Historic Survey of Roads in Idaho's State Highway System
Volume 1: Historic Context

Prepared for

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Prepared by

Mead&Hunt

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16. Abstract

The multi-volume *Historic Survey of Roads in Idaho's State Highway System* provides the development of Idaho's State Highway System and a history of the Idaho Transportation Department (ITD) and its predecessor agencies to serve as a basis for evaluating the National Register of Historic places (National Register) eligibility of roads within the State Highway System. This report, *Volume 1: Historic Context*, is the first component in the ITD's effort to evaluate historic highways throughout the state. This report provides a basis for evaluating the historic significance and integrity of individual highways or highway segments throughout Idaho in order to complete National Register eligibility determinations. Information gathered for this report may also be useful for interpretation of highways for public appreciation and to inform Idahoans of the crucial role transportation has played in the growth and development of the state. Individual sections that describe the physical development of Idaho's State Highway System and the related important historical themes. This report provides the basis for developing criteria for evaluating the state's highways based on the standards of the National Register in a companion report titled *Volume 2: Application of the National Register of Historic Places Criteria for Evaluation*.

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METRIC (SI*) CONVERSION FACTORS

APPROXIMATE CONVERSIONS TO SI UNITS

Symbol	When You Know	Multiply By	To Find	Symbol
		LENGTH		
in	inches	25.4		mm
ft	feet	0.3048		m
yd	yards	0.914		m
mi	Miles (statute)	1.61		km
		AREA		
in^2	square inches	645.2	millimeters squared	cm^2
ft^2	square feet	0.0929	meters squared	m^2
yd^2	square yards	0.836	meters squared	m^2
mi^2	square miles	2.59	kilometers squared	km^2
ac	acres	0.4046	hectares	ha
		MASS (weight)		
oz	Ounces (avdp)	28.35	grams	g
lb	Pounds (avdp)	0.454	kilograms	kg
T	Short tons (2000 lb)	0.907	megagrams	mg
		VOLUME		
fl oz	fluid ounces (US)	29.57	milliliters	mL
gal	Gallons (liq)	3.785	liters	liters
ft^3	cubic feet	0.0283	meters cubed	m^3
yd^3	cubic yards	0.765	meters cubed	m^3
Note: Volumes greater than 1000 L shall be shown in m^3				
		TEMPERATURE (exact)		
°F	Fahrenheit temperature	5/9 (°F-32)	Celsius temperature	°C
		ILLUMINATION		
fc	Foot-candles	10.76	lux	lx
fl	foot-lamberts	3.426	candela/m^2	cd/cm^2
		FORCE and PRESSURE or STRESS		
lbf	pound-force	4.45	newtons	N
psi	pound-force per square inch	6.89	kilopascals	kPa

APPROXIMATE CONVERSIONS FROM SI UNITS

Symbol	When You Know	Multiply By	To Find	Symbol
		LENGTH		
mm	millimeters	0.039	inches	in
m	meters	3.28	feet	ft
m	meters	1.09	yards	yd
km	kilometers	0.621	Miles (statute)	mi
		AREA		
mm^2	millimeters squared	0.0016	square inches	in^2
m^2	meters squared	10.764	square feet	ft^2
km^2	kilometers squared	0.39	square miles	mi^2
ha	hectares (10,000 m^2)	2.471	acres	ac
		MASS (weight)		
g	grams	0.0353	Ounces (avdp)	oz
kg	kilograms	2.205	Pounds (avdp)	lb
mg	megagrams (1000 kg)	1.103	short tons	T
		VOLUME		
mL	milliliters	0.034	fluid ounces (US)	fl oz
liters	liters	0.264	Gallons (liq)	gal
m^3	meters cubed	35.315	cubic feet	ft^3
m^3	meters cubed	1.308	cubic yards	yd^3
		TEMPERATURE (exact)		
°C	Celsius temperature	9/5 °C+32	Fahrenheit temperature	°F
		ILLUMINATION		
lx	lux	0.0929	foot-candles	fc
cd/cm^2	candela/m^2	0.2919	foot-lamberts	fl
		FORCE and PRESSURE or STRESS		
N	newtons	0.225	pound-force	lbf
kPa	kilopascals	0.145	pound-force per square inch	psi

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Cover photo credit: 1960 photo of U.S. Highway 95 in Culdesac Canyon. Image from the Idaho State Archives.

EXECUTIVE SUMMARY

> "Eventually we're going to have a highway system that will attract tourists through the Gem state. We'll have a highway system that Idaho citizens will be proud of." [1]
>
> - Earle V. Miller, Idaho's first state highway engineer, 1952

The multi-volume *Historic Survey of Roads in Idaho's State Highway System* provides the development of Idaho's State Highway System and a history of the Idaho Transportation Department (ITD) and its predecessor agencies to serve as a basis for evaluating the National Register of Historic places (National Register) eligibility of roads within the State Highway System. *Volume 1: Historic Context* (*Historic Context)* is the first major component in the ITD's effort to evaluate historic highways throughout the state. The purpose of the *Historic Context* is to provide a basis for evaluating the historic significance and integrity of individual highways or highway segments throughout Idaho as part of a multi-phase project to complete National Register eligibility determinations. Information gathered for the historic context report may also be useful for interpretation of highways for public appreciation and to inform Idahoans of the crucial role transportation has played in the growth and development of the state. Individual sections provide national-level background on topics including the Good Roads Movement, federal funding, the Great Depression, World War II, and the development of modern highways, including the Interstate Highway System, in the post-World War II years. Initiatives in Idaho are described within the context of these significant national developments and the history of roadbuilding is discussed, highlighting the establishment of a state highway department to oversee construction and maintenance. The contexts and themes will provide the basis for developing criteria for evaluating the state's highways based on the standards of the National Register.

This *Historic Context* document is addressed in nine sections, described as follows:

- *Section 1: Project Background* explains the ITD's purpose in undertaking this project and describes the project's research methods. The section outlines the steps of the project, the importance of the development of a historic context, and discusses the role of the Federal Highway Administration and ITD for projects that involve Section 106 of the National Historic Preservation Act.

- *Section 2: Influence of Idaho's Geography and Climate on Transportation* provides an overview of important landforms, waterways, and other landscape features that influenced the development of Idaho's transportation networks. This section highlights both the natural "corridors of least resistance" for travel and the physical barriers to roadbuilding and communication.

- *Section 3: Early Trails and Transportation* begins with the trails established by Native American groups prior to European contact and continues with the routes mapped by the earliest Euro-Americans to travel through present-day Idaho. These trails were subsequently used by other Euro-American traders, trappers, and missionaries, and the section discusses the evolution of major emigrant routes in the mid-nineteenth century and the expansion of pack trails, wagon roads, and stagecoach routes throughout the Territorial period from 1863 to 1889.

- *Section 4: The Progressive Era* continues with a description of major trends and initiatives in road building in the late nineteenth and early twentieth centuries, including the Good Roads Movement, and early attempts at state-sponsored roadbuilding after Idaho became the 43rd state in 1890.

- *Section 5: Dawn of the State Highway System* begins with the establishment of the State Highway Commission in 1913 and the influence of federal aid for roadbuilding from 1916 onward. This section discusses the designation of Idaho's original system of State Highways the following year and covers the subsequent expansion of both the highway system and the state highway department through the onset of the Great Depression in 1929.

- *Section 6: The Great Depression and the New Deal* continues with a discussion of the various federal relief programs implemented to cope with the economic effects of the Great Depression. This section outlines the various sources of federal funding that became available for Idaho's state highways during the 1930s and the ways in which the highway department was able to take advantage of these opportunities to improve and expand the Idaho transportation network.

- *Section 7: World War II and its Effects on Idaho's State Highway System* begins with the onset of World War II and the restrictions imposed as the nation mobilized for wartime. The section provides an overview of Idaho's strategic highways during the war and discusses the major changes in federal funding and attitudes in the postwar period as highway use skyrocketed in the early 1950s, laying the groundwork for the establishment of the Interstate Highway System.

- *Section 8: The Interstate Highway Era* continues with the first congressional appropriation for construction of the Interstate Highway System and covers construction of Idaho's Interstate routes. The section also discusses the impact of federal funds, new construction standards, and increasing dependence of industry and tourism on the State Highway System.

- *Section 9: The ITD and Modern Highways* discusses the shift in the mid-1970s as public policy and planning increasingly focused on quality of life, multi-modal use, and other more holistic approaches to transportation. This section addresses Idaho's State Highway System and ITD initiatives through the present time.

Important themes described in the *Historic Context* support the identification of historically significant highways and the development of *Volume 2: Application of the National Register of Historic Places Criteria for Evaluation*. Both volumes provide a process in which to complete National Register evaluations provided in *Volume 3: National Register of Historic Places Eligibility Determinations*.

SECTION 1.
PROJECT BACKGROUND

The Idaho Transportation Department (ITD) is responsible for planning, building, and maintaining a statewide system of highways. The ITD carries out its mandates with funding from the state legislature and from federal grant-in-aid programs. As a state agency and recipient of federal funds, the ITD, on behalf of the Federal Highway Administration (FHWA) – Idaho Division Office, must comply with environmental and historic preservation laws and regulations, most notably Section 106 of the National Historic Preservation Act of 1966 (NHPA). One requirement of the NHPA regulations is to consider possible effects of the ITD's activities on historic properties, which are defined by the National Park Service as buildings, sites, objects, structures, and districts that are eligible for listing or listed in the National Register of Historic Places (National Register). While bridges and buildings are well-known historic resources, over the last decade it has been understood that roads and highways also have historic significance. Roads in the State Highway System, in their entirety, need to be considered during compliance with Section 106 of the NHPA and the FHWA and Idaho State Historic Preservation Office (SHPO) be offered an opportunity to comment on the findings. The ITD currently addresses small segments of highways on a project-by-project basis, an approach that is inefficient, outdated, and unsustainable.

