

## Rio Grande National Forest – Assessment 11 Infrastructure



## Introduction

Assessment 11 assesses available information about infrastructure on the Rio Grande National Forest, including roads, trails, utilities, recreation facilities, and administrative and special uses as outlined in Forest Service Handbook 1909.12, Chapter 10, Section 13.6.

The developed infrastructure within the Rio Grande National Forest includes roads, trails, utility corridors, dams, and buildings for administrative, recreation, or special use purposes.

Infrastructure within the plan area can have a substantial impact on social, cultural, economic, and ecological conditions both within the plan area and in the broader landscape. Infrastructure can include facilities for energy generation or transport, communications, water delivery, transportation (including airstrips), or recreation. These facilities directly affect conditions and uses within the plan area and may support delivery of goods and services in the broader landscape.

There are approximately 2,244 miles of Forest Service system roads, and approximately 1,298 miles of Forest Service system trails within the Forest. Road and trail construction and maintenance must meet Forest Plan guidance for soils, watersheds, wildlife, scenery, and other topics.

Building and other facilities are described in a separate Facilities Master Plan. The Facilities Master Plan was written in 2003, and is currently being updated for 2015. The Forest Plan will use guidance from the Facilities Master Plan to provide overall management direction on building design, construction, and maintenance.

The current Forest Plan identifies the following major utility corridors within the Rio Grande National Forest.

- A corridor entering the forest near Elwood Pass, proceeding east past Summitville and Grayback Mountain, then following Pinos Creek Road to Del Norte.
- A corridor generally following Highway 149 from South Fork to Creede, continuing over Spring Creek Pass to Lake City.
- A corridor following the Middle Creek drainage on the Saguache District north to the Gunnison National Forest.

## Information Sources and Gaps

### **Sources**

- Data sources are from the FS NRM-Infra, the TAP and GIS databases (created from GPS and screen digitizing), and is the best available data. Motor Vehicle Use Maps, Watershed Condition Framework Resources Planning Act (RPA) Assessment are also used.
- Some historical data for roads is available
- There are three attached infrastructure maps associated with this document
- This document contains summary table for deferred maintenance, the complete table is available as a supplement.

### **Gaps**

- Updated county parcel data is not available, due to the cost.

- A Facilities Master Plan is currently being developed. It evaluates and ranks Fire, Administrative, and other facilities (not Recreation Facilities) in order to aid in making intelligent investment decisions, such as determining which assets to repair or which assets to decommission.

## Existing Forest Plan Direction for Infrastructure

The 1996 Forest Plan states specific guidance for infrastructure under every resource area.

### **Guidance for Facilities:**

- No significant change in the number of structures or the acres occupied by administrative sites is anticipated.
- Routine activities will continue, regardless of the Forest Plan Revision.
- Aging water systems will have to be either closed or upgraded.
- Any new facilities will be designed to be accessible in accordance with the Americans with Disabilities Act, and upgrades will relate to developed and motorized recreation.

### **Monitoring and Evaluation:**

- Dams, facilities, drinking-water sources, road and trail bridges, and Forest System Roads, are inspected and maintained on regular schedules that comply with Forest Service policies and/or state and federal regulations.

## Scale of Analysis

The plan area includes the Rio Grande National Forest boundary, the surrounding federal lands that border the Rio Grande National Forest (NPS, BLM, FWS, and other National Forest), state owned lands, private inholdings and private lands that border the Rio Grande National Forest.

## Current Condition of Infrastructure

Infrastructure on the Rio Grande National Forest is scattered throughout the forest in areas outside of wilderness, as demonstrated on the attached map: **Infrastructure Map 1**.

### **Deferred Maintenance Summary:**

Many of the facilities on the Forest are at end of their lifecycle. This and the lack of maintenance funds, result in accumulated deferred maintenance.

