<b>77.038</b>

556.J	ROCK SPRINGS J	1.324
328.B	SOUTH RAMPART B	0.893

Number	Name	Miles
566.H	ECHO BASIN H	0.988
385.D	CHICKEN CRK D	0.915
322	HELMET PEAK	5
328	SOUTH RAMPART	2.593
390.A	GROUSE POINT A	1.358
396	INDIAN DRAW RSVR	2.6
346	TWIN LAKES	1.5
495	WALLACE	0.9
561.D1	OBIEE	0.238
556.G	ROCK SPRINGS G	0.76
393.A	IRON SPRINGS RSVR SPUR A	1.06
393.B	IRON SPRINGS RSVR SPUR B	0.9
693	JOE MOORE RSVR CG	0.337
382	SPRING CRK POINT	3.388
566	ECHO BASIN	0.038
559.B	MILLWOOD B	0.824
559.C	MILLWOOD C	1.49
561.H	WEST MANCOS H	0.1223
567	RED ARROW	4.208
558	HAYCAMP	4.848
560	LOST CANYON	4.08
329	NORTH RAMPART	2.23
393	IRON SPRINGS RSVR	0.836
320	CHERRY CRK	0.971
561.D	WEST MANCOS D	0.63
316	MADDEN PEAK	3.4
326	SILVER CRK	0.944
327.A	SPRING CRK A	0.409
395	LITTLE BUCK	4.171
492	WALLACE RESERVOIR	1.845
559.E	MILLWOOD E	0.751
327	SPRING CRK	0.6
561.C	WEST MANCOS C	0.352
398.A	LOGGING CAMP A	0.1171
561.E1	WEST MANCOS E1	0.273
393.C	IRON SPRINGS RSVR SPUR C	1.06
384.A	TURKEY KNOLL A	1.035
383.B	TWO PINES RSVR B	0.377
398	LOGGING CAMP	1.074

Number	Name	Miles
351	DILLONS CABIN	3.612
558.C	HAYCAMP C	0.141
556.H1	ROCK SPRINGS H1	0.132
558.D	HAYCAMP D	1.177
559.K	MILLWOOD K	1.511
568.A	RAILROAD GRADE SPUR A	0.1068
566	ECHO BASIN	6.352
350	SPRUCE MILL	0.906
557	INDIAN RIDGE	4.728
384	TURKEY KNOLL	1.44
393	IRON SPRINGS RSVR	1.78
331.C	BOX CANYON C	1.964
325	HORSE CRK	1.139
418	CRYSTAL CRK	1.5
559	MILLWOOD	3.63
567.D	RED ARROW D	0.297
331.D	BOX CANYON D	0.924
567.D	RED ARROW D	1.1
331.D1	BOX CANYON D1	0.687
383	TWO PINES RSVR	2.297
565.A	ASPEN LOOP ATV PARKING	0.083
352	TURKEY CRK	2.97
693	JOE MOORE RSVR CG	0.232
372	CLAMPETT MILL	1.399
328.C	SOUTH RAMPART C	0.593
559	MILLWOOD	3.03
559.A	MILLWOOD A	0.819
386	DITCHES	2.753
401.A	BIG POLE SPRINGS A	0.596
396.A	INDIAN DRAW RSVR A	0.737
416	AIRPLANE	0.291
401	BIG POLE SPRINGS	0.985
402	LITTLE POLE SPRINGS	1.577
566.G	ECHO BASIN G	0.383
561	WEST MANCOS	4.76
556.N	ROCK SPRINGS N	2.2517
502	DOLORES FISHERMAN	0.4
556.K	TAYLOR POINT	1.839
559.I	MILLWOOD I	2.48

Number	Name	Miles
567	RED ARROW	4.443
568	RAILROAD GRADE	6.922
236	JOE MOORE	0.212
693	JOE MOORE RSVR CG	0.189
558	HAYCAMP	3.253
556.H	ROCK SPRINGS H	1.659
317	SPONSEL RSVR	0.865
214	WEBER RSVR INLET CANAL	0.473
327	SPRING CRK	0.906
385	CHICKEN CRK	4.46
386.A	DITCHES SPUR A	0.0747
383.A	TWO PINES RSVR A	1.25
561.I	WEST MANCOS I	0.1543
382.A	SPRING CRK POINT A	0.152
494	SMOOTHING IRON	2.457
384.B	TURKEY KNOLL B	0.895
385	CHICKEN CRK	2.8
377	COX CANYON	1.408
558.B1	HAYCAMP B1	0.478
559.D	MILLWOOD D	1.114
558.B	HAYCAMP B	1.985
561.GS	ASPEN GUARD STATION	0.043
558.E	HAYCAMP E	0.408
<b>TOTAL ML2 MILES</b>		<b>161.64</b>