The ITD received approval of the preparation of the multi-volume *Historic Survey of Roads in Idaho's State Highway System* as part of its ITD Research Program. The *Historic Survey of Roads in Idaho's State Highway System* was supported by the SHPO, FHWA – Idaho Division Office, Local Highway Technical Assistance Council (LHTAC), and ITD. The purpose of the *Historic Survey of Roads in Idaho's State Highway System* is to provide a history of the development of Idaho's State Highway System and a history of the ITD and its predecessor agencies to identity the important themes, which is presented in *Volume 1: Historic Context* (*Historic Context*). *Volume 2: Application of the National Register of Historic Places Criteria for Evaluation* (*Evaluation Criteria*) provides the process on how to evaluate a road in Idaho's State Highway System to determine whether it possesses significance and retains integrity to complete National Register eligibility determinations. Information gathered for the *Historic Context* may also be useful for interpretation of highways for public appreciation and to inform Idahoans of the crucial role that transportation has played in the growth and development of the state.

A. Research design and methods

The *Historic Survey of Roads in Idaho's State Highway System* requires the preparation of a history of the state's highway networks from predecessor trails to modern highways, highlighting the role played in that development by ITD and its predecessor agencies. Research included investigating primary and secondary sources at major repositories in Idaho and materials were gathered from the following repositories and collections:

- ITD collections including archives and photo collection
- Idaho State Archives
- University of Idaho Library and Archives
- Boise State University Library and Special Collections
- Boise Public Library
- University of Wisconsin, Historical Society Library

Key sources for the context report included the following:

- Annual/biennial reports, newsletters, magazines, and research bulletins of the ITD and its predecessors
- Books and contexts on Idaho, including its history, economics, and highway and bridge system
- Materials from collections in the Idaho State Archives
- Period newspaper articles
- Historic maps

These and other sources consulted are provided in the Bibliography of this report.

B. Purpose

The driving force behind this statewide historic highway context is the ITD and FHWA's need to comply with the NHPA. As a result, the focus of the *Historic Context* is on roads in the State Highway System under auspices of the ITD. The *Evaluation Criteria* provides the process in which to evaluate and document how highways may qualify as eligible for listing in the National Register. Results of the evaluation methodology developed using this historic context will facilitate ITD and FHWA compliance with federal requirements under Section 106 of the NHPA in *Volume 3: National Register of Historic Places Eligibility Determinations*.

The NHPA established a national policy for the consideration of historic properties in federal undertakings. A historic property is defined as any property listed in, or eligible for listing in, the National Register. The NHPA created the National Register, which is an official list of sites, districts, buildings, structures, and objects of national, regional, or local significance. To qualify for the National Register, a property generally must be 50 years old, be associated with a significant theme, and retain sufficient integrity. The National Park Service within the Department of the Interior is charged with maintaining the National Register.

Historic highways may be afforded protection under the Section 106 regulations that were developed to implement the NHPA. Section 106 requires federal agencies and owners seeking federal assistance to review actions that may affect a property listed in, or eligible for, the National Register. The process includes identifying historic properties, assessing the effect of proposed actions on historic properties, and developing agreements that specify measures to consider any adverse effects. To comply with Section 106, appropriate consultation among the federal agency, SHPO, Native American tribes, the public, and other interested parties is required. The Advisory Council on Historic Preservation (ACHP), an independent federal agency in the executive branch, oversees the Section 106 review process.

To support the broader purpose of regulatory compliance with regard to highways that are eligible for listing in the National Register, the agencies need to have clear information on which highways are historic properties and which are not. The multi-volume *Historic Survey of Roads in Idaho's State Highway System* supports that purpose by defining the relevant historic contexts that will be used to identify whether roads possess historic significance, retain integrity, and qualify for listing in the National Register. Specifically, the *Historic Context* identifies the themes in which roads in Idaho's State Highway System may have an important and direct association to determine if they possess historic significance. The *Evaluation Criteria* focuses on the state-level themes but can also accommodate significant local trends and developments identified through route-specific research and provides the process in which to evaluate and document how highways may qualify as eligible for listing in the National Register. *Volume 3: National Register of Historic Places Eligibility Determinations* will provide the results of National Register evaluation of individual roads within Idaho's State Highway System.

SECTION 2.
INFLUENCE OF IDAHO'S GEOGRAPHY AND CLIMATE ON TRANSPORTATION

Idaho is a state of extremes and contrasts where the geography and climate have had a significant impact on how the road network evolved. Its topography and natural resources also influenced patterns of development. The road system spanned challenging terrain in order to facilitate emigration and serve resource extraction, population centers, and recreational sites.

A. Climate and geology

For years locals, writers, and politicians have acknowledged the division of the state into two distinct portions: northern Idaho (the "panhandle") and southern Idaho (the rest of the state). Topography separates the two, which are further distinguished by a large variation in climate. Northern Idaho—the 10 counties that make up the narrow strip of land between Washington and Montana in what is known as the panhandle—is influenced by prevailing winds and precipitation coming in from the Pacific Ocean. Temperatures vary less here than areas at similar latitudes without a western coastline.[2] Northern Idaho enjoys comparatively warm winters and relatively cool summers, with precipitation in the forms of rain and snow dispersed throughout the year. Most precipitation occurs in winter months, and some locations receive 40 to 50 inches of per year, with a few small areas receiving in excess of 60 inches.

By contrast, southern Idaho's climate is closely tied to the continental interior: a relatively dry climate with very hot summers and mild winters.[3] The southeast portion of the state is part of the Great Basin, an American desert region that stretches across Nevada and also includes portions of Utah, Wyoming, and Oregon. The landscape features wide altitude swings from sagebrush-covered steppes at roughly 4,000 feet to forested mountaintops over 10,000 feet.[4] Mountains along the Wyoming border are part of the Central Rockies and include the Bear River, Portneuf, and Malad mountain ranges.[5] Southern Idaho contains a portion of the Columbia Plateau, a broad expanse of volcanic plains and valleys that stretches from the Rocky Mountains to the Cascade Range in Oregon and Washington. This part of the state features the isolated Deep Creek and Sublette mountain ranges, and includes the largely treeless Snake River Plain, which extends from east to west in an arc across the state.

Figure 1 provides an overview map of Idaho identifying its major physical features.

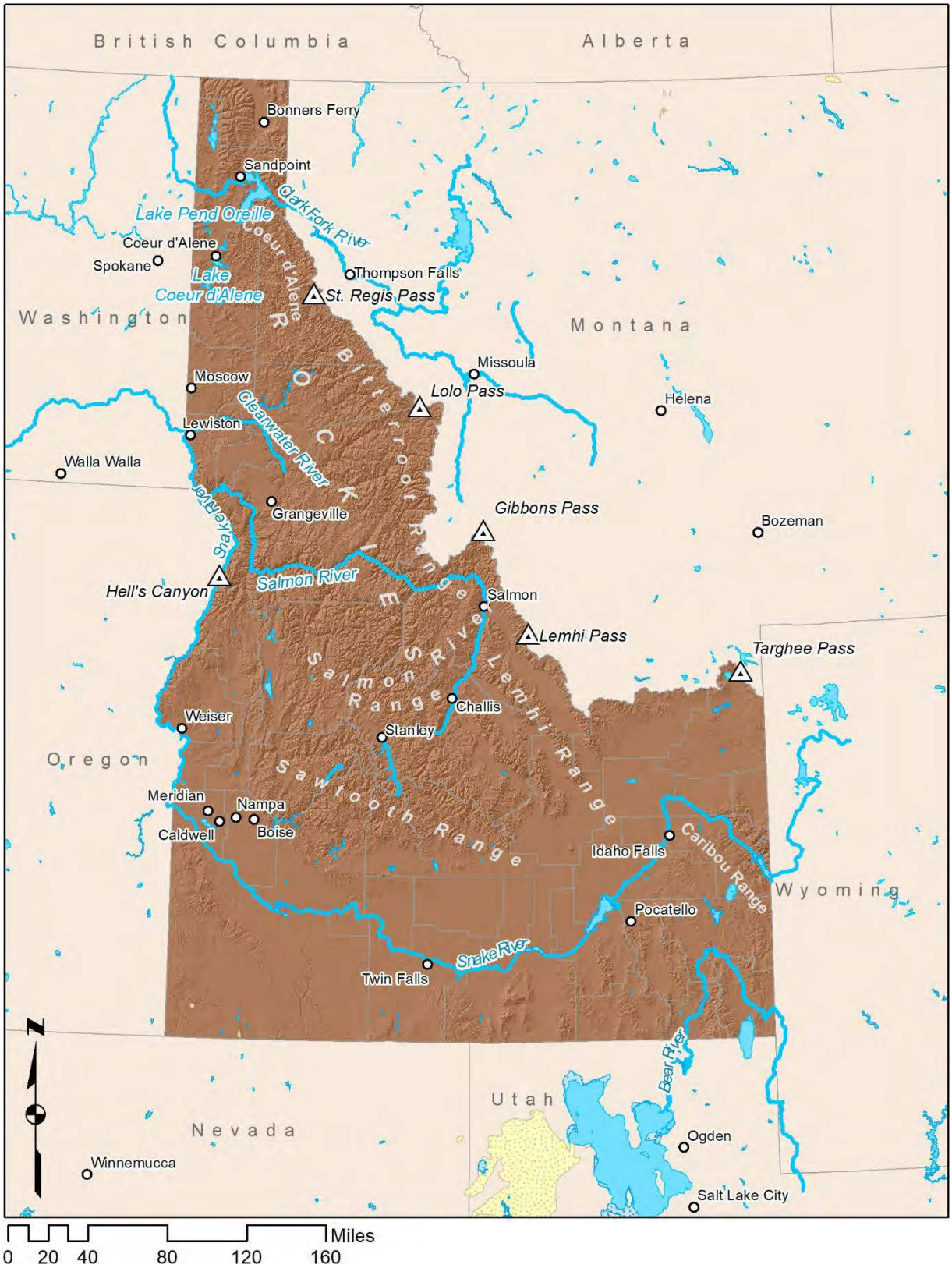


Figure 1. Overview map of Idaho with major physical features.

