



KEY RECOMMENDATIONS

Project Design

Strategic Planning

- Use the Key Road system as the basis for making site-specific road management decisions. If needed, adjust the Key Road system to meet changing needs and conditions over time (pp. 12, 15).
- Follow recommendations of watershed analyses and the Forest Restoration Plan (USDA 2002) (pp. 17, 18, 19, 20, 23, 24, 25, 26).
- Maintain access to private lands (page 15).
- Maintain linkages between State Highway 101 and the county road system, as well as the east-west flow of local community and emergency traffic over the Oregon Coast Range. If budget shortfalls limit maintenance of the Key Forest Road system to standard, consider site-specific maintenance as problems arise (page 15).
- At the district or appropriate scale, consider whether the Key Forest Roads meet current public access needs. If such needs are not addressed by the current Key Road system, adjustments or modifications to the Key Road system can be addressed at the watershed/project scale analysis (page 15).
- Consult with suppression cooperators when determining which roads to close or decommission (page 34).
- Ridgetop roads should be maintained to serve as firebreaks and control lines (page 34).
- Limit roadside salvage sales to the Key Forest Roads (page 28).

Site-Specific Planning

- Identify roads at risk for resource damage. Close, decommission or stabilize them. Seek alternative routes where possible.
 - ⇒ Mid-slope roads (page 20).
 - ⇒ Roads with a high risk of landslides (pp. 17, 20)
 - ⇒ Roads adjacent to low-gradient streams and floodplains (page 20).
 - ⇒ Reduce or eliminate impacts to coho salmon (page 23).
 - ⇒ Reduce disturbance of coho salmon (use of dispersed areas) (page 23).
- Consider the following factors in determination of impacts on fish and other aquatic resources (page 25):
 - ⇒ Type, condition, and number of stream crossings at a road-segment scale.
 - ⇒ Road-segment interaction with a stream's floodplain, where the road is parallel to the stream.
 - ⇒ Road surface type.
 - ⇒ Culvert fill-failure risk.
 - ⇒ Sustained steep (>15%) road grades in excess of 500 feet.
 - ⇒ Percent of road with sideslopes >51%.
 - ⇒ Road maintenance records. At a minimum, a record of maintenance accomplished (date, type), including knowledge of site-specific chronic or severe maintenance sites should be documented.

- ⇒ Documentation of known spawning reaches with review by state and other agency biologists.
- ⇒ Track temporary road locations, construction, and decommissioning or obliteration. This information is required in ESA consultation, but is not currently tracked in the Forest road database.
- Minimize disturbance to wildlife and fish resources by:
 - ⇒ Closing or restricting access to roads used intermittently for forest management activities (pp. 23, 28).
 - ⇒ Decommissioning unneeded roads (page 28).
 - ⇒ Minimizing the effect of noise from road maintenance, reconstruction or decommissioning by managing the seasonal and hourly operating periods of projects (page 28).
 - ⇒ Prohibiting the operation of ATV (All Terrain Vehicles) and other vehicles on closed or decommissioned roads by using road closure devices and administrative regulations (page 28).
- Where fish passage is affected, use an interdisciplinary process in the design of culverts (e.g., fisheries biology, engineering, geomorphology, hydraulics, hydrology) (page 26).
- Focus silvicultural treatment on stands accessible from the Key Road system and other hydrologically stable roads (e.g., ridgetop roads). Roads that will be decommissioned may be used for silvicultural treatment prior to decommissioning (page 29).

Road Construction and Maintenance

- Roads determined to be Key Forest Routes should be maintained at a high level for quick response of emergency vehicles of all sizes and visibility for safe travel (page 34).
- Inventory annual and deferred maintenance needs of the Key Forest Road system. Prioritize road maintenance work to ensure resource protection and user safety within current Forest budgets (page 10).
- Consider alternative funding sources for road maintenance and repair (page 12).
- Identify roads at risk for resource damage. Close, decommission or stabilize them. Seek alternative routes if possible.
 - ⇒ Roads chronically increasing fine sediment in aquatic habitat (page 24).
 - ⇒ Roads with a high risk of landslides (pp. 17, 20).
 - ⇒ Close Forest roads not needed for the foreseeable future. Gated roads and roads that are storm-proofed and allowed to grow-in are at a much lower risk for weed invasion and transport than maintained roads (page 32).
 - ⇒ Prioritize repair and upgrade of culverts based on risk of failure and impact to fish passage and other aquatic resources (page 26).
- A partial list of references for road closure and obliteration:
 - ⇒ A Guide for Road Closure and Obliteration in the Forest Service (Moll 1996).
 - ⇒ Forest Road Obliteration and Upgrade Guide (USDA 1995b).
 - ⇒ Waterbar Placement and Construction Guide for Siuslaw Forest Roads (USDA 1998a).

