

Appendix F:

Road Maintenance Objectives

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Road Maintenance Objectives Overview

Introduction

Road management objectives (RMOs) establish the specific intended uses of an individual road, based on:

- Management area direction;
- Access management objectives and similar sources of resource management direction;
- Standards and guidelines;
- Project decisions; and
- Results and findings of travel analysis.

These objectives guide how the road is/was to be located, designed, constructed, operated, and maintained to meet the specific resource management objectives for the area accessed by the road. The objectives are also the basis for the road inventory, signing and mapping, and the rules and regulations that apply to the use of the road.

Simply, RMOs document the *how and why* a road is included in a forest transportation system, including intended uses and management constraints. And, they are dynamic...

What is the minimum information needed in an RMO?

At a minimum, the RMO should contain a summary of the following:

- Management area direction
- Needs for coordination of uses
- Management restrictions
- Line Officer approval signature and date

Hard copy RMOs should contain the same information that is stored as linear events in the Road's module. FSH 7709.59, Chapter 11.3 requires RMOs to be recorded in the RMO module of INFRA Travel Routes, where specific information about a road is automatically populated into a road's RMO; it cannot be changed in the RMO module. It is imported from other INFRA Modules. If changes are made in the "Maintain Road Module," they will automatically update into the RMO module, but not on the hard copy!

Table 1: INFRA Travel Routes data that are automatically populated into the RMO form.

RMO TAB	LINEAR EVENTS
ROUTE BASICS	ADMIN ORG COUNTY CONGRESSIONAL DISTRICT LEGAL QUAD ROUTE STATUS MILEAGE SOURCE
DESIGN CRITERIA	CRITICAL TRAFFIC DESIGN SPEED DESIGN TRAFFIC LANES ROAD TEMPLATE SURFACE TYPE TEMPLATE SLOPE CODE TRAFFIC SERVICE LEVEL TRAVEL WAY WIDTH
OPERATION CRITERIA	FUNCTIONAL_CLASS JURISDICTION PSFR CLASSIFICATION SYSTEM OTHER SYSTEM MANAGING ORG SERVICE LIFE
MAINTENANCE CRITERIA	OBJECTIVE MAINTENANCE LEVEL OPERATIONAL MAINTENANCE LEVEL PRIMARY MAINTAINER LEVELS OF TREATMENT

Exhibit 1, pages 6 and 7 of FSH 7709.59, is a sample of an RMO developed through the RMO module. The shaded areas represent the data that are automatically populated into the form from other INFRA modules and coincide with the linear events data displayed in the table above.

Beyond that data, information can be added that is more detailed, pulling datasets from the social, physical, and environmental resources. Other types of information may include the management emphasis for the area; the type and extent of resource activities for timber,

wildlife, recreation, minerals, soils, and water; environmental constraints; and mitigation and protection measures to be employed. All available information needs to be accumulated to provide the background for developing access management objectives and road management objectives.

General Business Rules

The following business rules apply to use of the RMO module in general. These are important to understand so as to have consistent and uniform data entry and retrieval.

- 1) RMO data are recorded only on National Forest System roads.
- 2) Data are not recorded on routes where the Forest Service does not have jurisdiction.
- 3) RMO data are not recorded on unauthorized or temporary routes.
- 4) Do not record specific prescriptions in the RMO (i.e., do record the maintenance criteria (FSH 7709.59 Section 61) but do not record maintenance prescriptions (FSH 7709.59 Section 62.6); prescriptions are based on budgets, work plans, and are time related).

Although RMOs for National Forest System Roads are required by the regulations and policies cited above, it may make sense to also prepare RMOs for roads under public road authority jurisdiction in which the Forest Service has a permanent financial interest. This includes Forest Highways in the 29,000 mile FHWA-funded system and roads under local public road authority jurisdiction in "Schedule A" of Cooperative Forest Road Agreements. Better decisions regarding design, operation, and maintenance of roads result when Forest Service management intent as to how the road is necessary to provide access for National Forest management has been quantified.

Documentation

Document road management objectives (RMOs) as a permanent record that is readily available for use. Use the RMO Module of INFRA Travel Routes to record data. Displaying the data as shown in the exhibit is not mandatory, as the RMO module provides both flexibility and extensibility. The documentation should include a summary of management area direction, needs for coordination of uses, and access management objectives, as well as the specific design, operation, and maintenance criteria.

While the electronic record in INFRA is used for day-to-day road management, the completed road management objectives must be printed and signed in ink by the certifying line officer. RMOs are a key part of the government's defense in the event of claims and litigation under the Federal Tort Claims Act. Courts generally do not accept electronic documentation as part of the defense. The written copy must be retained in the forest's files for a minimum of 5 years past the date of any revision to the RMO.