**Table 1. Distribution of funding for infrastructure**

Infrastructure	Category	Total DM \$	HS Critical \$	HS Noncritical \$	Forest Mission \$	Resource Protection \$
Bridges		2,263,149.43	947,356.96	857,797.24	426,955.74	31,039.49
Facilities		8,529,235.20	46.06	0.00	8,529,189.14	0
Water Systems	Drinking	828,316.83	434,864.96	393,451.87		
Waste Water System	ALL	56,260.15	7,259.00	49,001.15		
Dams	ALL	1,015,385.47	863,855.89	151,529.58		
Roads	ALL	33,379,482.68	2,926,977.68	30,452,505.00		
Trails	All	6,616,144.96				

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Infrastructure	Category	Total DM \$	HS Critical \$	HS Noncritical \$	Forest Mission \$	Resource Protection \$
Trail Bridges	ALL	32,767.65				
Facilities W/O LC		3,040,997.27				
Facility Breakdown	All Other	1,282,518.64				
	Comm Systems	795,968.02				
	Dorm/Barracks	834,927.01				
	Family Housing	2,888,096.14				
	Industrial	798,284.19				
	Office	1,876,811.27				
	Other Institutional	354,473.38				
	Service	4,733,495.89				
	Storage	2,043,788.87				
FRPP Facility	ALL	11,743,385.79				

DM = Deferred Maintenance

HS = Health and Safety

LC = Life Cycle

FRPP = Federal Real Property Program

**Table 2. Example of an annual road maintenance plan: motorized travel: road maintenance 2015**

Road Number	Miles	District	# Days to Work on	# Days for 2nd pass	Equip Travel Days	Notes
250	56.43	20903	30+	14	1 to 2	from MV Adsite
520	32.5	20904	20+	5	1 to 2	from MV Adsite
101	19.2	20903			1	
380	27.88	20903	20+	5	1	
360	17.11	20904			1 to 2	
949	2.3	20907				
950	2.05	20907				
855	10.5	20907				To the 578 at Forest Boundary
810	7.2	20907				to 784 to 793
775	1.084	20907				
NN14 (750)	10.6	20907				including Luder's CG loop
730	11.9	20907				
787	22.3	20907	20+	5		including Stone Cellar CG spur
675	25.5	20907	20+	5		
41G	29.2	20907	20+	5		including Storm King CG and Carnero GS
Landslides			2 to 7			Averaging 12 landslides per year (Joe P).
	275.8					Number of miles each year

District: 20903 = Conejos Peak, 20904 = Divide, 20907 = Saguache

**Table 3. Cost of conducting all annual maintenance for one year on all ML3 roads (hypothetical)<sup>a</sup>**

ML3 resource	Quantity	Action	Cost
Total Miles on Forest	2244		
Total Miles Closed	618.6	Potential Closure 52.362	
Miles Open/Active	1630	1577.312	
Trails - Motorized			
Total Miles on Forest	399.2	Potential Closure 5.43	
		Miles Open/Active 393.8317	
Roads			
Total Miles ML3	598.6		
Schedule A Roads	493.8		
<b>Total Deferred Maintenance on Roads</b>			<b>\$33,379,482.68</b>
<b>Total Annual Maintenance on Roads</b>			<b>\$4,500,132.96</b>
<b>Critical</b>			
Resource Protection	389 Items		
Forest Mission	206 Items		
Health and Safety	542 Items		
<b>Total \$</b>			<b>\$2,926,977.68</b>
<b>Non-Critical</b>	<b>6829 items</b>		<b>\$30,452,505</b>
Road Features Breakdown	Total of 10,860 Features in system		
Cattleguards	176		
Gates	195		
Signs	1260		
Drainage	1045		
Bridges	25		
Guardrails	6		
Culverts	5522		
Other	2631		

a – Funding has never been available to complete all annual maintenance

**Table 4. Spatial Data (Displayed on Map) as of March 19, 2015**

Constructed Features		Recreation Sites	
Type	Number	Type	Number
Unknown	8	Boating site	7
Building	262	Campground	40
Cattleguard	18	Fishing site	10
Communication System	5	Group picnic site	4
Gate	42	Interpretive site (minor)	10
Handling Facility (Corral)	1	Lookout/cabin	10
Sanitation/Toilet Buildings	7	Observation site	2