B. Geography

With a total land area of 83,557 square miles, Idaho is the 14th largest state in the country.[6] The borders evolved over time as treaties established international boundaries and western territories became neighboring states, resulting in a state with few natural borders beyond the rugged Bitterroot Mountains to the east and the Snake River to the west. The northeastern border with Montana generally follows the Continental Divide, and the border with Wyoming extends due south along the 111th meridian.[7] The western border with Washington and Oregon runs largely north-south following the 117th meridian, except for a winding segment between the Idaho communities of Lewiston and the vicinity of Parma, where the Snake River and Hells Canyon provide a natural barrier. The northern boundary with British Columbia follows the 49th parallel of latitude, and the southern border with Utah and Nevada follows the 42nd parallel (see Figure 1 above).[8]

While some areas of Idaho's border may be easily crossed, mountains occupy much of the eastern boundary and interior of the state. Idaho boasts more mountain ranges than any other Rocky Mountain state (80 in all). The Rocky Mountains stretch from the north Idaho panhandle south into central Idaho and are a continuation of the Northern Rocky Mountains that extend from Alaska to Mexico. This portion of Idaho is characterized by multiple peaks over 10,000 feet, steep gorges, deep canyons, and swift moving rivers and streams. The Continental Divide runs through the Bitterroot range along the northeast border. In addition to the Bitterroots, major ranges include the Clearwater and Coeur d'Alene. The state's highest mountain range, the Lost River range, is in central Idaho, as are the nearly impenetrable Salmon and Sawtooth ranges. Due to this challenging terrain, travelers historically relied on a relatively small number of mountain passes over the Continental Divide, such as the St. Regis, Lolo, Lemhi, Gibbons, and Targhee Passes between Idaho and Montana, which were used by multiple successive modes of transportation as railroads and highways supplanted footpaths and pack trails.[9]

The Salmon River drains the central portion of the state and is one of the longest and most rugged in Idaho. Known as the "River of No Return," the Salmon was an early impediment to travel.[10] From its headwaters in central Idaho, the river runs north before turning westward near the community of Salmon. The east-west portion of the river essentially bisects Idaho; with its deep canyons bordered by mountains on both sides, it formed one of the greatest natural barriers to transportation between the northern and southern halves of the state. For many years, the easiest way to travel between northern and southern Idaho—by rail or vehicle—was to pass through Oregon and Washington, and today only one paved highway, U.S. Highway 95 (US-95), links the two portions of the state.[11]

While the Salmon River was primarily an obstacle, elsewhere Idaho's waterways provided transportation links or created natural travel corridors through valleys, and access to water also helped facilitate mining and agriculture. The Snake River originates in Wyoming, traces a nearly 570-mile-long-course across southern Idaho, then turns north into Hells Canyon near the Oregon border. At 7,900 feet deep, the 30-mile-long Hells Canyon is the deepest in North America. The Snake River continues northward to form part of the western state border and is joined by the Salmon River approximately 40 miles south of Lewiston, where the Clearwater River enters and the Snake continues west to the Columbia River in eastern Washington.[12] Early trails across southern Idaho followed the Snake River, and today many of Idaho's

major cities are located in its general vicinity, including Idaho Falls, Pocatello, Twin Falls, Boise, Meridian, Nampa, Caldwell, and Lewiston, from east to west.

Regional transportation

Idaho's highway networks follow regional market and trade patterns that reflect physical rather than political boundaries. This means that many areas of the state today are more closely connected—both physically and economically—with regional centers in neighboring states than with each other. In some cases, roads in Idaho provided connection to an important arterial in a neighboring state. While Boise, Twin Falls, Pocatello, and Idaho Falls were easily connected in southern Idaho, for example, other regions based on market and trade developed across state lines. Communities in northern Idaho are oriented toward Spokane, Washington, while southeastern Idaho is oriented toward Salt Lake City. Road networks developed to connect these parts of Idaho with out-of-state markets, and also extended north, providing connection to a major east-west Canadian highway (Crowsnest Highway) directly across the border.

Waterways and other natural resources continued to influence transportation as the road network evolved to connect settlements, resource extraction sites, and agricultural areas. The Snake River supports numerous irrigation diversions and hydroelectric plants that provide countless hours of electricity and transform the arid plains landscape into fertile agricultural land. Links between waterways, travel corridors, and settlement are found throughout the state. Mining and agriculture also spurred population centers in Idaho, such as Moscow along Paradise Creek in north Idaho.[13] Silver and gold discoveries prompted the settlement of Coeur d'Alene along the shores of Lake Coeur d'Alene and the Spokane River, as well as at Lewiston, nestled between the Snake and Clearwater Rivers; these are now the largest cities in northern Idaho.[14]

Idaho is also the most timbered state in the Rockies, with forests covering more than 80 percent of the northern portion. By contrast, less than 20 percent of southern Idaho is forested. Nearly all of the state's extensive mountain land belongs to the federal government and is left in its primitive condition.[15] Sixteen national forests, predominantly in north and central Idaho, cover more than 20 million acres, while 30 state parks encompass 60,000 acres of protected land. Idaho also contains nearly 4 million acres of designated wilderness area.[16] Tourism and outdoor recreation are major industries in forested regions, as is the timber industry, including manufacture of wood products.[17] Early highway building efforts into the forests in the 1910s and 1920s helped facilitate tourism, as did the thousands of miles of forest development roads constructed by the U.S. Forest Service and Civilian Conservation Corps.

C. Influence on highway development

Early overland routes developed to avoid geographic obstacles and often connected navigable waterways. Native American trails and early Euro-American exploratory routes influenced the Euro-American settlement patterns, which were in turn reinforced by the establishment of railroads along similar corridors.

The growth of the resource extraction industry, beginning in the mid-nineteenth century, placed new challenges on overland transportation as miners made their way into rugged, mountainous areas. The modern highway system follows many of these early routes that developed due to climate and geography.

The state's stark north-south divide, with drastic differences in climate and geography, has strongly influenced highway development. The topographic challenges of north-central Idaho, including multiple mountain ranges, raging rivers, and high annual snowfall, largely precluded road development until very recently. The area was so impassible that few people settled there and road networks skirted around it to connect trading and market centers that were often outside Idaho. In comparison, the southern portion of the state has far less challenging topography and displayed a strong early transportation network. The establishment of territorial (and later state) boundaries increased the desire and need for connectivity between regions that would otherwise not be geographically associated, eventually drawing northern and southern Idaho together into one state with a common highway network. The following context describes the development of that highway network, starting with the early trails and roads that first navigated the area.

SECTION 3.
EARLY TRAILS AND TRANSPORTATION (THROUGH 1889)

A. Early trails and trade routes (pre-1863)

(1) Pre-contact Native American groups and associated trails

Prior to European contact, present-day Idaho and the surrounding area was home to many Native American groups. These groups engaged in extensive trade networks and seasonal migration patterns using trails, and travelled on foot prior to the introduction of the horse between the sixteenth and eighteenth centuries.[18] Native American trails often followed ridgelines and river valleys and were the established routes through areas of difficult terrain when Europeans first arrived.

Idaho's geographic regions were inhabited by different Native American groups (see Figure 2). The southern portion of the state, including the Snake River Plain, was part of the region historically home to the Shoshone, Northern Paiute, and Bannock people. The Nez Perce (Nimi-pu), Kalispel, Kootenai, and Coeur d'Alene people lived in an area that includes what is now eastern Washington, southern British Columbia, and Idaho's panhandle.[19] Many of these groups traded both with one another and over long distances to other groups in modern-day Wyoming, Montana, Washington, and Oregon. Additionally, important pre-contact rendezvous occurred in southwest Wyoming and The Dalles in the Columbia River Valley, where Idaho groups came into contact with others from the Dakotas, California, and southern British Columbia.[20]

Early trails helped facilitate trade between Native American groups. The Continental Divide was a substantial geographic barrier between the panhandle and the buffalo plains in Montana. By the eighteenth century, four main trails (described below) served as the primary means by which Native Americans crossed the Bitterroots to travel between the headwaters of the Columbia River and Clark Fork, linking these two navigable waterways.[21] Known to Euro-Americans as the Southern Nez Perce, Lolo, St. Regis-Borgia, and Pend d'Oreille Trails, these trails generally followed ridgelines through the mountains to connect river valleys, which provided natural "paths of least resistance."[22]