The Secretary of Agriculture's regulations at 36 CFR 212.2 require that a transportation atlas be developed and maintained. The regulations further require the atlas be publicly available at the

headquarters of each National Forest administrative unit (Forest Supervisors' offices). The contents of the forest transportation atlas, which include a forest road atlas, are defined in FSM 7711. FSM 7711.2b states, "A forest road atlas contains road management objectives for NFS roads."

References:

April 2009 Road Management Objectives – National Data Dictionary

FSH 7709.59 – Road System Operations and Maintenance, Chapter 10 – Road Management

FSM 7710 – Travel Planning



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Date: May 14, 2010

Route To:

Subject: Guidelines for Preparation of Road Management Objectives

To: Forest Supervisors

During the Travel Analysis Subpart A Workshop held in Reno, NV from April 12-14, 2010, some Forests indicated they wanted to receive direction as to the minimum amount of information required to adequately complete the preparation of Road Management Objective (RMO) forms for system roads.

The enclosed RMO Overview with references and attachments is intended to answer some of your questions to that end. At a minimum, the RMO should contain a summary of the management area direction, needs for coordination of uses, and management restrictions for the road, together with the Line Officer's approval signature and date.

Some of the information and data displayed on the RMO form is automatically populated from the roads module of Infra Travel Routes and is summarized in Table 1 and highlighted in the shaded areas of the sample RMO form (Exhibit 01). The remainder of the required information on the form depends on what is needed to describe how the road was designed and constructed and how it is to be maintained and operated to meet the specific resource management objectives for the area or destination it accesses.

Completed and approved RMO's are a necessary component of the Transportation Atlas and current program direction advises that RMO's need to be in place to aid in preparation of annual road maintenance plans and before constructing or improving a road. Your efforts to ensure that your RMO's are completed, up to date and approved are necessary to achieve full compliance with current travel management direction.

If you have additional questions on this subject please contact Melissa Totheroh at 707-562-8876 or John Booth at 707-562-8816.

/s/ John E. Booth
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This chapter provides guidance for the planning activities necessary for transportation system operations and maintenance and identifies the criteria that affect transportation system operations and maintenance (FSM 7703 and FSM 7730.3).

11 - ROAD MANAGEMENT OBJECTIVES

Road management objectives document the intended purpose of an individual road in providing access to implement a land and resource management plan as well as decisions about applicable standards for the road. Road management objectives should be based on management area direction and access management objectives. Road management objectives contain design criteria, operation criteria, and maintenance criteria.

11.02 - Objective

To identify and document a management objective for each road in the Forest Road Atlas (FSM 7711.2).

11.03 - Policy

See FSM 7714.

11.1 - Development

Develop road management objectives from the appropriate management area direction, access management objectives, and similar sources of resource management direction, standards, and guidelines. Secure data concerning the type and extent of resource activities to be served by the road, environmental constraints, and mitigating measures to be employed. Utilize this data to prepare specific objectives that define the intended purpose of the road and that describe how the road will be designed, operated, and maintained.

1. The primary sources of information for developing road management objectives are:

- a. Management Area Direction. Typical information is the forest plan management emphasis for the area, and resource practices for timber, wildlife, recreation, minerals, soils, and water. Road densities or even site-specific road location may be described. Guidelines may discuss visual quality objectives, motorized and non-motorized recreation opportunities, and wildlife featured species. All of this information must be accumulated to provide the background for developing access management objectives and road management objectives.

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- b. Travel Analysis. The travel analysis process (FSM 7712 and FSH 7709.55, ch. 20) will help identify objectives for managing access. Examples of information developed are Recreation Opportunity Spectrum classifications, densities for facility development, soil sedimentation limits, and fish and wildlife protection measures.
- c. Existing Legal Agreements and Contracts. These contain the legal and outstanding rights which management of roads must observe.
2. Road management objectives contain:
- a. Design Criteria. These govern the selection of design elements and standards. Vehicle characteristics, such as the design and critical vehicles, and traffic service levels are examples of design criteria. FSH 7709.56, chapter 4, contains a description of design criteria.
- b. Operation Criteria. Operation criteria are those influences and requirements that determine how a road must be operated and maintained. These govern operation of the road. Examples are such items as seasonal road use restrictions, special off-highway vehicle (OHV) and all-terrain vehicle (ATV) use, and traffic management strategies. Operation criteria should be consistent with design and maintenance criteria.
- c. Maintenance Criteria. These govern maintenance of the road. Examples are such items as surface smoothness and financial responsibility. Chapter 60 contains a description of maintenance criteria.
3. Whenever possible, develop road management objectives during travel planning activities including travel analysis. Consider the following factors when establishing road management objectives:
- a. Environmental and Resource Considerations. Factors such as needs for aquatic species passage, need to prevent spread of invasive plant species, watershed damage done by unmanaged motorized use, visual quality concerns, sensitive soils, or recreational uses guide both maintenance levels and operational status. Consult land management plans and any subsequent tiered documents.
- b. Legal Requirements. Check legal requirements such as the Highway Safety Act, the National Forest Roads and Trails Act of 1964, the National Forest Management Act, agreements, easements, and contracts as these may constrain or define the limits of transportation system operations.