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Constructed Features		Recreation Sites	
Type	Number	Type	Number
Trail Bridge	19	Picnic site	12
Wastewater System	10	Recreation residence area	8
Water System	59	Ski area alpine	1
Other	112	Target range	1
Dam	41	Trailhead	62
Bridge	32	<b>Total</b>	<b>167</b>
Water System-Range	483		
Fence	463		
Water System Range-Pipeline	40		
<b>Total</b>	<b>1602</b>		

Note: Spatial data is being updated, the number of Constructed Features changes as better and new information is gathered.

**Table 5. Miles of Roads from NRM-Infra**

District	1	2	3	4	5	D	C	Total
Conejos RD	107.4819	175.5790	140.5094	.0000	.0000	.0000	.3100	423.8803
Divide RD	387.6521	356.6002	365.9307	19.5710	.6730	11.2155	1.9620	1,143.6045
Saguache RD	150.9565	447.9642	82.4890	.0000	.3000	4.8000	.0000	686.5097
<b>Total:</b>	<b>646.0905</b>	<b>982.1354</b>	<b>595.3529</b>	<b>19.5710</b>	<b>.9730</b>	<b>16.0155</b>	<b>2.2720</b>	<b>2,262.4103</b>

Mileage based upon the following criteria: National Forest SR; Jurisdiction-FS, Status-Existing

D = Decommissioned

C = Converted

**Table 6. Miles of National Forest System trails by District from NRM-Infra**

Total National Forest System Trails	Motorized	Non-Motorized Only	Wilderness	Non-Wilderness
District:	Conejos Peak RD			
280.4118	66.5534	213.8584	142.0812	138.3306
District:	Divide RD			
717.9558	297.7343	420.2215	177.1394	540.8164
District:	Saguache RD			
290.1532	34.9440	255.2092	134.9149	155.2383
<b>Totals:</b>	<b>Rio Grande National Forest</b>			
<b>1,288.5208</b>	<b>399.2317</b>	<b>889.2891</b>	<b>454.1355</b>	<b>834.3853</b>

Full tables for this section can be found in the Supporting Documents folder

## Outside Influences

The Rio Grande National Forest contains the headwaters for the Rio Grande river system and its tributaries that include the Conejos River and Saguache Creek. There are several dams and irrigation

systems built along the Rio Grande on properties adjacent to the national forest. These features require maintenance and special use permits, and are accessed by forest service roads.

The forest is accessed by roads from other federal lands, county roads and state highways; some of these roads pre-date the establishment of the National Forest and are relied upon for local economic uses. There are six small airports that also provide access to the area, and three active utility corridors that cross the forest.

**Infrastructure Map 2** shows the river and the reservoirs along the river and how the valley is fed by the waters, and the transportation system that accesses the Rio Grande National Forest.

## Trends

### ***Census Data and Population Data:***

Overall the population of the counties remains relatively steady, with small fluctuations of either gain or loss. The table of census by county can be found in: Assessment 14- Assessing Land Status and Ownership, Use and Access Patterns Assessment.

### ***Local Airports and Drones:***

The use of drones is currently under review by the FAA, and this may influence new airport development.

### ***Communication Site Infrastructure:***

Change in usage by cell phones, is discussed in Assessment 14. Communications facilities do not have a huge ground impact, but can have a societal, safety, and visual impact.

### ***Shifting Forecast of Snowpack:***

The forest may issue special use permits for sensors to forecast snowpack.

### ***User Created Travel Routes:***

The amount of user created routes mainly from motorized and mechanized use has been increasing. These nonsystem routes are displayed on **Infrastructure Map 3**.

### ***New Areas for Non-Motorized Use:***

If any new areas are set aside for non-motorized use, this could result in removal of road infrastructure from the system.