**Boggy-Glade Roads to Keep on System**

Number	Name	Miles
272.A	MCPHEE WATER STORAGE	0.08
528.I2	HOUSE CREEK PARKING LOT	0.48
528.H2	FAMILY CAMPING B	0.25
274	MCPHEE GROUP CAMPING	0.95
273.A	MCPHEE CG A	0.46
271.A	MCPHEE PARKING A	0.22
272	MCPHEE OVERLOOK	0.62

528	HOUSE CREEK	5.85
271.D	MCPHEE MARINA DUMP STATION	0.05
271	MCPHEE MARINA	2.67
528.H	GROUP CAMPING B	0.53
528.H4	HOUSE CREEK DUMP STATION	0.06
528.H3	GROUP CAMPING A	0.19
528.I1	GROUP PICNIC ROAD	0.06
528.H1	FAMILY CAMPING A	0.36
528.I	PICNIC ROAD	0.42
273.B	MCPHEE CG B	0.38
273	MCPHEE AMPHITHEATER	0.33
<b>TOTAL ML5 MILES</b>		<b>13.95</b>

514	GLADE	3.77
514	GLADE	12.74
514	GLADE	3.47
521	ORMISTON POINT	7.09
514	GLADE	4.11
521	ORMISTON POINT	3.08
521	ORMISTON POINT	0.29
<b>TOTAL ML4 MILES</b>		<b>34.56</b>

504	LONE DOME	16.41
504	LONE DOME	2.54
512	BLACK SNAG	1.27
504.X	FERRIS CANYON CAMPGROUND	0.23

Number	Name	Miles
520	FERRIS	4.64
527	BOGGY DRAW	13.69
504	LONE DOME	7.73
515	BIG BEND	0.23
504.Y	METASKA DAY USE	0.14
	CABIN CANYON CAMPGROUND	0.45
240	RYMAN CREEK	1.23
523.A	TRIMBLE A	2.15
523	TRIMBLE	3.19
523	TRIMBLE	2.49
686	STONER MESA	0.11
532	COTTONWOOD	7.54
510	DRY CANYON	1.50
510	DRY CANYON	6.24
514.I	GLADE I	0.70
271.B	MCPHEE MARINA B	0.17
506	DOE SPRINGS	4.61
519	FLAT IRON	2.20
519	FLAT IRON	1.16
514.B	GLADE B	0.21
258	LOWER BOGGY	1.17
<b>TOTAL ML 3 MILES</b>		<b>82.01</b>

219	POINT	0.82
512	BLACK SNAG	2.65
529.D	BEAVER RIM D	2.42
512	BLACK SNAG	2.57
259	NORWOOD CUTOFF	1.20
527.K	BOGGY DRAW K	1.14
501.F	SAGEHEN FISHER F	0.06
504.A	LONE DOME A	0.94
506.A	DOE SPRINGS A	2.02
504.F	LONE DOME F	1.00
504.F1	LONE DOME F1	1.70
532.B	COTTONWOOD B	0.97
512.A	BLACK SNAG A	0.09
512.A	BLACK SNAG A	2.60
		0.49
		0.34

