a *Relationship Between Forest Management and Air Quality*

Timber harvest activities have a temporary effect on air quality, primarily from slash disposal. Prescribed fires can also have short-term effects on air quality. Dust from logging traffic can have a localized effect.

There are some short-term effects, such as vehicle exhaust and dust, from recreational traffic. Clean air with good visibility and fresh, natural odors enhances recreational experiences. There is potential for slash burning to have some effect on recreationists during fall, when the Forest's heaviest recreation use and slash burning coincide.

Wildland fire, prescribed fire, and other activities outside the Wildernesses can periodically affect air quality within the Wildernesses. Air quality will be monitored to meet Class I airshed standards

Construction and use of Forest roads have a temporary effect on air quality because the soil is disturbed and may temporarily add dust to the air

13. Transportation

"David Eccles . . came to Baker to found the Oregon Lumber Company (in 1899). He soon realized he needed a railroad to funnel logs to his mill by 1909 .. (the) narrow gauge track covered eighty bouncy miles with switchbacks and hairpin curves from Baker to Prairie City .. in 1933 the Sumpter Valley Railroad tracks retreated to Bates and all the tracks were pulled up for good in 1947" (Malheur Ethnographic History, pp. 133-134).

Until 1921, railroad development had barely tapped the timber resources of the Forest In conjunction with an 890 million board foot timber sale, a railroad connection between Seneca and Hines, Oregon, was completed This line operated until 1983

Road building on the Forest began in earnest during the early 1920's. These roads were built mainly for firefighting access, but were also used by ranchers

By 1928, there were about 384 miles of road on the Forest After World War II, the availability of dependable and economical automobiles, easy access to fuel, and a growing population with increased leisure time contributed to growth of motorized recreation.

Through the 1950's and 1960's, the road systems were improved and extended, largely in support of timber management activities. By the 1970's, concern began to focus on the environmental impact of roads, the impact of easy recreational access on areas, and the desire to preserve remaining unroaded areas. But demand for existing and additional roads is expected to continue

Section 10 of the Forest and Rangeland Renewable Resources Planning Act of 1974 (RPA), and Section 8 of the National Forest Management Act of 1976 (NFMA) require a "Forest Development Road System Plan." National direction requires that a Forest Development Transportation Plan include a transportation inventory system (TIS) and a map *National Forests in Oregon and Washington are also required to have a Road* Management Plan, consisting of multiyear development plans, traffic management plans, maintenance plans, and interagency road plans. Since these plans are often lengthy, they are not included in this document, but are available for review at the Forest Supervisor's Office in John Day, Oregon.

The state and county road systems are essential for management of the Malheur National Forest These road systems provide access to the Forest's arterial and collector road system. The Forest, in cooperation with the Federal Highway Administration, shares reconstruction costs with the state and county on selected roads The Forest also enters into cooperative maintenance agreements with counties when such agreements are in the best interest of both parties.

In 1990, there are an estimated 8,570 miles of road on the Forest. About 18 percent of this total is classified as arterial and collector roads (see Figure III-18), they access large or popular land areas and usually connect with state and county roads to form an integrated network of primary and secondary travel routes The arterial and collector system is 99 percent complete, but about 41 percent is in need of reconstruction

About 82 percent of the total system is local roads, which are usually intended to provide access for a specific resource project or protection activity, such as a timber sale, recreation site, or firebreak These roads are normally shorter and access small land areas. Resource service, rather than travel efficiency, is emphasized in their location, design, and operation The local road system is about 86 percent complete Typical permanent road density necessary to harvest timber on the Malheur National Forest is 3 5 miles/section