### ***Watershed Condition Framework:***

The Rio Grande National Forest will ensure that watersheds that are at risk do not have and increase in forest infrastructure that is detrimental to the watershed. The Rio Grande National Forest has two priority watersheds:

1. Middle Fork Carnero Creek-Functioning at risk
2. Headwaters for Rio Chama-Functioning Properly

**Infrastructure Map 3** displays the ownership for the vicinity of the Rio Grande National Forest.

## Sustainability

Sustainability of forest infrastructure is an issue due to the deferred maintenance backlog and decreasing budgets, the Rio Grande National Forest may have to consider closing facilities in the future.

The Rio Grande National Forest has a backlog of structures that are on the deferred maintenance list, refer to **Infrastructure Map 1**.

## Infrastructure Management

The Rio Grande National Forest uses a PODS system for road maintenance. Each district is broken into seven pods; two pods on each district are maintained every year.

### ***Existing Travel Management decisions for Roads, refer to:***

Revised Land Management Plan (1996) Forest Plan.

Page 8 Forest Objective 3.4

Page 28 Recreation and Travel Management Record of Decision Alternative G

Standards and Guidelines Management Area Prescriptions

Page III-33 Infrastructure Travelways: Sec 6 Land Ownership and Special Uses

Page IV- 8 through IV-10 Management Area Prescriptions (MAP) 1.5

Page IV-12 MAP 2.2

Page IV-17 through IV-18 MAP 3.3

Page IV-26 MAP 5.11

Page IV-28 MAP 5.13

Page IV-29 MAP 5.41

Page IV-30 MAP 5.42

Page IV-33 MAP 6.6

Appendix O – Restricted Roads to be closed through NEPA

This information can be found on Rio Grande National Forest Internet Site:

<http://www.fs.usda.gov/riogrande>

### ***Other Documents to reference:***

TROD for Trails – can be found in Supporting Documents folder

Road Analysis Process (RAP) 2004

Transportation Analysis Process (TAP) 2015 (Scheduled for completion) by September 30, 2015)

## Impacts to Ecological Integrity and Species Diversity

Refer to Assessments 1, 2, 3, and 5.

## Multiple Use Management

Refer to Assessment 8 – Multiple Uses.

## Summary

We are following current Forest Plan direction. However, with aging infrastructures and continued budget decreases, maintenance to a desirable standard is difficult. The deferred maintenance backlog will continue to increase and this trend is not sustainable. The deferred maintenance is a safety issue for the public and the employees of the Rio Grande.