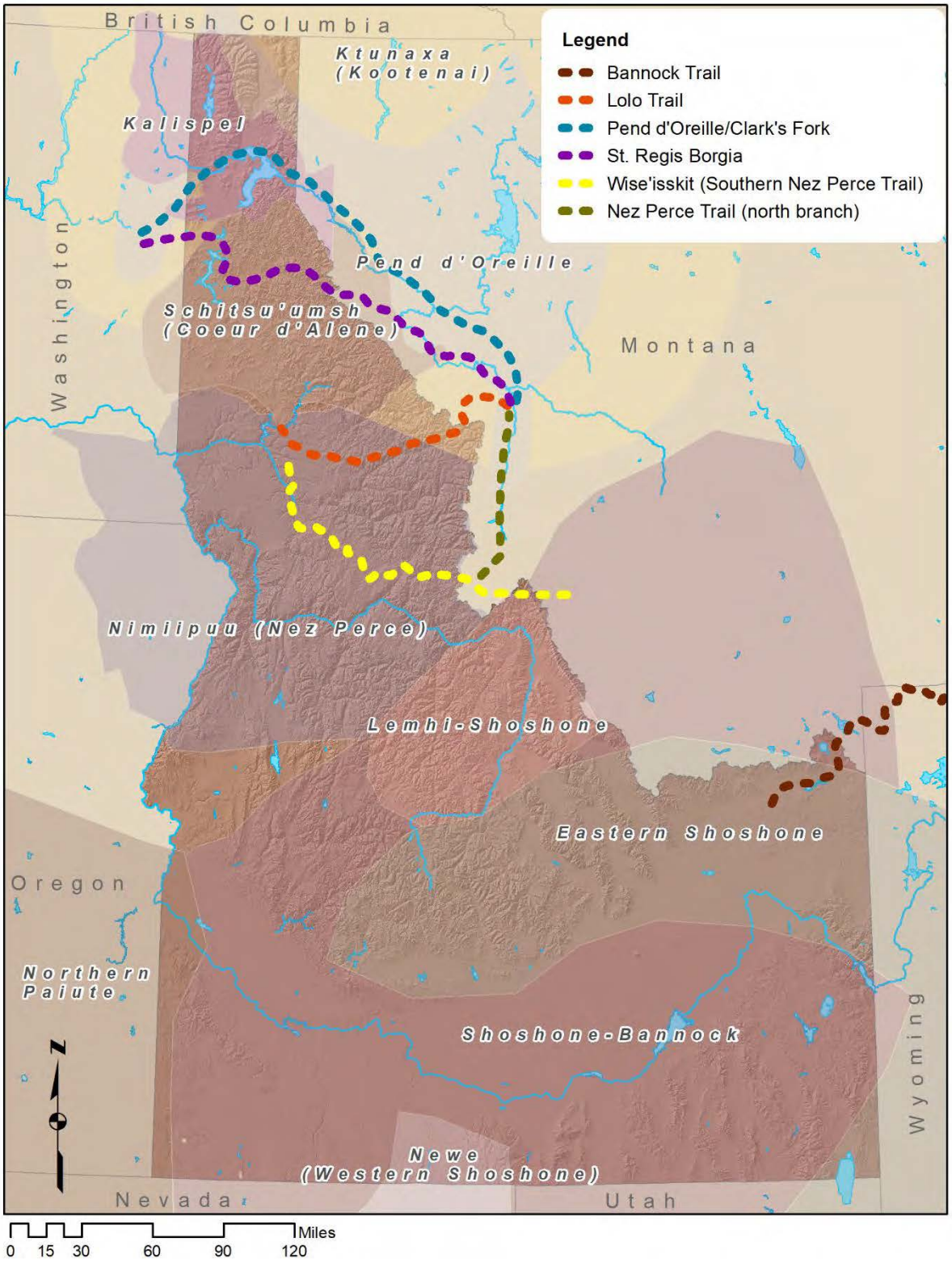


Figure 2. Map showing approximate territory of various Native American groups and established trails subsequently used by Euro-American invaders.[23]

The Wise'isskit (Southern Nez Perce Trail) is the oldest and most important Native American trail across the Bitterroot Mountains. Nez Perce (Nimi-pu) tribal history indicates that the trail extended from the Clearwater River to Three Forks, Montana (west of Bozeman). While the trail served the Nez Perce and other tribes in the region in the eighteenth century, archaeological evidence indicates that the trail was likely established thousands of years prior.[24] Portions of the corridor in Idaho later served as (and were destroyed by) vehicular roads, including the Elk City Wagon Road from Harpster to Elk City in 1895 and the Magruder Road between Red River and Darby, Montana, in 1936.[25] Idaho State Highway 14 (ID-14) follows the Elk City-Harpster portion of the route today.[26]

North of the Wise'isskit, the Lolo Trail was used by Nez Perce and Flathead groups to reach buffalo and salmon harvesting areas.[27] From the trail's eastern terminus at the Bitterroot River, it followed Lolo Creek to cross the mountain range at Lolo Pass; this route was later used by the Lewis and Clark expedition. While portions of present-day ID-12 roughly parallel the eastern half of the trail corridor, it has no direct equivalent in the modern highway system.

Like the Lolo Trail, the two northerly routes had their eastern terminuses near the junction of the Bitterroot River and Clark Fork, but both the St. Regis-Borgia Trail and Pend d'Oreille Trail had their western terminus roughly 200 miles to the north, on the prairie near modern-day Spokane, Washington. The St. Regis-Borgia Trail followed the Coeur d'Alene River to its headwaters, traveled a ridgeline to the headwaters of the St. Regis Borgia River, and then continued along that river to its junction with the Clark Fork. Although the other routes were later used by Euro-American traders and emigrants, this trail was primarily used by Native Americans until the 1890s. Today Interstate 90 (I-90) roughly parallels the original trail corridor.[28]

The Pend d'Oreille Trail, also known as the Clark's Fork or Flathead Trail (after the Euro-American name given to the Salish people), was topographically the easiest of the four routes and was used by Kalispel hunting parties to reach Montana by traveling up the Clark Fork.[29] Portions of present-day ID-200 and ID-2 use this general corridor, which followed lake shores and river valleys for much of its length, meeting the other three trails at the western end of the Missoula Valley in Montana, where the primary travel corridor then extended east to the Three Forks area.[30]

In the southern part of Idaho, Native American groups did not face the same geographic barriers to travel (although the Snake River canyon and its arid plains thwarted later European travelers). While they likely had many traditional trails through this area, recorded routes generally focus on specific mountain passes that restricted travel to a particular path. One such example is the Bannock Trail, a 200-mile route that began at the Camas Meadows in eastern Idaho and crossed the Targhee Pass into the Madison River Valley (where US-20 enters present-day Montana), continuing east through what is now Yellowstone Park. The route was used by the Bannock and other groups to travel between the Snake River plains and new buffalo-hunting areas to the east by the 1840s, when the buffalo herds upon which these groups had previously depended declined.[31]

(2) Euro-American contact and trade routes

Although Euro-American trade goods and diseases had reached Native American groups by the 1780s, the first direct Euro-American contact occurred late in the summer of 1805, when the Lewis and Clark

expedition reached the Bitterroot Mountains.[32] The expedition entered future Idaho via the Lemhi Pass and continued north to the Bitterroot Valley along a route similar to modern US-93.[33] From there, their Shoshone guide Pikee Queen-ah (called "Toby" by Lewis and Clark) led them westward along the Lolo Trail between the Bitterroot River and Clearwater River, eventually reaching the Snake River near Lewiston.[34]

Like Lewis and Clark, early Euro-American missionaries, trappers, and traders entering the region often had Native guides, and one could reasonably assume that their earliest routes followed existing trails. In the decades that followed Lewis and Clark's report describing the Pacific Northwest, representatives of British, Canadian, and American fur companies crossed Idaho repeatedly, establishing fur trade routes between British Columbia, the Pacific Coast, and St. Louis, Missouri. These routes generally made use of navigable waterways with some portages, and Idaho's mountains continued to pose an obstacle to travel. Historic fur trade routes typically followed river valleys where possible and connected the Columbia and Missouri River watersheds (see Figure 3). The routes used by the early representatives of several fur companies followed the same corridors used by earlier trails (such as the Pend d'Oreille Trail across the Bitterroots), and others set the precedent for later wagon routes such as the Oregon Trail through the Snake River Plain.

David Thompson of the Montreal-based North West Company was one of the earlier Euro-American fur traders to travel extensively in the region. Between 1808 and 1811, Thompson journeyed south from what is now British Columbia and mapped the upper portion of the Columbia River watershed. He founded several trading posts, including Kullyspell House on the shore of Lake Pend d'Oreille.[35] Further south, employees of German-born entrepreneur John Jacob Astor's American Fur Company had established a trading post on the Pacific Coast at Astoria and crossed modern-day Idaho twice. Led westward by Wilson Price Hunt in 1811 and returning to St. Louis under Robert Stuart in 1812, these "Astorians" generally followed the Snake River through Idaho.[36] Despite their efforts, Astor's dream of a fur empire was not realized; the North West Company absorbed Astor's Pacific Fur Company shortly thereafter, and was itself absorbed by the London-based Hudson's Bay Company in 1821.[37]

American companies continued to compete with the Hudson's Bay Company in the decades that followed, and several trading posts were established along major routes. The St. Louis-based Missouri Fur Company constructed Fort Henry as a winter post near present-day St. Anthony in 1810. Along with Thompson's Kullyspell House, Fort Henry was short-lived, but two other trading posts were more successful. Fort Hall, built by merchant Nathaniel Wyeth in 1834, and Fort Boise, established by the Hudson's Bay Company in the same year, continued to operate for over two decades, and both later developed into important stopping points on the Oregon Trail.[38]