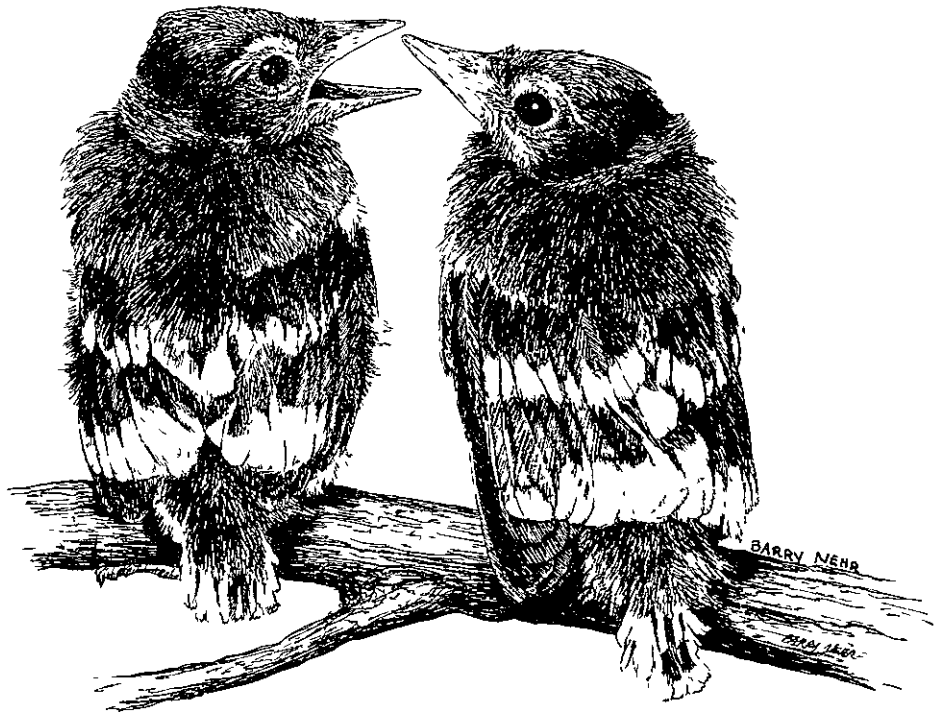
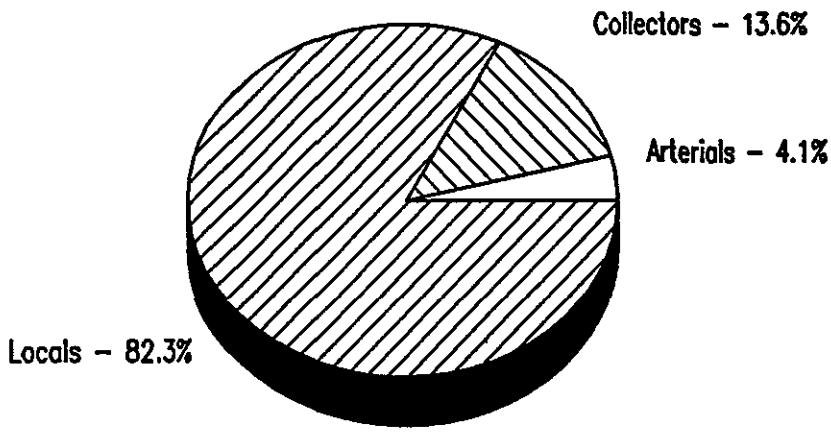


FIGURE III-18: Road Percentages by Classification, Malheur National Forest



The National Forest Management Act of 1976, Section 8, states that "roads shall be designed to standards appropriate for their intended uses considering safety, cost of transportation, and impacts on land and resources." Of the 8,570 miles of existing road, about 1,200 miles is currently managed for public travel (passenger car access) and the balance for high-clearance vehicles

a *Trails*

There are 240 miles of trails within the Forest boundary, 197 miles receive the most public use. These include trails for all purposes. Many of the trails lie within, or adjacent to, the Strawberry Mountain Wilderness and receive the heaviest use. The Wilderness areas contain 128 miles of trails.

The present trail system appears to be satisfying recreational needs on the Forest. Much of the trail system was developed before most of the roads that exist today. These early trails were not necessarily designed with recreation in mind. Because of that, the Forest has been evaluating these trails to assess how well they meet the needs of today's users.