Road Treatments

- When closed roads are reopened, use minimal impact techniques (page 29). For example:
 - ⇒ Keep clearing width to a minimum.
 - ⇒ Avoid sidecasting clearing debris and rootwads.
- Match road design with season of operation (*i.e.*, rock to support winter haul; rock north slopes when hauling during rainy season) (page 29).
- Waterbars:
 - ⇒ Install and maintain surface crossdrains (*e.g.*, waterbars, grade dips, outslope drains, *etc.*) on roads not designated for passenger cars (page 18).
 - ⇒ Install and maintain surface crossdrains (*e.g.*, waterbars, grade dips, outslope drains, *etc.*) on secondary high clearance roads to allow water from the ditch line to travel across the road surface to the slope below. This would dissipate water intercepted by cutbanks and prevent it from being delivered directly to stream channels (page 19).
 - ⇒ Disconnect road system from stream channels by waterbarring roads wherever possible. This would deliver water as naturally as possible to the slope below the road rather than concentrating runoff along ditch lines to the nearest stream, thereby extending the stream network artificially (page 19).
 - ⇒ Provide temporary drainage such as waterbars for wet areas (*e.g.*, seeps, springs). Reestablish natural drainage prior to road closure (page 29).
- Rock:
 - ⇒ Provide an adequate covering of rock on roads that will remain open (page 18).
 - ⇒ Use Weed-Free Rock Sources – Consider development of a quarry certification program and use only weed-free rock sources for road construction and maintenance (page 32).
- Vegetation:
 - ⇒ Leave ditches vegetated as often as possible. Vegetation acts as a filter and reduces the amount of fine sediment that reaches stream crossings (page 18).
 - ⇒ Maintain existing canopy cover to the extent possible when designing new roads or marking clearing limits for temporary roads in order to reduce invasive noxious weed species (page 32).
- Seeding:
 - ⇒ **Competitive seeding** – Seed disturbed sites lacking canopy cover using native species seed mix. Consult with Forest botanist for current seed mix, seeding window and fertilizer prescription (page 32).
 - ⇒ **Certified Weed free Seed** – Use only certified weed-free seed for roadside revegetation. Seed purchased should be tested using the All States Noxious Weed List (page 32).
- To control spread of noxious weeds, require equipment cleaning for:
 - ⇒ All equipment brought onto the Forest;
 - ⇒ All equipment moved from infested areas (category II and III weeds) to uninfested areas; and
 - ⇒ Equipment moved from anywhere into an uninfested sensitive area (such as Mary's Peak).

Equipment cleaning should apply to all contract, force account, cooperator and special use equipment and would apply to tractors, mowers, graders and other equipment including vehicles and ATVs that have been used off the road surface (page 32).
- Consider the use of Oregon Department of Agriculture quarantines (ORS 561.510 & 561.540, 2001) if needed for new weed species or plant pathogens (page 32).

- Where fish passage is affected, use an interdisciplinary process in the design of culverts (*e.g.*, fisheries biology, engineering, geomorphology, hydraulics, hydrology) (page 26).
- Restrict timber haul on sensitive roads to the dry season. If timber haul must take place during the wet season, monitor rainfall, and reduce or eliminate timber haul during rain events (page 18).

Inventory & Monitoring

- Inventory:
 - ⇒ Utilize the stream crossing inventory to identify all road-stream crossings (*i.e.*, culverts) on the Forest. Prioritize repair and upgrade of culverts based on risk of failure and impact to fish passage and other aquatic resources (page 26). Update as necessary.
 - ⇒ Annual weed inventory of the Forest road system; maintain a current GIS weed inventory layer available for use by project planners and implementation personnel (page 32).
- Identify and maintain road access to:
 - ⇒ Key water sources (page 34).
 - ⇒ Key access points to accommodate equipment needed for thinning stands (page 29).

Additional Analysis

- Explore options for learning about the effects of simplification of channel conditions at road crossings (*e.g.*, removal of roughness elements like large woody debris) on streamflows and fish habitat (page 23).
- Explore opportunities to learn more about the impact of fine sediment on aquatic species habitat and survival. Use floods as an opportunity to learn more about stream dynamics (page 24).
- Explore opportunities to learn about specific fish runs in areas with high road densities. Consider partnerships with other agencies and stakeholders for more efficient and cost-effective analysis (page 25).

Other

- For Firefighter Safety: Roads accessible by fire equipment should be accurately mapped and signed, and this information provided to firefighters to support effective suppression/pre-suppression strategies and avoid potential entrapment (page 34).

This information should also reside in the Forest Geographic Information System (GIS) for use at the appropriate scale based on fire size and location.

- Internal and External Weed Education – Address weed issues during school presentations and interpretive walks. Provide increased awareness of weed issues and prevention methods within the Forest Service workforce through training sessions and presentations during workforce meeting (page 32).

GLOSSARY

Road terms are defined in FSM 7705 (USDA 2001b). Some terminology has been updated, and is therefore different than that described in the 1994 ATM Guide in Appendix B.