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- c. **Road Users.** Motorized use designations, the intended users, and the acceptable mix of such users should help determine whether traffic restrictions and orders are necessary, and what traffic management strategies apply. When a road is intended for intermittent use by Highway Legal vehicles and continuous use by other motor vehicles, the route should be designated as both a National Forest System road and a National Forest System trail.
- d. **Vehicle Characteristics.** Physical characteristics of vehicles intended to use the road may affect maintenance levels, management strategies, and the need for traffic regulations which may differ from State laws.
- e. **Traffic Requirements.** The volume, composition, and distribution of traffic may indicate the need for orders and traffic control devices, appropriate maintenance levels, and so forth.
- f. **Safety.** Providing for safety often requires examining for hazards and taking corrective actions. Traffic control devices and/or road user restrictions may be needed to provide for acceptable passage of traffic.
- g. **Economics.** To minimize total transportation costs, it may be necessary to restrict a particular use or user, or change (reduce or upgrade) the standard or maintenance level of a road.
4. Although the criteria identified in road management objectives are often common for transportation system design, operations, and maintenance, the application may differ. For example, in design, traffic requirements (volume, composition, and distribution) could be used to determine the number of lanes. In operations, these same criteria could be used to determine the need for use restrictions or traffic control devices.
5. While road management objectives (RMOs) provide the corporate record of decisions that collectively establish the intent, purpose, and resource constraints for individual roads, they are not decision documents themselves. Actual decisions must be made through appropriate processes (FSM 7715), including public involvement when appropriate. Line officer approval of RMOs certifies that management objectives are correctly documented rather than as a record of a new decision.

11.2 - Coordination of Uses on National Forest System Roads

Designations of roads for motor vehicle use may result in situations requiring coordination of uses on roads. This may include mixed use of Highway Legal and Non-Highway Legal vehicles. Document needs for coordinated uses in road management objectives. Guidance regarding coordination of uses is found in section 52.

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11.3 - Documentation

Document road management objectives (RMOs) as a permanent record that is readily available for use. Use the “RMO Module” of Infra Travel Routes to record data. Exhibit 01 is a sample of an RMO developed through the module. Display of the data as shown in the exhibit is not mandatory, as the RMO module provides both flexibility and extensibility. The documentation should include a summary of management area direction, needs for coordination of uses (11.2), and access management objectives, as well as the specific design, operation, and maintenance criteria.

While the electronic record in Infra is used for day-to-day road management, the completed road management objectives must be printed and signed in ink by the certifying line officer. Road management objectives (RMOs) are a key part of the Government’s defense in the event of claims and litigation under the Federal Tort Claims Act. Courts generally do not accept electronic documentation as part of the defense. The written copy must be retained in the forest’s files for a minimum of 5 years past date of any revision to the RMO.

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11.3 - Exhibit 01

Sample of a Road Management Objective Developed Through Infra Travel Routes

	RMO001L - Road Management Objectives		
	Page 1 of 5		
	Report run on: December 12, 2007 1:19 PM Database:		

ID: 1000 Name: MOOSE CR

BMP: .0000

EMP: 5.3220

Admin Org: 010202

DRAFT

Begin Termini: HWY 274

End Termini: SW SEC 24

Comments: Beginning Route TRS: T02NR12WS01

EMP changed from 4.5 to 5.322 as per GPS road log of
8/27/99

Prepared By:

Reviewed By:

Reviewed By:

Approved By:

Route Basics

Location Design Elements	Value	BMP	EMP
ADMIN_ORG	010202	.0000	5.3220
CONGRESSIONAL DISTRICT	MT - 01	.0000	5.3220
COUNTY	MT - DEER LODGE	.0000	5.3220
MILEAGE SOURCE	GPS - GLOBAL POSITIONING	.0000	5.3220
QUAD	455211300 - LINCOLN GULCH #H7	.0000	5.3220
ROUTE STATUS	EX - EXISTING	.0000	5.3220

General Management Direction**Recreation Opportunity Spectrum (ROS)**

Code	Remarks	Description	BMP	EMP
RN - ROADED			.0000	5.3220
NATURAL				

General Recreation Considerations**Dispersed Activity**

Code	Remarks	Description	BMP	EMP
HIKING			.0000	5.3220
HUNTING			.0000	5.3220

General Soils/Geological Considerations

Soil erosion is critical around streams

BMP EMP

Clay soils are slick on steep grades when wet. Place surfacing on steep grades BMP 0 EMP 2.4