Trail difficulty varies across the Forest. Within Strawberry Mountain Wilderness, one can find the most difficult and challenging trails. Outside the Wilderness, trails generally follow rivers or ridges which provide easier grades and less difficulty. Trail use is low on most of the trails, but use is expected to grow as people discover the uncrowded recreation environment on this Forest.

b *Railroads*

There are currently no railroads operating on the Forest Several hundred miles of abandoned railroad grades are present and efforts are being made to inventory them

c. *Utility Corridors*

A utility corridor is a linear strip of land designed for location of utility or transportation right-of-ways. According to a Western Regional Corridor Study (1986), no unoccupied utility corridors have been identified on the Forest

There are two utility corridors crossing the Forest One is owned by Idaho Power and runs from Baker City to John Day. The other runs from Unity Junction through John Day to Burns These corridors are managed using special-use permits.

Exclusion areas are lands which are unavailable for corridor allocation or facility siting These areas are only those with a legal (Congressional) mandate that excludes linear facilities, Wilderness areas are an example Exclusion areas on the Forest include the Strawberry Mountain and Monument Rock Wildernesses

Avoidance areas are lands which have particular land use or environmental characteristics that would be difficult or impossible to mitigate (may vary by type of facility) Two categories of avoidance areas have been identified.

Category 1 - Areas where use of corridors would conflict with land management objectives. Examples include (1) specially managed areas, such as those designated for developed and primitive recreation, research natural areas, environmental education areas; (2) environmentally sensitive areas such as certain wildlife habitat areas, faults, wetlands, slump areas, etc ; (3) archeological and historical sites, and (4) areas with visual quality objectives that conflict with facility placement

Category 2 - Areas with special or unique values that have been accorded specific management status by legislation These values conflict with facility placement. Examples include National Recreation Areas, wild, scenic, and recreational rivers, nationally classified trails, and state recreation areas

Windows are short, narrow passages through constrained areas which are the most feasible potential locations for linear facilities, considering engineering and/or environmental factors. Examples include areas recognized as critical corridor segments because of physiographic or technical suitability, and restricted passages identified as a result of exclusion or avoidance areas

d *Relationship Between Forest Management and Roads and Trails*

Roads are essential to intensive timber management Large, high-quality trees can often be removed economically by helicopter or long-span skyline systems But small, low-value trees like those removed in thinnings can seldom be removed economically with these expensive logging systems

Workers use roads to reach project sites to accomplish erosion control, utilize or burn logging residues, plant trees, and thin tree stands Amounts and kinds of timber management activities have the biggest influence on the Forest road system.

Timber management activities can temporarily close, re-route, or obliterate Forest trails Trail facilities are generally protected within a sale area, or are rehabilitated after sale termination

Range management activities have little effect on existing Forest roads When roads are constructed in range allotments, additional costs may be incurred for installation and maintenance of cattleguards or gates Grazing use does affect Forest trails, particularly in canyon areas As cattle utilize a trail, they cause soil displacement, leave droppings

behind, and often create adjacent and cross-cutting trails. These impacts may result in increased trail maintenance.

Wildlife or fisheries management, or recreation needs, could result in seasonal road closures to protect riparian areas, reduce hunting pressure, or reduce harassment of wildlife during nesting, roosting, fawning, calving, and winter stress periods Road closure costs will be considered a mitigation cost. Wildlife are believed to have no effect on Forest roads or trails.

Precipitation levels, snowmelt, runoff, soil moisture, evaporation rates, and subsurface water movement have complex effects on existing and proposed roads. These factors require interdisciplinary consideration when planning for road access. A major effect of water and riparian resource management on roads is the cost of mitigating adverse effects related to road construction and maintenance.

Fish habitat management results in increased road costs associated with mitigation measures for allowing fish passage These effects are not considered significant

Visual resource management affects the location of Forest roads and trails. The effect on roads will be a minor increase in costs for mitigation measures

The relationship between roads and minerals is generally positive Common-variety mineral resources provide materials for road construction and maintenance, while roads provide access for mineral exploration, development, and production

The dominant need for construction materials is to support the timber management program. Future demand will continue to come from timber harvesting activities. Demand for new roads will be influenced insignificantly by minerals activities unless ongoing and future exploration results in large-scale development.

Rock-source location and rock characteristics are critical factors in road maintenance and construction costs Through management emphasis, some specific rock sources may be unavailable for future use Rock sources on the Forest have been inventoried and only in rare instances will the potential for rock source development fall short of projected demands for the material.
Fire has little interaction with roads and trails, but roads do provide access for fire control and also serve as fuelbreaks.