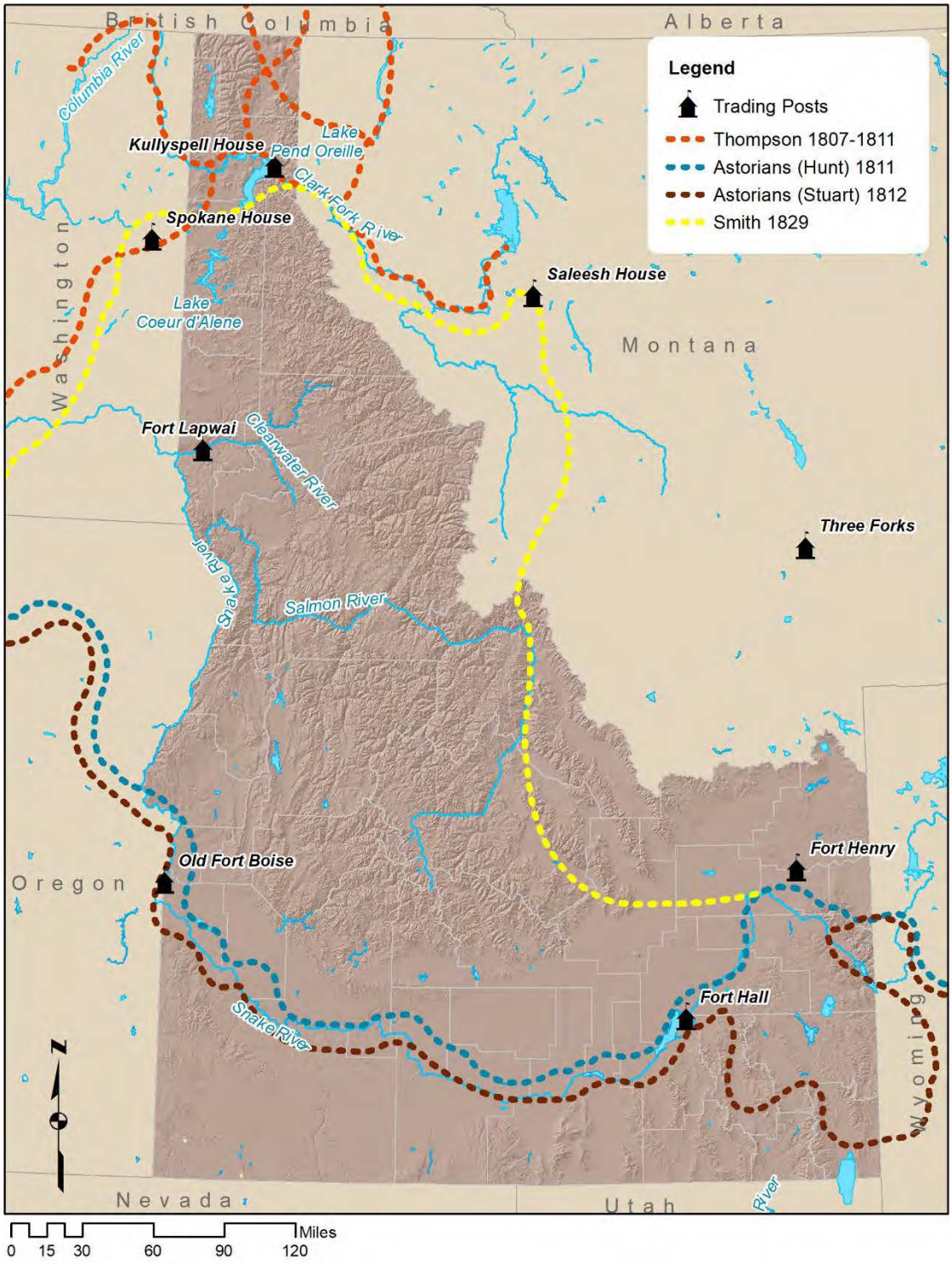


Figure 3. Exploratory routes and trading posts established by fur trade companies.[39]

(3) Euro-American settlement and territorial expansion westward

The U.S. and Britain had awarded themselves joint ownership of the Pacific Northwest in the Treaty of 1818, but the 1846 signing of a new Oregon Treaty created a permanent boundary with Canada and ended this joint occupation. By this time Euro-American westward migration had already begun, and in the years that followed thousands of wagons crossed southern Idaho on their way to the Oregon Territory. The three-month trek westward from the Missouri River near St. Joseph remains one of the most storied travel corridors of the American west and was the primary land route to the Pacific Northwest until a rail line paralleling the trail was completed in 1884.[40,41] Over time, numerous branches and cutoffs were established, and in total an estimated 53,000 people traveled these routes across Idaho between 1840 and 1860.[42]

The Oregon Trail route followed earlier Native American and trapper trails and entered from Wyoming to reach the Snake River Plain at Fort Hall. The trail developed based on the routes used by the Astorians traveling eastward under Stuart in 1812, and by Jedediah Smith, who crossed the Continental Divide via South Pass in Wyoming. While earlier travel relied on pack animals or boats to carry larger amounts of cargo, the introduction of wheeled transport changed the nature of travel through Idaho. Many of the winding ridgeline trails in northern Idaho could not accommodate wagons, but the terrain of the Snake River Valley was less challenging in this regard. Wagon travel, in turn, made it possible for families to make the journey. The Whitman and Spalding missionary families successfully reached Fort Boise via South Pass with a wheeled cart in 1836, and the first wagon train of 1842 brought more than 100 people across Idaho and into Oregon.[43] The trickle soon became a flood; while statistics vary, approximately 800 emigrants reached the Columbia Valley the following year, and by 1845 as many as 3,000 people traveled the Oregon Trail.[44]

While largely a network rather than a single-track road, the main route of the Oregon Trail generally followed the present-day US-30 corridor through Montpelier and Soda Springs, and the former US-80 (now I-84 and I-86) corridor from Pocatello through Twin Falls and across the Snake River Plain to Boise.[45] The Snake River itself, with its steep canyon walls, formed a barrier to north-south travel on the plain, although several fords were located near Fort Hall and west of Twin Falls. Other branches and cutoffs developed and connected to the main route at these locations (see Figure 4).

In the mid-nineteenth century, most Euro-Americans passed through Idaho but did not stay, as the arid landscape of the Snake River Plain was less appealing than the Willamette Valley.[46] By 1843 California had emerged as another destination, and travelers used the Oregon Trail to travel beyond Fort Hall, then turned southwest following the Raft River.[47] Known as the California Trail, the route diverged from the Oregon Trail between Pocatello and Twin Falls.[48] Traffic on the California Trail eventually surpassed that of the Oregon Trail, and the Gold Rush of 1849 increased its use exponentially.[49] At that time, Hudspeth's Cutoff developed to provide a shortcut that bypassed Fort Hall. This alternate route to California diverged at Soda Springs and served as the main California Trail route from 1849 to 1859, until replaced by the Lander Road from Wyoming, which was purposely surveyed and constructed as a safer emigrant route to California.[50] The Salt Lake Cutoff, linking Salt Lake City to the California Trail, also entered Idaho briefly.[51] With the exception of the Oregon Trail, these trails did not ultimately evolve into state highway corridors (see Figure 5).

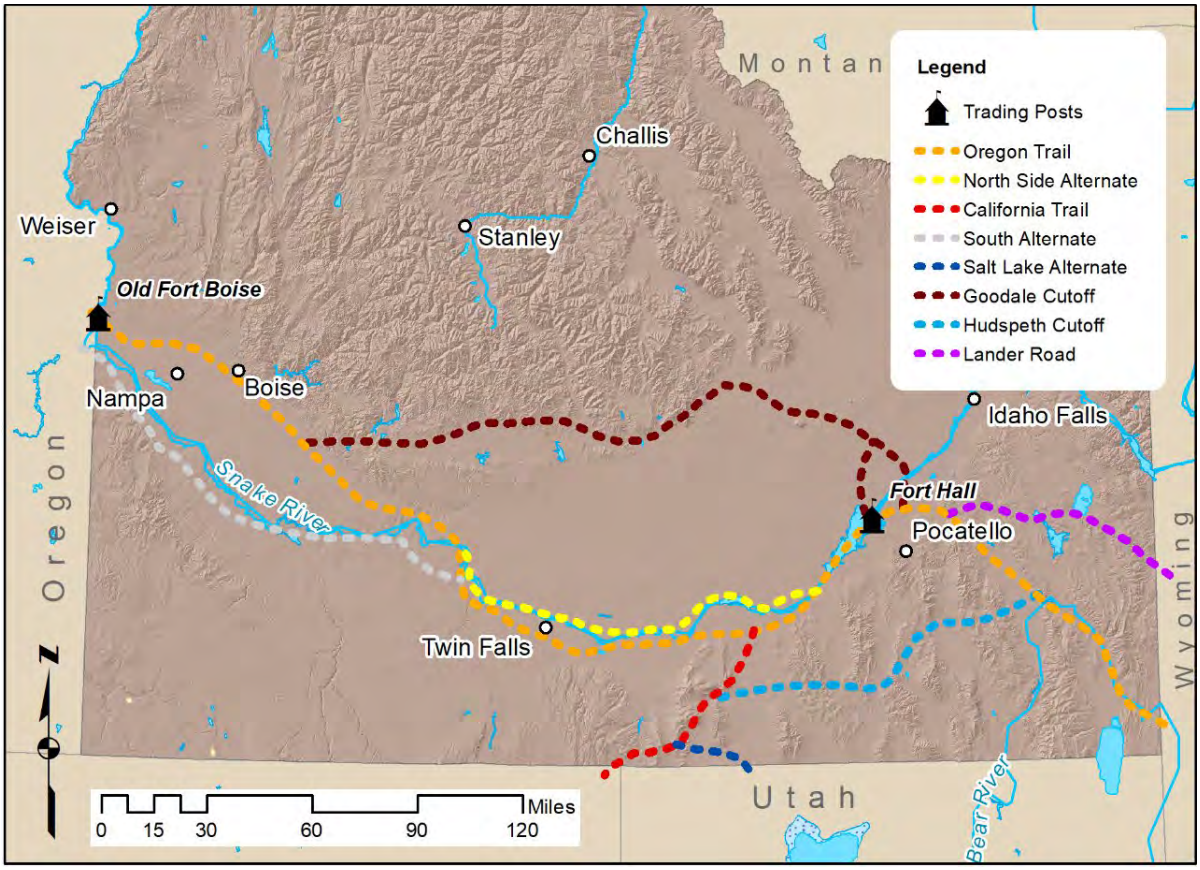


Figure 4. Major emigrant trails across southern Idaho in the pre-territorial period.[52]