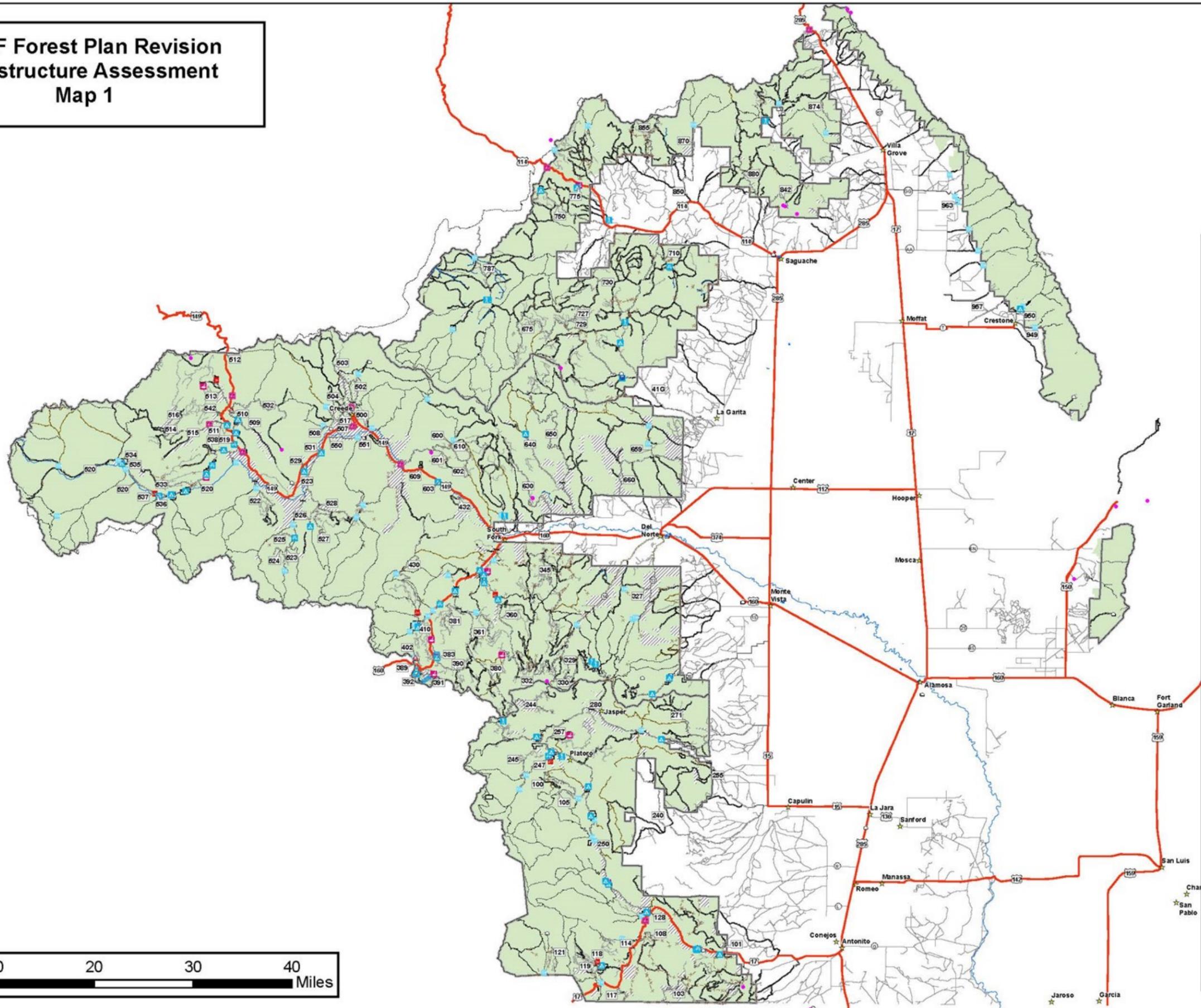
Although the local population is relatively stable, there is high usage in the summer due to tourism. Climate change and new technology will affect how the forest is accessed and used. Roads and trails provide access to federal lands and are being maintained on a schedule. The increase in user made routes increases resource damage. The forest needs to be aware of these changes and how they could affect planning in the area.

Key findings of the 2010 Resources Planning Act (RPA Assessment)

- Competition for goods and services from natural ecosystems will increase
- Population growth and demographic shifts will result in more people competing for recreational opportunities on a fixed or shrinking land base, but will also change the patterns of recreation use.
- Increasing water demands are likely to increase competition between water users. o Development effects on water quality, in combination with increasing water demands, raises concerns about the health and relative abundance of aquatic species in the future

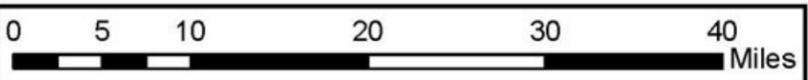
*The RPA Summary can be found at <http://www.fs.fed.us/research/rpa/>*

