Financial and Administration Summary of the Forest Transportation System for the Grand Mesa, Uncompahgre and Gunnison National Forests (GMUG NF).

Subpart A for the GMUG National Forest reviewed the existing road system and identified routes likely needed into the future for safe and efficient travel for the administration, public access, and to meet forest resource management objectives. Conversely, routes likely not needed for future administration were also identified. For routes identified as likely needed, a variety of management strategies were considered in an effort to balance the needs for access against maintenance costs and diminishing federal budgets.

Table 1. Existing Transportation System Analyzed

MILES BY OPEN TO:	ADMIN USE	ALL USERS	BLANK	
OPER MTNC LEVEL				**TOTAL MILES BY ML**
ML 1	232[1]	3	46	282
ML 2	339	1856	319	2515
ML 3	19	603	8	630
ML 4	0.6	269	-	269
ML 5	0.4	13	-	14
Blank	0.2	2	2	4
TOTAL	591	2746	375	3714
Motorized Trails				1004

[1]inconsistent coding, administrative use roads should not be coded as ML 1, because an ML 1 road is a closed road. Administrative use roads are typically ML 2 roads.

Note: The 28.64 miles of USDA Easement roads outside the proclaimed forest boundary are not represented within Table 1.

Road Maintenance Budget

Of the appropriated budget allocation for road maintenance and management for the GMUG National Forest, approximately 50% goes towards road operation and maintenance (O&M) activities Forest-wide. 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. Forest Construction and Maintenance (C&M) crews will maintain approximately 25% of "roads needed and opened for public use" (2719) in 2015 toward target accomplishment.

Annual maintenance costs are based on miles of road maintained per targets identified through the federal budget allocations process.

Table 2. Breakdown of Annual Maintenance Costs by Operational Maintenance Level (ML)

Road ML	Mtce Cost/Mile	2015 Mtce Targets Miles	Annual Mtce Costs[1]	Maintenance Frequency
ML1	N/A	0	$ 0	0
ML2	$1,500	90	$135,000	8- 5 years
ML3	$2,200	400	$880,000	2 times per one year
ML4	$2,600	158	$410,800	2 times per one year
ML5	$3,000	30	$ 39,000	1 time per year
Grand Total		**678**		

[1] based on FY 2015 targets and includes Schedule A Roads

The travel analysis identified that most existing ML3, 4 and all ML5 roads are likely needed and identified 366 miles of road, (ML 2 and ML1) that may be decommissioned, closed, or removed from the system because they are likely not needed. An additional nine miles of road will be removed from the transportation system due to data base error.

Of the roads identified as likely needed, several management strategies were considered to reduce maintenance costs:

1) **Manage road as a Maintenance Level 1, basic custodial Care** (closed to all travel but not decommissioned). These roads are placed in storage. The 128 miles of ML 2 roads identified for storage will reduce costs by $192,000 (128 x $1,500).
2) **Change System from NFSR to Private**. Certain roads used exclusively to access private land inholdings can be transferred to a FLPMA Private Road easement where the non-federal land owner assumes cost of maintenance for road. Road would not be considered part of the forest transportation system. Potentially 35 miles of road could be placed under permit.

Table 4. Miles of Road Placed under Permit

Place roads under permit	Sum of Miles	Cost/Mile	Total Reduced Costs
ML1	11	$0	N/A
ML2	23	$1,500	$34,500
ML3	1.1	$2,200	$ 2,420
ML4	0.6	$2,600	$ 1,560
Grand Total	**35**		**$38,480**

3) **Manage as an Administrative Use Road**. Administrative use roads are often single purpose roads necessary for specific resource management (e.g. vegetation treatment) or maintenance of special uses (e.g. maintenance of power lines or reservoirs.) Single purpose roads may experience less travel and as a result can often sustain longer maintenance intervals; additionally, the user can be required to cost share in whole or part of the maintenance of the road.