Figure 5. Modern image of portion of the Oregon Trail near Boise, 2012.[53]

As Euro-American settlement within Idaho remained limited through the 1850s, major transportation corridors continued to focus on east-west routes that traversed Idaho to provide links between settlement and trading sites on navigable waterways in present day Washington, Oregon, and Montana. While most of these routes crossed the southern portion of the state, in 1853 Congress authorized an Army Topographical Corps reconnaissance expedition to locate the best route to the Pacific Coast. Led by Isaac Stevens, governor of Washington Territory, the expedition identified several possible routes across northern Idaho, and as a result of their survey, army topographical engineer John Mullan was tasked with building a military road across the northern Rockies and Idaho panhandle. This proposed wagon road was intended to serve as a connection between Walla Walla, near the navigable Columbia River, and Fort Benton, at the head of steamboat navigation on the Missouri River.[54]

Although funded by the War Department as a military road, one aim of the new wagon road was to provide an alternative to the Oregon Trail.[55] Mullan and his 70-man team began at Walla Walla in the summer of 1859 and worked northeast toward Lake Coeur d'Alene, continuing the route around the south end of the lake and across the St. Joe River. Mullan crossed the Bitterroots at St. Regis Pass shortly before the year's end, and after spending the winter in Montana, the crew surveyed a route that followed the Bitterroot River to Missoula and continued to Fort Benton in 1860.[56] Mullan ultimately revised the route around Lake Coeur d'Alene to avoid flood-prone areas, and the new alignment was completed in 1861 (see Figure 6) along the same corridor later used by I-90.[57]

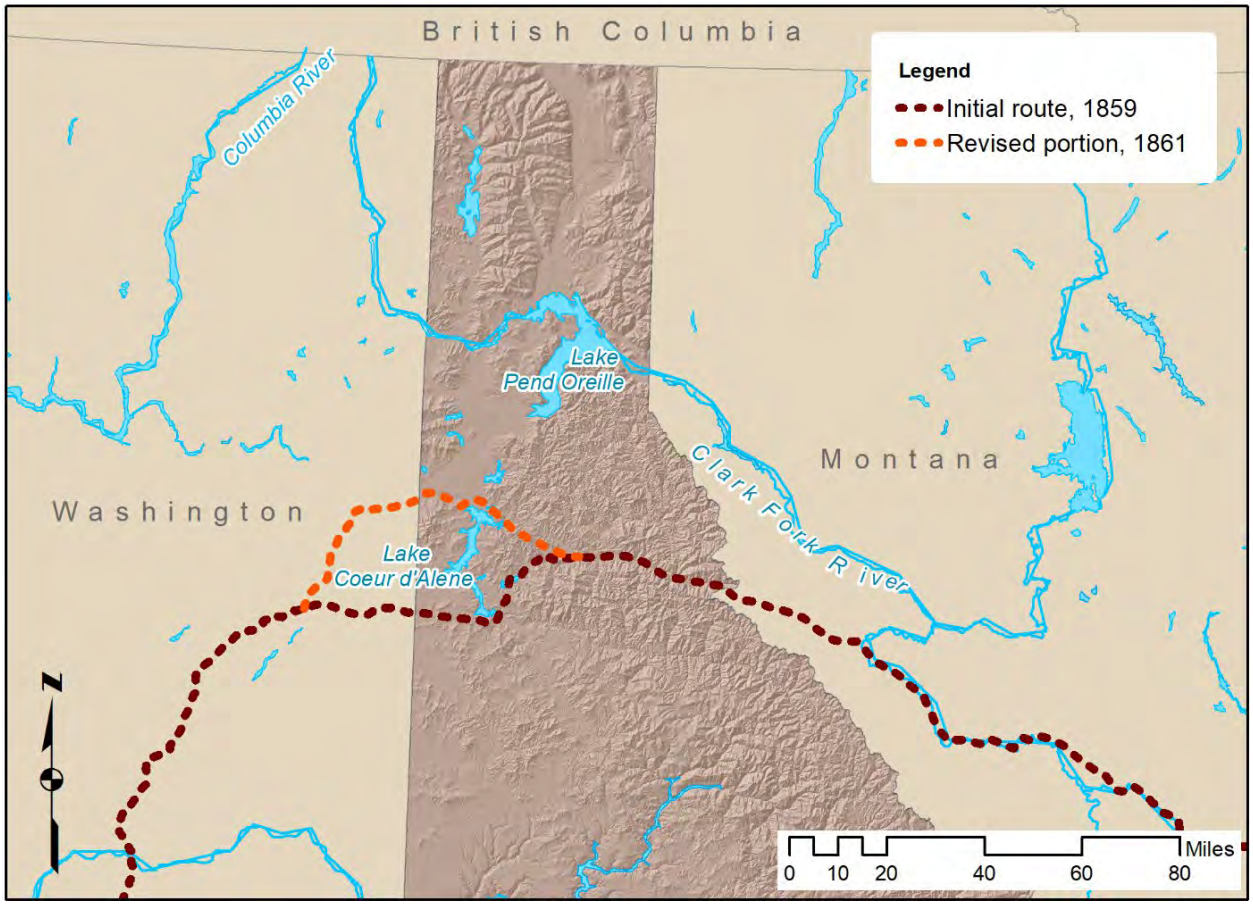


Figure 6. The original route of the Mullan Road and revised alignment north of Lake Coeur d'Alene.

Although the 624-mile route cost the War Department $230,000, the Mullan Road never served as a military road. Federal funding was insufficient to improve the road to the necessary standard, and lack of maintenance reduced some portions to a pack trail within a few years. The heavily wooded sections through Idaho had numerous river crossings and passed through a sparsely inhabited area, making upkeep expensive and difficult to justify. Hoping to promote his route for civilian use, Mullan prepared a detailed travel guide in 1865 in which he noted that all previous emigration "has taken either the route across the continent, via the South Pass, involving 2,000 miles of land travel [Oregon or California Trails], or via the Isthmus of Panama, involving 6,000 miles of sea travel; both fraught with heavy expense, danger and discomfort." Mullan pointed out that in comparison, his own route required nothing more uncomfortable than steamboat travel on the Columbia and Missouri Rivers, and a mere 624 miles of overland travel.[58] Although packers and a small number of emigrant wagons used the Mullan Road in the early years, the portion in Idaho saw only limited use during mining rushes or for livestock drives to the Columbia River. Portions of the Mullan Road were more heavily used in other states, particularly the portion from Missoula to Fort Benton in Montana.[59]

As settlement in Idaho began to increase in the territorial period (see Section 3.B), the Mullan Road fell into disrepair and residents of Lewiston began to petition for Congress to upgrade the old Lolo Trail into a wagon road instead.[60] The Lewiston–Virginia City Wagon Road, as requested, was to run from Lewiston over the Bitterroots and intersect the Mullan Road near Missoula, shortening the journey from Walla Walla to Virginia City by 160 miles.[61] At the time the only stagecoach or wagon routes across Idaho ran from Walla Walla to Salt Lake City or Virginia City via Fort Boise and Fort Hall. A survey team led by Wellington Bird examined two potential routes, both of which followed earlier Native American trails: a northerly route along the Lolo Trail and a southerly route along the Nez Perce Trail (see Figure 7). Idaho's territorial legislature favored the Lolo Trail route across the Bitterroots, and under Bird's deputy Major Truax, portions of the route were improved in 1866.[62] The federal government ultimately discontinued funding, however, and northern Idaho remained without another east-west wagon route.[63]

B. Idaho's territorial period (1863-1889)

(1) Gold rush, population growth, and transportation

The fur trade had declined by the mid-1850s, but within a few years a new source of wealth brought thousands of people to Idaho. Euro-Americans first discovered gold in 1860 while prospecting illegally on the Nez Perce Reservation. The find sparked the first gold rush along the Clearwater River and spurred the establishment of boom towns and mining camps at Pierce, Orofino, Elk City, Florence, and Warren as new deposits were discovered further south. Most would-be miners in the region were Oregon and Washington residents who traveled east to Lewiston by steamboat, then followed pack trails overland to the gold fields.[64] In addition to the Lolo Trail, the Nez Perce Trail continued to serve miners, and the portion between Elk City and Harpster became known as the Elk City Trail. New north-south trails were also built, including the Milner Trail, a pack trail from Mount Idaho to the mines at Florence cut by prospector Moses Milner in 1862.[65]