- Bridge** A road or trail structure, including supports, erected over a depression or an obstruction, such as water, a road, a trail, or railway, and having a deck for carrying traffic or other loads.
- Closed Roads** A road on which traffic has been excluded by natural blockage, barricade, regulation, or by obscuring the entrance. A closed road is still an operating facility on which traffic has been removed (year-long or seasonal) and remains a national forest system road.
- Debris Flow** “A debris flow is a highly mobile slurry of soil, rock, vegetation, and water that can travel thousands of yards from its point of initiation and usually occurs in steep (greater than approximately 6 degrees) and confined mountain channels. Debris flows are initiated by liquefaction of landslide debris concurrently with failure or immediately thereafter as the soil mass and reinforcing roots break up. Erosion of additional sediment and organic debris in small and steep channels can increase the volume of the original landslide by 1000% or more, enabling debris flows to become more destructive as their volumes increase with distance traveled.” (Benda Unknown)
- Forest Roads** As defined in Title 23, Section 101 of the United States Code (23 U.S.C. 101), any road wholly or partly within, or adjacent to, and serving the national forest system and which is necessary for the protection, administration, and utilization of the national forest system and the use and development of its resources.
- High Clearance Road* – Suitable for standard pick-up truck travel.
- Low Clearance Road* – Suitable for passenger car travel.
- Forest Transportation Facility** A classified road, designated trail, or designated airfield, including bridges, culverts, parking lots, log transfer facilities, safety devices and other transportation network appurtenances under Forest Service jurisdiction that is wholly or partially within or adjacent to national forest system lands (36 CFR 212.1).
- Forest transportation system management** The planning, inventory, analysis, classification, recordkeeping, scheduling, construction, reconstruction, maintenance, decommissioning, and other operations undertaken to achieve environmentally sound, safe, cost-effective, access for use, protection, administration, and management of national forest system lands.
- Grade dip** A shallow, long, rolling dip in the road surface that intercepts surface water running on the road and in the road ditch and then deposits it over the outside edge of the road.
- Interstitial** In this document, small, narrow spaces between gravel particles.
- National Forest System Road** A classified forest road under the jurisdiction of the Forest Service. The term “national forest system roads” is synonymous with the term “forest development roads” as used in 23 U.S.C. 205.
- New Road Construction** Activity that results in the addition of forest classified or temporary road miles (36 CFR 212.1).
- Open Roads** A national forest system road open for vehicular use (e.g., passenger cars, pickup trucks and commercial vehicles). National forest system roads are subject to administrative, seasonal, temporary, or permanent closure.
- Public Roads** Any road or street under the jurisdiction of and maintained by a public authority and open to public travel (23 U.S.C. 101(a)). Forest roads are not necessarily public roads.
- Riprap** Foundation or wall of broken rock thrown together irregularly.

- Road** A motor vehicle travelway over 50 inches wide, unless designated and managed as a trail. A road may be classified, unclassified, or temporary (36 CFR 212.1).
- a. **Classified Roads** Roads wholly or partially within or adjacent to national forest system lands that are determined to be needed for long-term motor vehicle access, including State roads, county roads, privately owned roads, national forest system roads, and other roads authorized by the Forest Service (36 CFR 212.1).
 - b. **Temporary Roads** Roads authorized by contract, permit, lease, other written authorization, or emergency operation not intended to be a part of the forest transportation system and not necessary for long-term resource management (36 CFR 212.1).
 - c. **Unclassified Roads** Roads on national forest system lands that are not managed as part of the forest transportation system, such as unplanned roads, abandoned travelways, and off-road vehicle tracks that have not been designated and managed as a trail; and those roads that were once under permit or other authorization and were not decommissioned upon the termination of the authorization (36 CFR 212.1).
- Road Decommissioning** Activities that result in the stabilization and restoration of unneeded roads to a more natural state (36 CFR 212.1), (FSM 7703).
- Road Maintenance** The ongoing upkeep of a road necessary to retain or restore the road to the approved road management objective (FSM 7712.3).
- Road Reconstruction** Activity that results in improvement or realignment of an existing classified road as defined below:
- a. **Road Improvement** Activity that results in an increase of an existing road's traffic service level, expands its capacity, or changes its original design function.
 - b. **Road Realignment** Activity that results in a new location of an existing road or portions of an existing road and treatment of the old roadway (36 CFR 212.1).
- Roads subject to the Highway Safety Act** National forest system roads that are open to use by the public for standard passenger cars. This includes roads with access restricted on a seasonal basis and roads closed during extreme weather conditions or for emergencies, but which are otherwise open for general public use.
- Stabilization** - A process to slope, dip and waterbar travelways to reduce run-off concentrations and alleviate risk of erosion and landslides, should designed drainage structures fail to cant' storm event. This also includes grass seeding slopes. Unstable fill embankments that exceed the required travelway may be partially or fully removed.
- Waterbar** Berm or ditch and beret combination that cuts across roads (and trails) at an angle so that all surface water running on the road and in the road ditch is intercepted and deposited over the outside edge of the road. These normally allow high clearance vehicles to pass.

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