Table 5. Miles of Road likely needed for Administrative Use

Roads needed for Administrative Use	Sum of Miles	Cost/Mile	Total Reduced Costs
ML2	348	$1,500	$522,000
ML3	18	$2,200	$ 39,600
ML4	0	$2,600	$ 0
ML5	0.4	$3,000	$ 1,200
UNK	0.2	$ 0	
Grand Total	**367**		**$562,800**

4) **Not Needed**. Roads are not needed for long-term management of the national forest resources.

Table 6. Roads Likely not Needed

Roads not needed	Sum of Miles	Cost/Mile	Total Reduced Costs
ML1	61	N/A	$ 0
ML2	305	$1,500	$457,500
Grand Total	**366**		**$457,500**

5) **Adding roads to the system**. A tenth (0.1) of a mile was added as an NFSR because an easement exists for trailhead access in the Fruita Division. This action was covered under Fruita Access Project.
6) **Roads converted to trails**. Roads not needed however recreation trail opportunities have been identified. A converted road eliminates the cost to maintain to road standards; however maintenance costs shift to the recreation/trails program. All road converted to trail are analyzed under appropriate environmental analysis. The 23 miles of road recommended to be converted to trail are currently ML 2 roads.

Table 7. Roads Converted to Trails

Roads converted to trails	Sum of Miles	Cost/Mile	Total Reduced Costs
ML1	4 Admin Use	$1,500	$ 6,000
ML2	8 Admin roads	$1,500	$12,000
ML2	8 Storage	$1,500	$12,000
ML2	2 open to public	$1,500	$ 3,000
Grand Total	**22 Miles**		**$33,000**

A summary of road maintenance cost savings based on implementing the recommended management strategies, are shown in Table 8 below:

Table 8. Summary of Management Strategizes and Costs.

Recommendations	Miles of Roads	Potential Cost Savings
Roads needed and open for public use	2779	N/A
Place roads in Storage (ML 1)	127	-$190,500
Roads needed for Administrative Use	367	-$550,500
Add road to system	14	N/A
TOTAL ROAD MILES MAINTENANCE RESPONSIBILITY	**3287**	
Place road under permit – ML 2	33	-$ 49,500
Convert road to trail – ML 2 (road is gone)	23	-$ 34,500
Road not NFRS – remove from database	9	N/A
Roads likely not needed – ML 2	366	-$549,000
POTENTIAL MILES OF ROAD REMOVED FROM TRANSPORTATION SYSTEM	**431**	

Road Annual Maintenance

Annual road maintenance costs are calculated by estimated actual costs as determined by the GMUG National Forest engineering staff. These estimated actual costs include Forest-wide costs associated with the force account road crew (salary, purchase of heavy equipment, FOR, fuel, maintenance, and overhead). The following is a description of the estimated annual road maintenance costs for each maintenance level as determined by the GMUG engineering staff.

Other Road Maintenance Funding Sources Supplement CMRD Appropriated Funding:

1) The Forest Service and Counties are required by the State of Colorado to sign a Cooperative Forest Road Agreements (Schedule A list of roads) whereby the counties are paid by the State to perform road maintenance activities 2 times per year on NFS roads. Primarily motor grader blading occurs on ML 3 and 4 roads; however ML 2 dozer work is included.

   The Office of the State Treasurer (Treasury) manages the Highway User Tax Fund (HUTF) and is responsible for the annual calculations used to determine monthly distributions for the HUTF to the recipient entities. The counties are funded to perform this work through State of Colorado allocations of the Highway User Tax Funds (HUTF). Statutes governing the HUTF prescribe the revenue collections and distribution process.

   The work performed by the counties moderately offsets the deficit in Forest Service appropriated road maintenance funding. Higher traffic roads require blading more than once per year. When necessary, other required road maintenance activities on these roads are performed by the Forest Service C&M crews such as right-of-way (ROW) clearing, cleaning plugged culvert inlets/outlets, full catch basins, full cattleguards, and bent or broken road closure gates are repaired, etc. According to Forest Service database, the Forest has about 1177 miles of Schedule A roads, which is approximately 36% of total road miles maintenance responsibility.

