

1. General Guidelines for the Location and Design of Roads (PRACTICE: 2-1)

- a. **Objective:** To locate and design roads with minimal resource damage; to reduce impacts on environmental and social resources through relocation or modifications to design.
- b. **Explanation:** Implementation of forest land management objectives drives the planning for transportation facility development. The planning effort involves interdisciplinary team members with the professional knowledge and skills necessary to propose and evaluate alternatives with respect road location and design. Opportunities and impacts of alternatives are analyzed in a science-based travel analysis, which includes public participation.

The intended purpose of a road and management thereof, includes consideration of the vehicles expected and allowed to utilize the road. The resultant design of the road is based on the expectations that: occupants of design vehicles can safely maneuver on the road to access the intended resource or destination, forest resources are not negatively impacted, the road can be constructed within budget, and maintained to protect its capital investment. The protection of capital investment is most effectively achieved through proper design and use of drainage methods to control runoff from both the road surface itself, and area upslope. All are balanced to achieve the best possible scenario; one objective is not met at the expense of another. Mitigation measures are incorporated when impacts are expected to occur.

The practice of forest road location and design requires a careful examination of all road site properties, including but not limited to: soil characteristics above, at, and below the road; grade of road; surface composition; side slope(s); quantity and quality of vegetation above and below the road; proximity of road to waterways, TES habitat, private property, and cultural resources. An interdisciplinary team (IDT) approach confirms the presence or absence of relevant resources. For roads scheduled to undergo reconstruction or maintenance, a smaller IDT can be effective in confirming site properties above, while identifying methods that have contributed negatively to water quality. The designer and hydrologist review location, design criteria, and jointly recommend mitigation measures for Forest Engineer and Line Officer review and approval. Line Officers are informed of all costs associated with drainage controls that protect water quality, in addition to protecting the road investment. Only approved drainage features are incorporated into the project plan.

- c. **Implementation:** Use project level science-based travel analysis to identify need for road construction, or to inform priorities for roads to be reconstructed, maintained or decommissioned. For projects or plans that have identified roads requiring improved drainage controls for protection of water quality, consider methods that differ from in-place methods: ie. outslope prism with graded dips in lieu of berms, and insloped prism with ditches and culverts; realign culverts to improve flow and reduce scour at inlet and/or outlet. As in road location and design, all site properties are considered, as there is no one design method that meets all needs.

Formatted: Left: 54 pt, Right: 54 pt

Comment [WW1]: This sounds like transportation analysis, and a mechanism that would allow and require the USFS to analyze their current road system and plan for a long term, low impact road network that will meet forest management needs. It is also the mechanism that will identify the minimum road network, a concept that will be needed for each Forest and each watershed. The core road network then tells you which roads need to be removed (decommissioned), which will be retained and upgraded, and where any new roads will be needed. I think it should be more clearly stated in the objectives that they are specifically planning to accomplish these tasks. Somewhere in the process the USFS needs to specify a priority list of watersheds for analysis and a timeline for both analysis and implementation ... [1]

Formatted: Font: 11 pt, Font color: Auto

Comment [WW2]: Reading further down, it is clear (to me at least) that they intend to include an analysis new ... [2]

Formatted: Font: 11 pt, Font color: Auto

Comment [WW3]: "No" negative impacts is likely an unachievable expectation.

Comment [WW4]: This is not a good way of making decisions, especially if the budget (as they define it) is insuffi ... [3]

Formatted: Font: 11 pt, Font color: Auto

Formatted: Font: 11 pt, Font color: Auto

Comment [WW5]: Already, the USFS virtually everywhere has proclaimed that they do not have ... [4]

Comment [WW6]: Add "slope stability" to this list. Soil properties does not always cover this element.

Formatted: Font: 11 pt, Font color: Auto

Comment [WW7]: This implies that this BMP applies to all roads, not just roads planned for new construction.

Formatted: Font: 11 pt, Font color: Auto

Comment [WW8]: The key is to identify **ROADS** (not just methods) that have contributed negatively to wa ... [5]

Formatted: Font: 11 pt, Font color: Auto

Deleted: or

During activity, and after completion, the work is monitored for compliance and evaluated for effectiveness. Training may be required to educate construction and maintenance personnel who will be involved in the modified drainage controls implementation. Project crew leaders and supervisors are responsible for ensuring that force account projects meet construction specifications, and project criteria. Contracted projects are implemented by the contractor, or operator. Compliance with plans, specifications, and operating plans is ensured by the COR, ER, or FSR.