# RGNF Forest Plan Revision Infrastructure Assessment Map 1

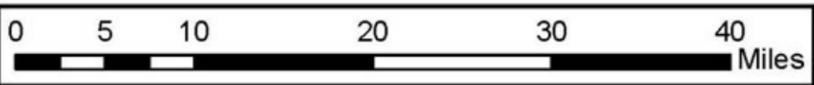
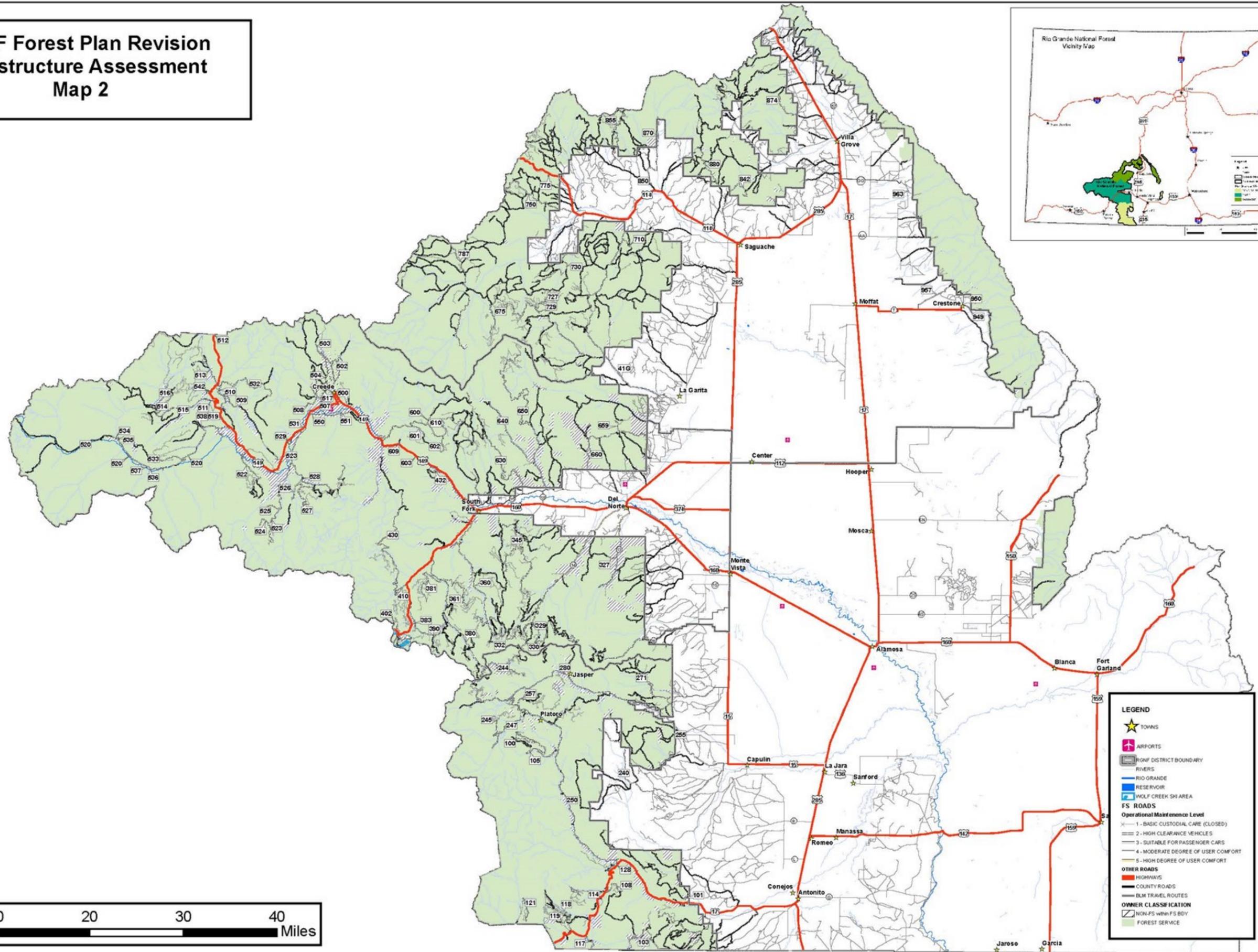
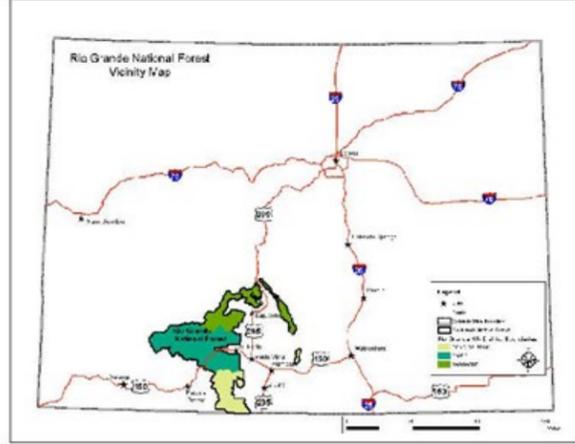