Number	Name	Miles
514.G	GLADE G	1.46
575	NARRAGUINNEP CANYON	3.01
257	BEAN CANYON	1.62
249	BALD HILL RESVR	2.17
475	CABIN RIM	2.00
238.A	BEAVER POINT A	3.32
215	DOE CREEK	2.71
514.B	GLADE B	0.23
405	POWER LINE	2.63
528.1	UPPER HOUSE CREEK	2.80
526.C	DOLORES NORWOOD C	2.63
504.P	LONE DOME P	0.30
	Powerline NW BoggyGlade	3.53
532.A1	COTTONWOOD A1	0.77
504	LONE DOME	2.92
527.D	BOGGY DRAW D	1.69
526.B	DOLORES NORWOOD B	0.37
241	SOWBACK	8.80
529.F	BEAVER RIM F	2.04
514.D	GLADE D	1.14
526.G	DOLORES NORWOOD CR	0.69
527.C	BOGGY DRAW C	2.21
238.A1	BEAVER POINT A1	0.33
501.C	SAGEHEN FISHER C	0.10
529.H	BEAVER RIM H	1.45
523.A1	TRIMBLE A1	1.74
514.E	GLADE E	1.25
293	HOSEA RIDGE	0.87
493	BENCH MARK MTN	3.75
514.I	GLADE I	0.62
502	DOLORES FISHERMAN	0.32
522.C	SALTER C	2.61
249	BALD HILL RESVR	3.91
475.B	CABIN RIM B	0.94
475.A	CABIN RIM A	1.78
240	RYMAN CREEK	0.32
233	DRY LAKE CUTOFF	1.25
519.D	FLAT IRON D	1.62
513	WHITE SAND	1.70

Number	Name	Miles
504.H	LONE DOME H	3.21
506.K1	DOE SPRINGS K1	1.76
216	COW CANYON	4.10
218	WILD BILL	4.38
509	GLADE CANYON	4.59
514.A	GLADE A	0.61
514.C	GLADE C	0.20
497	GLADE GUARD STN	0.31
527.A	BOGGY DRAW A	3.05
531	MCPHEE PARK	0.54
532.A	COTTONWOOD A	3.01
238	BEAVER POINT	0.30
238	BEAVER POINT	3.98
259.B	NORWOOD CUTOFF B	3.15
525	TRAIL CANYON	7.24
524	PLATEAU	2.45
257.A	BEAN CANYON A	1.72
511.A	HOPPE RSVR A	0.87
511	HOPPE RSVR	4.55
510.D	DRY CANYON D	0.32
523.D	TRIMBLE D	0.03
247	EAST LAKE	1.18
259.A	NORWOOD CUTOFF A	0.48
251	GROUND HOG CUTOFF	1.53
257.A	BEAN CANYON A	0.47
729	BEAVER CREEK	1.02
726	FISH CREEK	0.22
510.D	DRY CANYON D	0.76
		0.03
		0.09
		0.11
		0.41
		0.02
		0.21
		0.02
522	SALTER	2.19
504.Q	LONE DOME Q	0.60
		0.44
		0.18
		0.67

Number	Name	Miles
525.G	TRAIL CANYON G	0.41
525	TRAIL CANYON	3.10
519.A	FLAT IRON A	2.68
519	FLAT IRON	1.80
501.B	SAGEHEN FISHER B	0.09
		0.16
		0.20
		0.64
		0.74
		0.49
525.A	TRAIL CANYON A	0.20
501.A	SAGEHEN FISHER A	0.14
508.A2	WOLF DEN A2	2.36
504.P	LONE DOME P	1.59
220.B	PONY RSVR B	0.71
528.1	UPPER HOUSE CREEK	3.11
504.C	LONE DOME C	0.34
		0.41
		0.09
		0.09
240	RYMAN CREEK	6.56
501.E	SAGEHEN FISHER E	0.04
249	BALD HILL RESVR	0.43
512.B	BLACK SNAG B	0.26
508	WOLF DEN	4.88
526.E1	DOLORES NORWOOD E1	0.30
209	MAVREESO	0.15
524.B	PLATEAU B	2.13
506	DOE SPRINGS	3.90
529	BEAVER RIM	5.80
		0.06
		0.14
513.A3	WHITE SAND A3	0.17
504.P	LONE DOME P	0.52
527.H	BOGGY DRAW H	0.13
504	LONE DOME	0.70
504	LONE DOME	1.24
504	LONE DOME	0.94
		0.17
		0.00