Incorporation of final design for road construction or reconstruction is through project drawings, and specifications if work is contracted. Various sections of the current edition of FHWA Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects are incorporated into the contract. For force account work, BMP's are listed and approved by Line Officer signature. Crew is knowledgeable of BMP's, and the crew leader and/or supervisor assures work is carried out in compliance. Erosion control plan is part of the project work.

Reference: FSM 7700, Chapter 10 – Travel Planning Manual
FSM 7700, Chapter 20 – Transportation Development Manual
FSH 7709.56 – Road Preconstruction Handbook
FP-03 – Section 157 – Soil Erosion Control
Best Management Practices 2:2 – 2:28

Page 1: [1] Comment [WW1] Bill Weaver 7/2/2010 11:16:00 AM

This sounds like transportation analysis, and a mechanism that would allow and require the USFS to analyze their current road system and plan for a long term, low impact road network that will meet forest management needs. It is also the mechanism that will identify the minimum road network, a concept that will be needed for each Forest and each watershed. The core road network then tells you which roads need to be removed (decommissioned), which will be retained and upgraded, and where any new roads will be needed. I think it should be more clearly stated in the objectives that they are specifically planning to accomplish these tasks. Somewhere in the process the USFS needs to specify a priority list of watersheds for analysis and a timeline for both analysis and implementation of their minimum road network plan.

Page 1: [2] Comment [WW2] Bill Weaver 7/2/2010 11:16:00 AM

Reading further down, it is clear (to me at least) that they intend to include an analysis new road construction as well as existing roads in this Guideline BMP. However, they need to make it very clear in the Objective statement that the evaluation of location and design of roads is for new roads **and** for existing roads. This is critically important, because many existing roads pose the greatest threat to water quality and aquatic resources. The analysis of existing roads is a critical component of this BMP. To determine the minimum road network for each Forest it will be necessary to evaluate each existing road according to predefined standards, impact and impact potential. Limiting the BMP to new roads would leave the rest of the network without analysis and determination.

Page 1: [3] Comment [WW4] Bill Weaver 7/2/2010 11:16:00 AM

This is not a good way of making decisions, especially if the budget (as they define it) is insufficient to produce a low impact road. The budget should not be the driving force determining if and where a road can be built. Rather, the expectation should be restated to evaluate if a low- or no-impact road can be constructed with the available funds.

Page 1: [4] Comment [WW5] Bill Weaver 7/2/2010 11:16:00 AM

Already, the USFS virtually everywhere has proclaimed that they do not have sufficient funds to maintain their current road network. Thus it might be considered inappropriate to construct new roads unless: 1) they can adequately maintain their existing road network, and 2) they are actually removing more roads from their maintenance base (by decommissioning, not abandonment) than they are constructing. In addition, maintenance also needs to be evaluated not just to protect their "capital investment" but to also provide sufficient protection to natural resources and water quality. Too long we have evaluated maintenance with respect to the right-of-way and our investment, and not sufficiently with respect to the protection of aquatic resources.

Page 1: [5] Comment [WW8] Bill Weaver 7/2/2010 11:16:00 AM

The key is to identify **ROADS** (not just methods) that have contributed negatively to water quality to determine if they should be mitigated or decommissioned. Mitigation measures might not be sufficient, and in many cases it will be better to get rid of the road rather than to try to mitigate it. This BMP needs to be clear that 1) analysis of the road network and each individual road will be performed and that 2) a minimum road network will be planned and implemented. This will include some upgrading, some decommissioning, and some construction. This basic concept needs to be **CLEARLY STATED AND OUTLINED IN THIS GENERAL GUIDELINE. THE ROAD ANALYSIS AND IMPLEMENTATION OF THIS PROCESS WILL FORM THE CORE PLAN FOR REDUCING THE IMPACT OF THE USFS ROAD NETWORK.** It is NOT clearly stated as it currently reads.