**LEGEND**

- ★ TOWNS
- ▭ RGNF DISTRICT BOUNDARY
- ▭ RECREATION SITE BOUNDARY
- RIO GRANDE
- RESERVOIR
- OWNER CLASSIFICATION**
- ▨ NON-FS W/IN FS BOY
- ▨ FOREST SERVICE
- RECREATION SITES**
- BOATING SITE
- CAMPGROUND
- FISHING SITE
- GROUP PICNIC SITE
- INTERPRETIVE SITE
- LOOKOUT/CABIN
- OBSERVATION SITE
- PICNIC SITE
- SKI AREA/ALPINE
- TRAILHEAD
- WOLF CREEK SKI AREA
- CONSTRUCTED FEATURES**
- ▭ BUILDING
- ▭ CATTLEGUARD
- COMMUNICATION SYSTEM
- FENCE
- HANDLING FACILITY
- SANITATION
- WASTEWATER SYSTEM
- WATER SYSTEM
- OTHER
- DAM
- BRIDGE
- WATER SYSTEM RANGE
- TRANSPORTATION**
- HIGHWAYS
- COUNTY ROADS
- BLM TRAVEL ROUTES
- FS ROADS**
- Operational Maintenance Level**
- 1 - BASIC CUSTODIAL CARE (CLOSED)
- 2 - HIGH CLEARANCE VEHICLES
- 3 - SUITABLE FOR PASSENGER CARS
- 4 - MODERATE DEGREE OF USER COMFORT
- 5 - HIGH DEGREE OF USER COMFORT
- FS TRAILS**
- Designed Use**
- ALL TERRAIN VEHICLE
- MOTORCYCLE
- PACK AND SADDLE
- HIKER/PEDESTRIAN