Number	Name	Miles
		0.07
504.E	LONE DOME E	1.08
CTY-S SM	PONY RSVR	0.23
526.L	DOLORES-NORWOOD L	1.09
274.A	MCPHEE GROUP BLDG	0.28
501.D	SAGEHEN FISHER D	0.08
501.G	SAGEHEN FISHER G	0.25
523.G	TRIMBLE G	0.28
220	PONY RSVR	2.72
512.A	BLACK SNAG A	0.29
509.A	GLADE CANYON A	0.59
525.B	TRAIL CANYON B	0.72
528.B	HOUSE CREEK B	2.04
510.A	DRY CANYON A	0.68
		0.03
		0.07
		0.41
503	MAY CANYON	0.58
508.A	WOLF DEN A	1.09
493.A	BENCHMARK A	0.07
527.E	BOGGY DRAW E	2.02
526.G1		0.44
526.E	DOLORES NORWOOD E	0.35
519.B	FLAT IRON B	0.86
241	SOWBACK	0.23
527.M	BOGGY DRAW M	0.21
527.N	BOGGY DRAW N	0.12
504.N	LONE DOME N	0.16
516	GLADE MTN L O	0.07
513	WHITE SAND	1.40
508.A	WOLF DEN A	0.38
504.K	LONE DOME K	0.88
512	BLACK SNAG	0.03
		0.70
527.B	BOGGY DRAW B	0.19
		0.48
257.A	BEAN CANYON A	0.21
		0.04
245.A	THOMAS MTN A	0.20

Number	Name	Miles
521.A	ORMISTON POINT A	0.48
221	WHITE SANDS CUTOFF	0.37
		0.54
513.A2	WHITE SANDS A2	0.07
		0.12
504.T	LONE DOME T	0.83
220	PONY RSVR	3.34
		<b>230.8</b>
	<b>TOTAL ML2 MILES</b>	<b>7</b>

**Rico West Dolores Roads to Keep on System**

Number	Name	Miles
533	GROUND HOG	4.7
	<b>TOTAL ML4 MILES</b>	<b>4.70</b>
496	BARLOW	0.7
867	BEAR CRK TH	0.15
611	BLACK MESA	11.615
691	BURRO BRIDGE CG	0.3
471.B	CALICO TH	0.1
476	CAYTON CG	1.04
471	EAGLE CRK	7.2
540	GEYSER SPRING TH	0.092
578	HERMOSA PARK	2.584
436	HILLSIDE DRIVE	12.89
534	LONE CONE	5.91
534	LONE CONE	0.39
688	LOWER STONER TH	0.3
689	MAVREESO CG	0.8
535.A	NAVAJO TH	0.156
692	POTHOLE	2.1
548	PRIEST GULCH TH	0.5
435	ROARING FORK	6.63
686	STONER MESA	8.55
545	TAYLOR CRK	7
545	TAYLOR CRK	5.864
545	TAYLOR CRK	1
547	TAYLOR MESA	0.3

547	TAYLOR MESA	3.76
547	TAYLOR MESA	0.94
535	WEST DOLORES	10.048
690	WEST DOLORES CG	0.6
727	WILLOW DIVIDE	2.2
	<b>TOTAL ML3 MILES</b>	<b>93.72</b>
231	AZTEC MINE	0.783
496	BARLOW	3.028
611	BLACK MESA	2.205
611.A	BLACK MESA A	2.785
404	BLACK MESA SPUR	1.251
422	BURNETT	2.18
422	BURNETT	2.325
422.A	BURNETT A	3.019
305	CLEAR FISH	0.692
305	CLEAR FISH	0.45
564	DIVIDE	12.33
564.A	DIVIDE A	1.186
204	EAST FORK	0.368
204.A	EAST FORK A	0.331
726	FISH CRK	2.282
452	FISH CRK DITCH	1.509
248	GENERAL TAYLOR	1.995
U	GRINDSTONE	2.8
	GROUNDHOG	
403	POINT	1.1
555	HELL CANYON	1.015
578	HERMOSA PARK	5.129
149	HERMOSA PEAK	0.734
436	HILLSIDE DRIVE	4.48
423	HORSE GULCH	1.151
539	JOHNNY BULL TH	0.238
864	LITTLE HELL	0.764
424	LIZARD HEAD	0.081
534	LONE CONE	6.146
534.E	LONE CONE E	1.267
534.J	LONE CONE J	1.487
534.J1	LONE CONE J1	0.423
534.L	LONE CONE L	0.196
616	MIDDLE PEAK	3.008
616.A	MIDDLE PEAK A	1.2