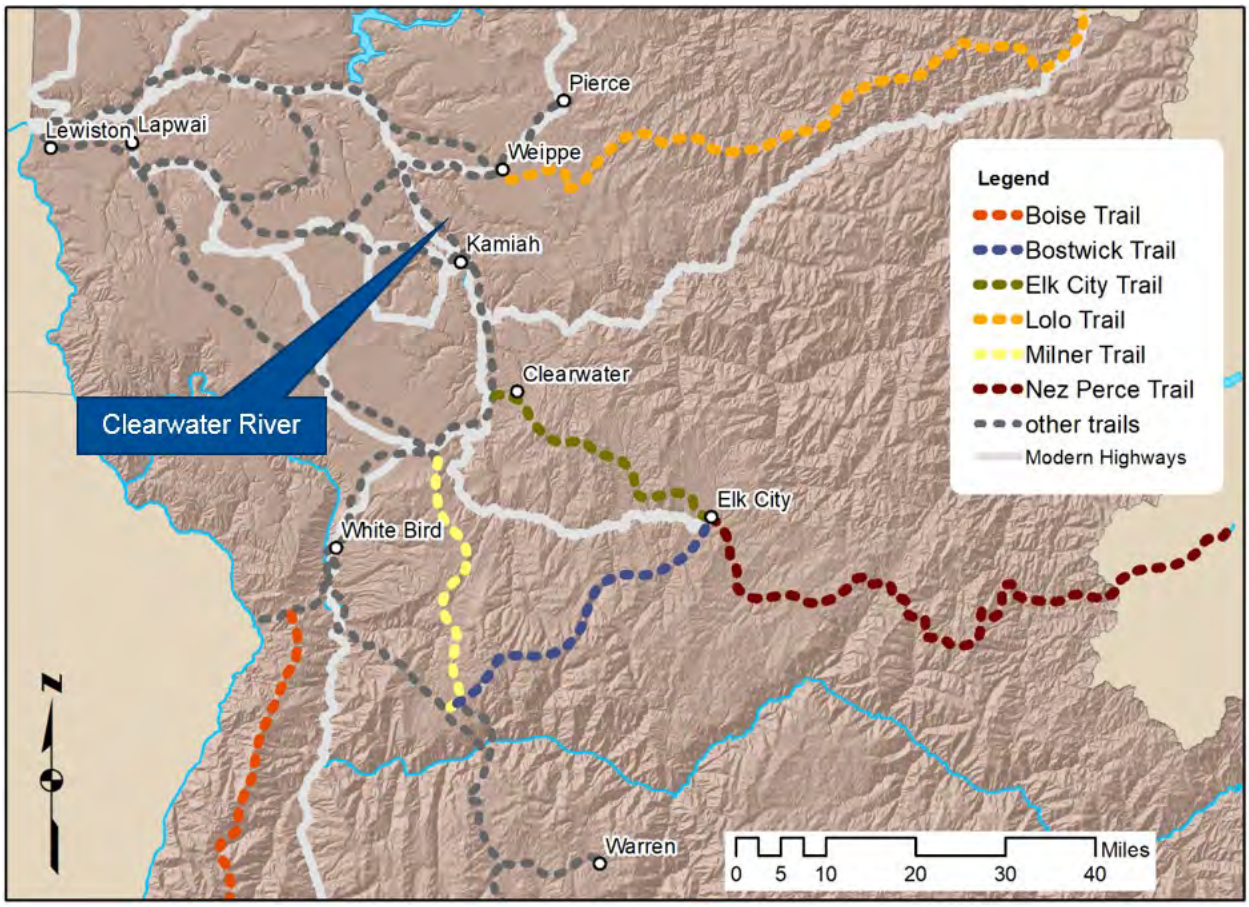


Figure 7. Map showing important early miner trails, 1860-1867.[66]

As prospectors found richer gold deposits along the Salmon River and further south in the Boise Basin, many communities were abandoned. In total, Idaho's initial gold rush spanned less than a decade, but it laid the groundwork for the ongoing mineral extraction industry, and the rapid influx of people and goods created an increased demand for transportation routes. By the time Congress established Idaho as a territory separate from Washington in 1863, more than 32,000 people resided in the territory, but the first railroads would not cross Idaho for another two decades.[67] The panhandle continued to rely on wagons and pack trains to move goods and people brought as far as Lewiston by steamboats. In most mining communities in northern Idaho, stagecoach service was unavailable until the 1890s.[68] Steamboats plied Lake Coeur d'Alene and the Coeur d'Alene River, and linked Bonners Ferry to Nelson, British Columbia, on the Kootenai River. Steamboats remained viable in these areas into the 1920s, when railroad and highway connections finally improved.[69] The less-mountainous southern portion of the territory depended on stagecoaches and wagons to transport goods beyond the rail termini in Utah and Nevada.[70] In the absence of large-scale governmental efforts to provide or improve transportation facilities, steamboats and ferries, stagecoach routes, and toll roads (discussed below) all remained firmly in the domain of the entrepreneur.

In many cases, early toll roads provided the first vehicular roads into mining regions. Julius Newberg's road from Little Camas Prairie to Rocky Bar, for example, opened in September 1864 and was the first wagon road to the area, enabling supplies and heavy equipment to reach the mines.[71] Soon after, E.P. Rice planned a toll road between Little Camas Prairie and the main emigrant road (Oregon Trail) near the stagecoach station at Canyon Creek (near present-day Mountain Home). Opened for travel in 1868, the road cost $1.50 for a two-horse wagon to travel one way; portions of current US-20 follow this route today.[72] In some cases, roads constructed with federal funds were turned over to private franchises to operate and maintain. The Boise-Idaho City toll road replaced an earlier army road from Fort Boise through McRay's Gap to the Boise Basin at Idaho City in 1863 and was authorized as a toll road in 1865 and 1866 (see Figure 8). Using the lucrative revenue (over $6,000 in the first year), the franchise holders gradually improved the route to what the *Idaho Statesman* called "as good a mountain road as can be found on the coast, with the exception of one or two very narrow and steep places." Nevertheless, the 36-mile route was the only way to transport passengers, mail, food, and other freight in or out of the Boise Basin and required substantial improvement over the decades that followed.[73]

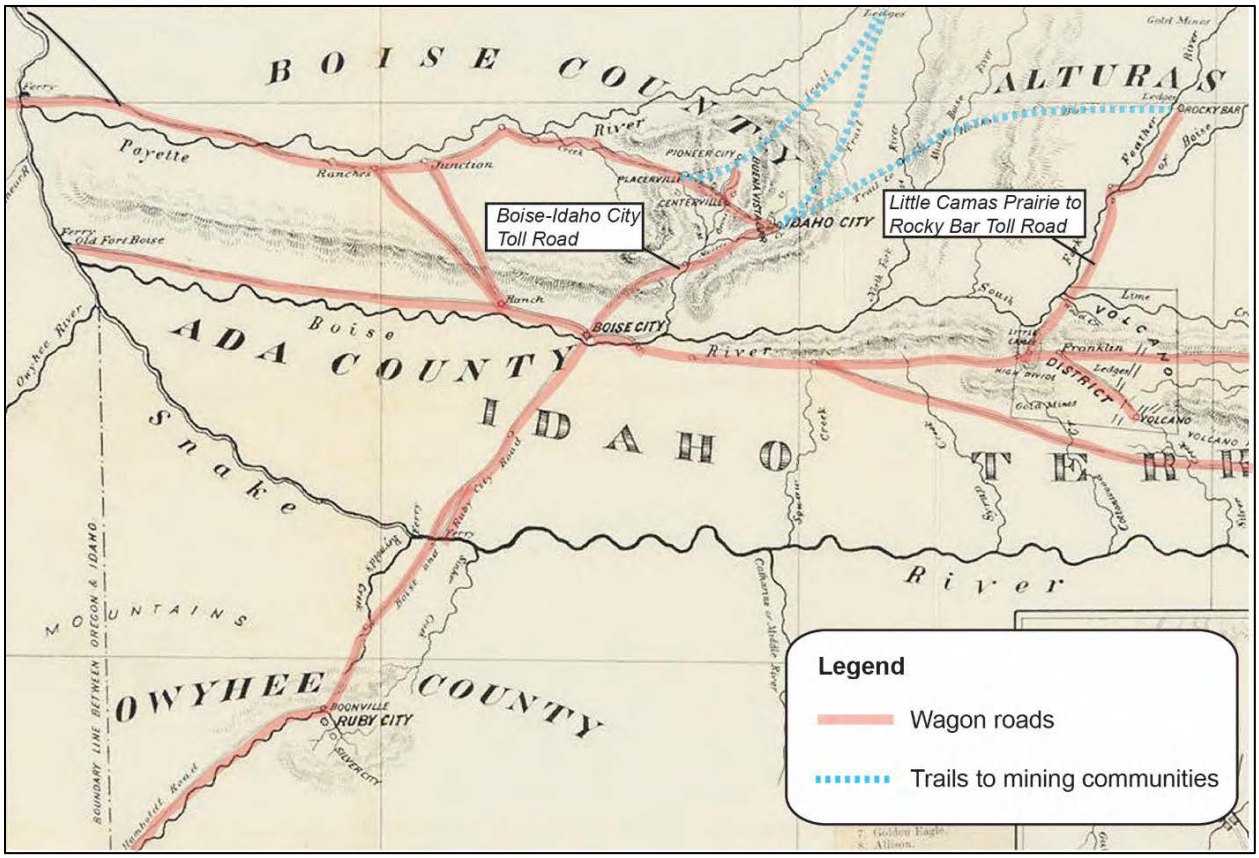


Figure 8. Map from 1865 showing wagon roads and trails in the Boise vicinity, including early toll roads.[74]

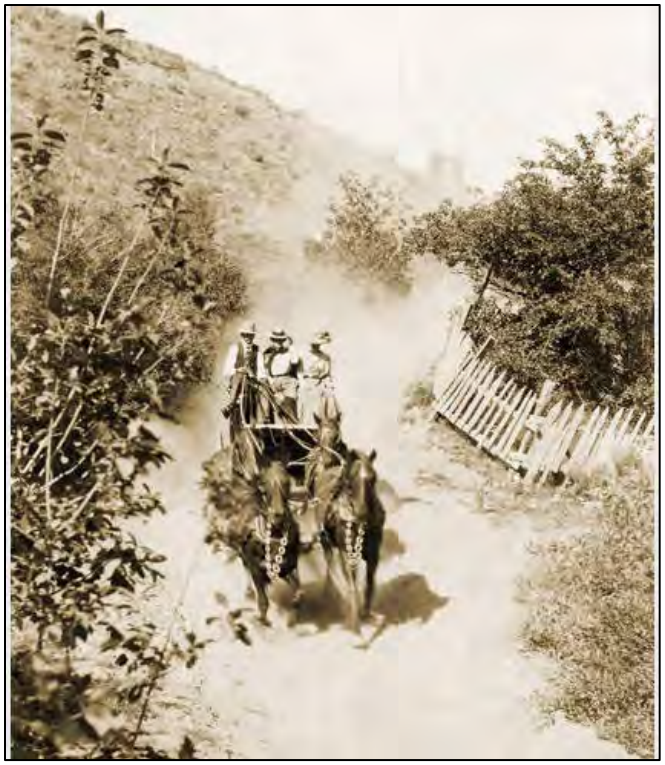


Figure 9. Stagecoach on toll road to Idaho City, 1904.[75]