   Due to the HUTF calculation process complexity, below is a simplified chart showing cost savings. ML 2, ML 3 and ML 4 road miles have been combined.

Table 8. Roads Under a Forest Cooperative Roads Agreement (Schedule A list of roads)

Roads under County Schedule A	Sum of Miles	Cost/Mile	Total Costs Savings
ML1	N/A		
ML2, ML3, ML4	1167.86[2]	$1,200	$1,401,432
ML5	7.33	$3,500	$25,655
UNK	1.19		
Grand Total	**1176.41 Miles**		**$1,427,087**

[2]ML2 = 420.64 miles, ML3 = 469.33 miles, and ML4 = 277.92 miles

2) Commercial operator activities such as timber sales, oil and gas wells, hauling from private lands, etc. have been under charged a percentage of road maintenance costs or have not conducted road maintenance activities as part of the project/contract. Normal practices are to charge commercial operators commensurate share of roads costs. They are responsible for repairing any use/damage they put on the road. Primary and secondary roads have deteriorated with heavy use because of the limited investments placed back on the road. The net result will be significant seasonal time limitations on all commercial use if the road conditions continue without putting any money back into the road. The costs currently

collected for surface rock replacement and road maintenance (in lieu of providing road maintenance) is not sufficient to protect the travel way. Road maintenance should perpetuate the transportation facility to allow it to serve its intended management purposes and to protect the investment, environment, and adjacent resources; provide for user safety; meet applicable air and water quality standards; and provide for user economy. The timber sale road maintenance and surface road replacement costs should be updated and revised in the timber sale handbooks.

3) The amount of road maintenance or decommissioning cost savings that has occurred after timber sales are complete through the collection of Knudsen-Vandenberg (KV) funds for timber sale area road improvement is approximately $5,000/year savings that can be applied to timber sales road decommissioning and rehabilitation.

IDIQ Service Contracts

Road maintenance can also be accomplished by entering into agreements with contractors who have the experience, equipment, and personnel necessary to properly perform maintenance work.

Advantages to using service contracts include the ability to accomplish required maintenance by not incurring the full-time cost of personnel and equipment and by the advantage of the competitive bid process to minimize costs. Disadvantages include the risk of reduced flexibility and the extra workload and costs associated with administration of the contract.

In past years, IDIQ contracts have been used for maintaining ML2 roads at $1,800/mile.

203 miles of roads will have road maintenance activities accomplished by IDIQ Service contract for 2015.

Monitoring

The success of a maintenance program can be determined only through observation and inspections. Working under the premise that shorter maintenance intervals can reduce risk to watersheds, it is important to optimize maintenance schedules, particularly if risk has been identified to be sedimentation and drainage crossings. ML 3-5 ro*a*ds are normally on an annual or semiannual maintenance cycle. Maintenance rotations on ML2 roads are typically 5-10 years. Monitoring or checking the road on a regular basis to determine if maintenance work has been effective can reduce maintenance costs. For example, an inspection of a road during the early fall rains will determine if culverts have been properly cleaned, whether ditches are functioning properly, and if the road surface is properly crowned. Where monitoring identifies an ongoing maintenance need, actions will be taken to correct the situation.

Because the majority of roads within the high risk ecologic/watershed category are ML2, one key mitigation measure is to increase maintenance cycles. A monitoring system is recommended to determine the appropriate maintenance cycle for high risk roads. There are 302 miles of open ML2 roads that rate as high risk. Risk was measured against road density and sedimentation loss. Sedimentation loss can be mitigated through proper drainage, thus maintenance. Most ML2 roads have constructed rolling and grade dips for drainage. Very few, if any culvert structures are built on ML2 roads. Increased monitoring for roads rated high risk will determine if maintenance intervals should be increased.

Risk associated with road density can only be mitigated through road closures, either seasonally or permanently. If recommendations in this analysis are carried forward, a new road density analysis may reveal different risk results if 366 miles likely not needed roads are decommissioned.