207	MORGAN CAMP	0.187
201	PIPE CRK	2.359
201	PIPE CRK	2.5
670	RICO GUARD STN	0.2
208	RIO LADO	1.4
435	ROARING FORK	2.16
550.1	SCOTCH CRK	6.6
592	SHOAS PARK	2.074
875	SUNSHINE	1.662
545.J	TAYLOR CRK J	0.832
547	TAYLOR MESA	0.9
547.B	TAYLOR MESA B	0.268
578.B	TIN CAN BASIN	1.414
578.B1	TIN CAN BASIN SPUR	0.854
727	WILLOW DIVIDE	10.67
<b>TOTAL ML2 MILES</b>		<b>104.02</b>

### Level 1 Roads to Keep on the system

210	FOX DEN	1.9	X
210	FOX DEN	0.9	X
358.B	GRINDSTONE B	1.1	X
436.D	HILLSIDE DRIVE D	0.4	x
692.A	POTHOLE A	2.5	X
545.E1	TAYLOR CRK E1	0.6	X
545.F	TAYLOR CRK F	0.4	X
496	BARLOW	2.372	X
496.B	BARLOW B	3.2	X
496.C	BARLOW C	0.6	X
611.A1	BLACK MESA A1	0.9	X
611.A2	BLACK MESA A2	1	X
611.A3	BLACK MESA A3	0.8	X
611.A4	BLACK MESA A4	0.9	X
476.A	CAYTON GRAVEL PIT	0.2	X
305	CLEAR FISH	0.403	X
305.C	CLEAR FISH C	1.7	X
476.B	COAL MINE	1	X
564.A	DIVIDE A	1.554	X
564.A1	DIVIDE A1	1.5	X
564.A2	DIVIDE A2	2.3	X

564.B	DIVIDE B	3.7	X
564.B1	DIVIDE B1	0.4	X
564.B2	DIVIDE B2	2.2	X
564.C	DIVIDE C	1.4	X
204.A1	EAST FORK A1	1.2	X
248	GENERAL TAYLOR	0.966	X
248.A	GENERAL TAYLOR A	0.5	X
248.A	GENERAL TAYLOR A	0.2	X
248.B	GENERAL TAYLOR B	0.8	X
248.D	GENERAL TAYLOR D	1.7	X
358.A	GRINDSTONE A	0.6	X
403	GROUNDHOG POINT	1.519	X
578.C	HERMOSA PARK C	1.4	X
578.C1	HERMOSA PARK C1	0.6	X
149	HERMOSA PEAK	2.445	X
436.A	HILLSIDE DRIVE A	5.7	X
436.B	HILLSIDE DRIVE B	0.4	X
436.C	HILLSIDE DRIVE C	1.3	X
436.C1	HILLSIDE DRIVE C1	1.5	X
864.A	LITTLE HELL A	1.136	X
870	LITTLE TAYLOR	1.5	X
424	LIZARD HEAD	0.319	X
424.A	LIZARD HEAD A	2.3	X
534.B	LONE CONE B	1.5	X
534.C	LONE CONE C	1.5	X
534.D	LONE CONE D	1.5	X
534.E2	LONE CONE E2	1.832	X
534.F	LONE CONE F	1.1	X
534.G	LONE CONE G	0.7	X
534.H	LONE CONE H	0.8	X
205	MEADOWS	0.8	X
692.A1	POTHOLE A1	0.4	X
208.B	RIO LADO B	1.1	X
435.A	ROARING FORK A	0.8	X
435.A1	ROARING FORK A1	0.8	X
435.B	ROARING FORK B	2.4	X
435.B1	ROARING FORK B1	1.8	X