General Timber Considerations ...Continued

emphasize management of hardwood species. Road system to emphasize log transport. Confine timber sale activities to May-October to avoid rainy season. BMP EMP

Timber Details	Remarks	Description	BMP	EMP
CURRENT ENTRY	0.8 mmbf FY 08			
HARVEST	0.5 mmbf FY16			

General Wildlife & Aquatic Considerations

Designated wildlife management area - featured species is bear. Minimize human disturbance; minimize roads open to motorized vehicles

BMP EMP

Provide for fish habitat, leave vegetation intact along streams

Provide for fish passage on stream crossing at Hall Creek. Remove crossing structure between uses. BMP EMP

General Plant Considerations**General ATM Considerations**

TRAFFIC MANAGEMENT STRATEGY: Prohibit by not designating for motorized use on motor vehicle use map. Eliminate use between sales to preclude need for scarce law enforcement resources

BMP EMP

Area closed to recreational motor vehicle use. No designation for motorized other than on roads.

Minimum spacing of local roads designated for motor vehicle use is 1 mile. No more than 20% of any new local roads are to be designated for motor vehicle use in area.

BMP EMP

Current Traffic Management

Use Type	Strategy Code	Mode of Travel	BMP	EMP	From Date	Thru Date
Restricted	PROHIBIT	1 MOTOR VEHICLE	0	5.322	01/01	12/31
Restricted	PROHIBIT	3.1 MTR OVER-SNOW VEHICLE	0	5.322	01/01	12/31

General Design/Mitigation Considerations

Compare total construction cost of road with resource benefits. Determine most cost-effective stream crossing at Hall Creek considering road use, traffic service level, and intermittent service life. BMP EMP

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11.3 - Exhibit 01 - Continued

Sample of a Road Management Objective Developed Through Infra Travel Routes

General Design/Mitigation Considerations ...Continued

Design Linear Events

Linear Event	Value	BMP	EMP
DESIGN SPEED	10	.0000	5.3220
DESIGN TRAFFIC	LOGT - LOGGING TRUCK	.0000	5.3220
LANES	1 - SINGLE LANE	.0000	5.3220
SURFACE TYPE	NAT - NATIVE MATERIAL	.0000	5.3220

General Operation Criteria and Safety Considerations

Subject to the Highway Safety Act.

TRAFFIC CONTROL DEVICES: Road will be gated by purchaser during sale; provide gate markings for safety. After sale, purchaser to remove gate, remove bridge, storm-proof road, and construct barrier to eliminate motor vehicle traffic. Forest Service installs vertical route number. BMP EMP

Safety - intersection with county road; use warning signs during timber activity. Effectively block road between sales to minimize traffic hazards on the County road. BMP EMP

Operation Linear Events

Linear Event	Value	BMP	EMP
FUNCTIONAL CLASS	L - LOCAL	.0000	5.3220
JURISDICTION	FS - FOREST SERVICE	.0000	5.3220
MANAGING_ORG	010202	.0000	5.3220
ROUTE STATUS	EX - EXISTING	.0000	5.3220
SERVICE LIFE	I - INTERMITTENT TERM SERVICE	.0000	5.3220
SYSTEM	NFSR - NATIONAL FOREST SYSTEM ROAD	.0000	5.3220

Traffic Details

Traffic Count or Composition	Count/Period	Count/Period	Remarks	BMP	EMP
ADMINISTRATIVE	3 ADT		motorized travel only during sales	.0000	5.3220
COMMERCIAL	6 ADT max	1988-1989	300 round trips	.0000	5.3220
RECREATION	0			.0000	5.3220
TRAFFIC VOLUME			0-25 SADT	.0000	5.3220

Purchaser responsible for all maintenance during sale. Purchaser responsible for installing, maintaining, and removing gate. Purchaser responsible for removing bridge and storm-proofing road after use. Surface can be maintained for high clearance vehicles. During sale; M.L. 2. After sale; M.L. 1 BMP EMP

Maintenance Linear Events

Linear Event	Value	BMP	EMP
OBJECTIVE MAINT LEVEL	2 - HIGH CLEARANCE VEHICLES	.0000	5.3220
OPER MAINT LEVEL	1 - BASIC CUSTODIAL CARE (CLOSED)	.0000	5.3220
PRIMARY MAINTAINER	FS - FOREST SERVICE	.0000	5.3220

Local Linear Events

Linear Event	Value	Remarks	BMP	EMP
RPA RES ELEMENT	TIMBER - TIMBER		.0000	5.3220

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