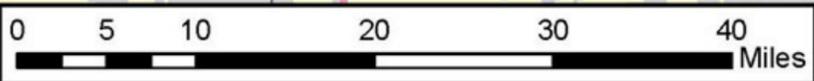
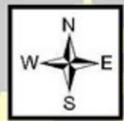
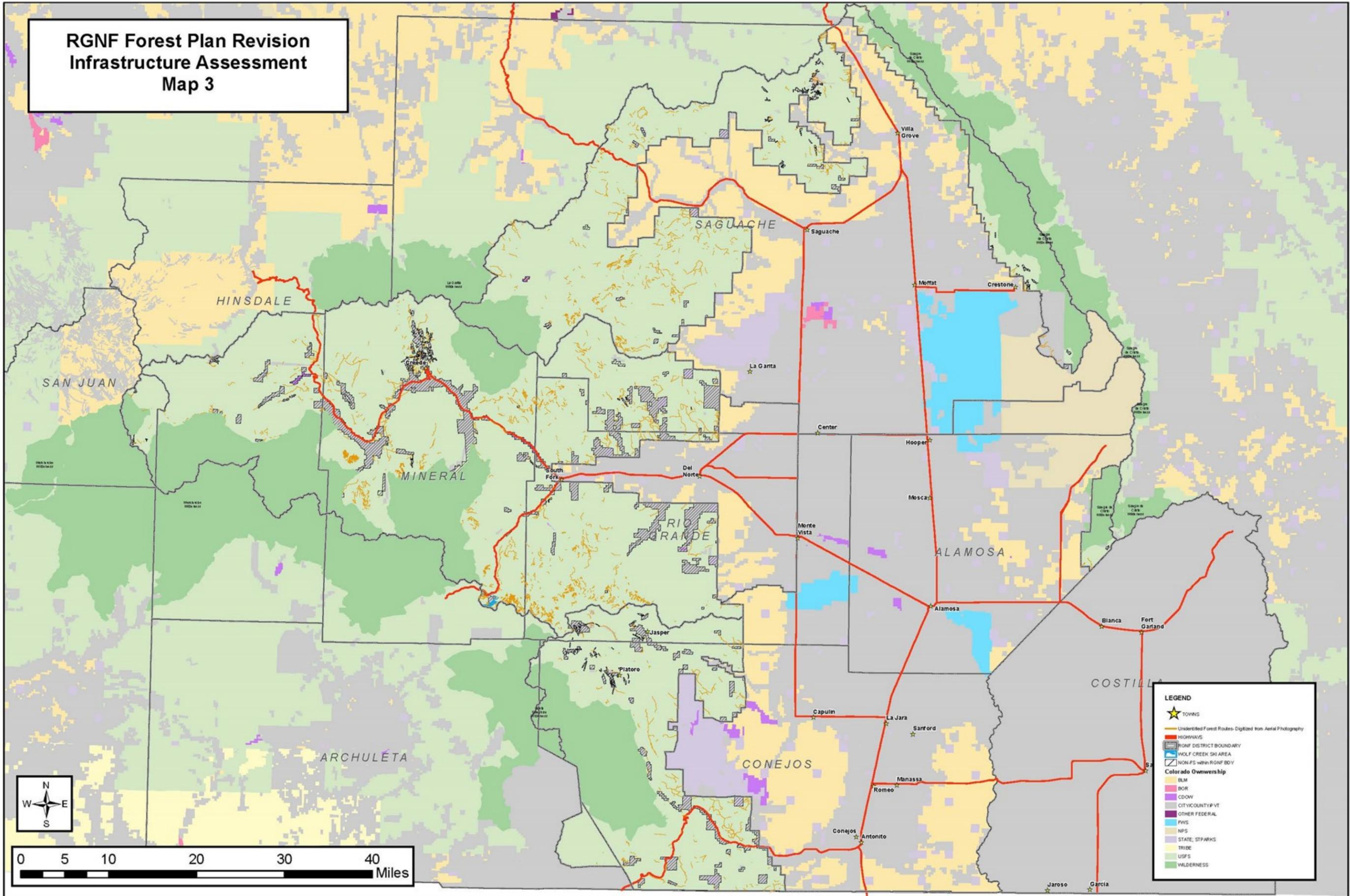
# RGNF Forest Plan Revision Infrastructure Assessment Map 2



**LEGEND**

- ★ TOWNS
- ◻ AIRPORTS
- ▭ RGNF DISTRICT BOUNDARY
- RIVERS
- RIO GRANDE
- RESERVOIR
- WOLF CREEK SH AREA
- FS ROADS**
- Operational Maintenance Level**
- 1 - BASIC CUSTODIAL CARE (CLOSED)
- 2 - HIGH CLEARANCE VEHICLES
- 3 - SUITABLE FOR PASSENGER CARS
- 4 - MODERATE DEGREE OF USER COMFORT
- 5 - HIGH DEGREE OF USER COMFORT
- OTHER ROADS**
- HIGHWAYS
- COUNTY ROADS
- BLM TRAVEL ROUTES
- OWNER CLASSIFICATION**
- ▭ NON-FS WITH FS BOD
- ▭ FOREST SERVICE

**RGNF Forest Plan Revision  
Infrastructure Assessment  
Map 3**



**LEGEND**

- ★ TOWNS
- Unidentified Forest Routes- Digitized from Aerial Photography
- HIGHWAYS
- RGNF DISTRICT BOUNDARY
- WOLF CREEK SKI AREA
- NON-FS WITHIN RGNF BOY

**Colorado Ownership**

- BLM
- BOR
- CDOW
- CITY/COUNTY/VT
- OTHER FEDERAL
- FWS
- NPS
- STATE, SPARKS
- TRIBE
- USFS
- WILDERNESS