435.B2	ROARING FORK B2	1	X
268	ROCKY ROAD	0.7	X
592.A	SHOAS PARK A	2.2	A
202	SIPHON SPRING	2.6	X
	SIPHON SPRINGS A	0.9	X
202.B	SIPHON SPRINGS B	1.2	X
686.A	STONER MESA A	2.8	X
686.C	STONER MESA C	3.2	X
686.D	STONER MESA D	0.7	X
545	TAYLOR CRK	2.401	X
545.B	TAYLOR CRK B	1.1	X
545.D	TAYLOR CRK D	1.2	X
545.E	TAYLOR CRK E	1.1	X
547.B1	TAYLOR MESA B1	0.2	X
547.C	TAYLOR MESA C	1.1	X
547.D	TAYLOR MESA D	1.4	X
547.I	TAYLOR MESA I	1.6	X
547.J	TAYLOR MESA J	1	X
547.J1	TAYLOR MESA J1	1.1	X
419	TAYLOR RIM	3.2	X
356	WASP 11	0.7	X
141	WASP 1	0.801	X
368	WASP 13	0.8	X
142	WASP 2	1.4	X
146	WASP 3	1.5	X
148	WASP 4	0.6	X
260	WASP 5	1.3	X
319	WASP 7	1.1	X
321	WASP 8	0.8	X
335	WASP 9	0.8	X
727.A	WILLOW DIVIDE A	0.9	X
	WILLOW DIVIDE A1	1.1	X
727.E	WILLOW DIVIDE E	7.12	X
		<b>126.67</b>	

## **ROADS TO REMOVE FROM ROAD SYSTEM**

The following roads could be removed from the road system by 1) converting to trail 2) changing to private road or 3) decommissioning. How the road is removed will be addressed in Travel Management Planning NEPA processes.

## Level 1 Roads to Decommission

Number	Name	miles	Keep	561.1	Remove	WEST MANCOS I
496.A	BARLOW A	1		558X1		HAYCAMP B1
536	CENTER DRIVE	5.7		X		
305.B	CLEAR FISH B	0.6		Rico	West Dolores	
564.D	DIVIDE D	0.275		X		
471.A	EAGLE CRK A	0.5		422A1	BURNETT A1	
210.A	FOX DEN A	0.6		534.E2	LONE CONE E2	
210.B	FOX DEN B	1.7		534.X	LONE CONE I	
210.B1	FOX DEN B1	0.8		534.J	LONE CONE J	
436.A1	HILLSIDE DRIVE A1	0.8		534.X2	LONE CONE J2	
538	JOHNNY BULL	1.108		208X	RIO LADO	
538	JOHNNY BULL	0.576		578X1	TIN CAN BASIN SPUR	
534.A	LONE CONE A	0.4		X		
201.A	PIPE CRK A	0.2		X		
692.A2	POTHOLE A2	0.4		X		
208.A	RIO LADO A	1.8			<b>Buggy Glade – 0</b>	
208.A1	RIO LADO A1	0.9			<i>Note: Decisions have already been made on which roads to remove. Roads shown as X are needed on the Travel Analysis map when time to fully re-vegetate.</i>	
208.C	RIO LADO C	1.7				
208.D	RIO LADO D	0.8		X		
592.A1	SHOAS PARK A1	0.6		X		
350.H1	SPRUCE MILL H1	1.4		X		
547.A	TAYLOR MESA A	0.8		X		
547.G	TAYLOR MESA G	0.3		X		
547.H	TAYLOR MESA H	0.3		X		
419.A	TAYLOR RIM A	0.6		X		
419.B	TAYLOR RIM B	1		X		
578.B	TIN CAN BASIN	0.636		X		
578.B1	TIN CAN BASIN SPUR	1.699		X		
345	WASP 10	0.5		X		
367	WASP 12	0.5		X		

306	WASP 6	0.8		X
727.B	WILLOW DIVIDE B	0.66		X
727.F	WILLOW DIVIDE F	0.984		X
		30.638		

## **Mancos Cortez Area**

561.C	WEST MANCOS C	0.352
398.A	LOGGING CAMP A	0.1171
393.C	IRON SPRINGS RSVR SPUR C	1.06
568.A	RAILROAD GRADE SPUR A	0.1068
214	WEBER RSVR INLET CANAL	0.473

RicoWest Dolores

X		
422A1	BURNETT A1	0.554
X		
534.E2	LONE CONE E2	0.468
X		
534.I	LONE CONE I	0.461
X		
534.J	LONE CONE J	1.487
X		
534.J2	LONE CONE J2	0.355
X		
534.K	LONE CONE K	1.266
208X	RIO LADO	1.4
X		
578.B1	TIN CAN BASIN SPUR	0.854

x 5.44

## Boggy Glade - 0

~~Note: Decisions have already been made as to which roads to remove. Roads shown as not needed on the Travel Analysis map will take time to fully re-vegetate.~~