Although the early territorial period saw the beginnings of governmental oversight of roads, efforts to fund transportation needs were limited and it would be several decades before a cohesive program of funding and administration developed. Early territorial legislation did address roads, but while the 1863 Council Bill No. 7 established provisions for public roads, including construction and maintenance, it did not provide funding sufficient to build roads or support administrators or engineers. The territorial government continued to grant toll road franchises as well, and most main roads, ferries, and bridges were privately owned.[76] Special legislation did confer authority for roads on some counties, generally related to specific projects.[77] Boise and Idaho Counties were permitted to let road maintenance contracts, and Idaho County was authorized to build a wagon road along the Salmon River from White Bird to Slate Creek.[78] The territorial legislature had authorized the old Milner Trail as a toll trail in 1864, but the portion within Idaho County was made a county trail in 1872.[79] Although the latter example indicates that the concept of the county road or trail existed in the 1870s, it was not until 1881 that comprehensive legislation established that "any road, highway, street or thoroughfare used as such prior to January 12, 1875 should be considered a county road." The Act contained provisions for marking roads, establishing right-of-way width, and assessed an annual requirement of two days' work on county roads for each male resident between the ages of 21 and 50.[80] Subsequent legislation in 1883 and 1885 expanded counties' authority to construct roads and bridges and permitted the Boards of County Commissioners to direct County Surveyors to lay out new roads.[81] While these efforts did not fully meet the transportation needs of the territory's residents, they represent the first steps towards the realization that a developing territory needed a system of public roads.

SECTION 4.
THE PROGRESSIVE ERA (1890-1913)

A. National trends

(1) Federal involvement in road building

In the nineteenth century, roads were generally recognized as a responsibility of state and local governments and most routes provided local or regional connectivity.[82] Private companies constructed toll roads, or turnpikes, in certain locations to support increased settlement or agricultural production.[83] The few long-distance roads were those that had developed along early established overland trails and traces used by Native Americans or as migratory routes for buffalo. With its construction of the National Road beginning in 1811, the federal government ventured into road building at a broader scale in an effort to unify the country and bolster western migration.[84]

The National Road, also called the Cumberland Road, began in Cumberland, Maryland, with the original goal to connect the Potomac and Ohio Rivers. Beginning in 1818, it was extended into Indiana and completed in 1838. Congress provided the funding for clearing the route of trees, grading and surfacing the road with stone and gravel, and erecting culverts and bridges of stone. After its completion, the federal government turned the road over to the states, which in turn gave control of sections of the road to counties and private toll companies.[85] The National Road was heavily used in the years immediately following its construction. With the construction of railroads, its popularity waned.[86] By 1840 enthusiasm for railroads had resulted in reduced focus on road building. With the exception of western military routes, federal government involvement in road building effectively ceased for more than 50 years.[87]

Federal support for road building was reignited in 1893 with the formation of the Office of Road Inquiry (ORI) within the United States Department of Agriculture (USDA). The office initially focused on rural farm-to-market roads, believing that railroads would continue in their role as the primary means of interstate transportation. ORI engineers supported the Good Roads Movement (see Section 4.A.(2)) and served as a source of technical information regarding roads. The ORI was involved in data collection and produced bulletins and circulars addressing road construction and issues related to the administration of roads.[88] With the development of the automobile at the turn of the century, demand for better roads continued to

increase. Despite their own engineers' understanding of the need for improved roads for automobile use, however, federal administrators did not embrace the concept of an automobile (and truck)-dominated transportation system involving major, paved, interstate highways until the first World War.[89]

(2) Good Roads Movement

A nationwide movement to promote improved travel by road began with bicyclists in the 1880s and 1890s and gained momentum with the development of the automobile at the start of the twentieth century. The League of American Wheelmen, a group of bicycle riders formed in 1880, was the first organized protagonist for better roads. The group organized and founded the National League for Good Roads at an 1892 conference of the National Grange of the Patrons of Husbandry. The push for improved roads was furthered by the federal government's establishment of Rural Free Delivery mail service in 1896, which required a road serving as a mail route, known as a post road, to be passable in all weather. Increased auto ownership also led to a desire for improved roads for vehicular use. The growing and widespread interest in promoting improved roads, first by cyclists and then by auto enthusiasts, became known as the Good Roads Movement.[90]

Rapidly expanding automobile ownership and use spurred efforts to enlarge and improve the country's highway system. In 1904, there were over 55,000 vehicles in use across the U.S. Large-scale car manufacturing began in 1908 in Detroit, when Henry Ford introduced the low-priced, mass-produced, Model T, a car the average person could afford.[91] Thanks to Ford's production methods and inexpensive Model T, the number of autos on American roads skyrocketed to one-half million by 1910.[92]

As touring became popular, drivers had to contend with frequently muddy and impassable roads. The vehicles damaged the gravel and macadam (a type of layered stone and gravel paving) surfaces of rural roads. Farmers and recreational drivers called for rural road improvement. Nationwide, farmers, bicyclists and automobile owners, local commercial clubs, business associations, automobile clubs, and merchants worked jointly to contribute labor and funds to bring new national roads through their towns and improve their local roads. The Good Roads Movement gathered strength and spawned the formation of other organizations, such as the American Automobile Association, which became a strong advocate for federal involvement in road improvement. Despite these efforts, in 1904 less than 10 percent of the country's over two million miles of road were improved in any way.[93]

The development of cross-country memorial highways, of which the Lincoln Highway was the most prominent example, was "the best indication" of support for good roads nationally in the mid-1910s, observed Bruce Seely in *Building the American Highway System*. Beyond simply interest and support, however, the "real proof of change came with the introduction of sixty road bills in Congress" in a 6-month period in 1911 and 1912. *Engineering News* reported "widespread demand" for congressional action. As automobile registrations climbed, motorists continued lobbying heavily for programs and funds to improve roads, but the first large-scale federal legislation to address the issue did not occur until 1916 (see Section 5).[94]

B. Policy, funding, and administration

Idaho's admission to the Union as the 43rd state in 1890 generally coincided with the nationwide end of the United States' frontier period. Nevertheless, Idaho's economic growth was only beginning, and the decades

that followed saw tremendous expansion of agriculture and industry.[95] In 1890, transcontinental railroad lines served the more populous areas of the state (see Figure 10) but Idaho still lacked a cohesive road system. Mines, ranches, and farms were linked by an assortment of wagon roads and pack trails, few of which would be adequate for vehicular traffic in the automobile era, and many of the heavily used wagon routes were privately owned toll roads. Although pack trails supplemented these wagon routes, particularly in mountainous areas, historic maps clearly show that the northern and southern transportation networks were largely independent of one another and oriented toward neighboring states.

The existing wagon roads were, in many cases, continuations of earlier travel corridors. The old emigrant trails through the Snake River Plain continued to serve as east-west routes in the southern part of the state, including the Oregon Trail corridor (also paralleled by the Union Pacific railroad) and the Goodale Cutoff across the northern edge of the Snake River Plain. Other roads branched off to make connections with communities in the southern portions of the Sawtooth and Bitterroot mountain ranges, as well as with nearby areas in northern Nevada and Utah, southwestern Montana, and Wyoming. The road network radiating out from Boise also extended north to Weiser and connected to points in Oregon. Substantially fewer wagon roads were found in the panhandle; these generally linked the mining regions on the west slopes of the Bitterroots with eastern Washington and the Spokane area. The Mullan Road corridor was the main east-west wagon route, and the Great Northern provided a rail link between Montana and Washington via Lake Pend d'Oreille to the north. Over the course of the 1890s railroad construction in the panhandle continued, and by 1899 communities from Coeur d'Alene to Lewiston were connected to a substantial rail network emanating from Spokane.[96]

Over the course of the 23-year period between Idaho's statehood and the establishment of the State Highway System in 1913 (see Section 5), state-sponsored roadbuilding efforts were organized on a project-by-project basis and typically involved the creation of a specific commission to oversee each project. Fifteen commissions were created during this period, nine of which involved bridge construction, and most publicly financed roadbuilding was done at the county or local level.[97]

The earliest state-level roadbuilding efforts focused on creation of a link between the two halves of the state, as well as creating additional routes through the central portion of the state (see Figure 11). Prior to statehood, Territorial legislation had authorized construction of a wagon road from Little Salmon Meadows north to Mount Idaho. In the new state legislature's first session, several additional acts addressed the need for roads and authorized surveys for wagon routes to the north and south that would connect with existing roads. The original wagon road was to be extended south from Little Salmon Meadows through Washington County and into the Boise Valley, and the concept was expanded to include the following general routes:

> From Banner *[north of Idaho City]* in Boise County extending northward, by way of Deadwood, Bear Valley, Alton and Warrens, to Warm Springs *[near modern Burgdorf]* in Idaho County, with a branch thereof from … the vicinity of Deadwood, in Boise County…to the head of the North Fork of the Salmon River at the line between Idaho and Montana, by way of the mouth of the Yankee Fork and Salmon River,…also at Clearwater, in Idaho County and extending northward to the forks of the St. Mary's in Kootenai County, with a branch extending also from Clearwater to Elk City in Idaho County.[98]

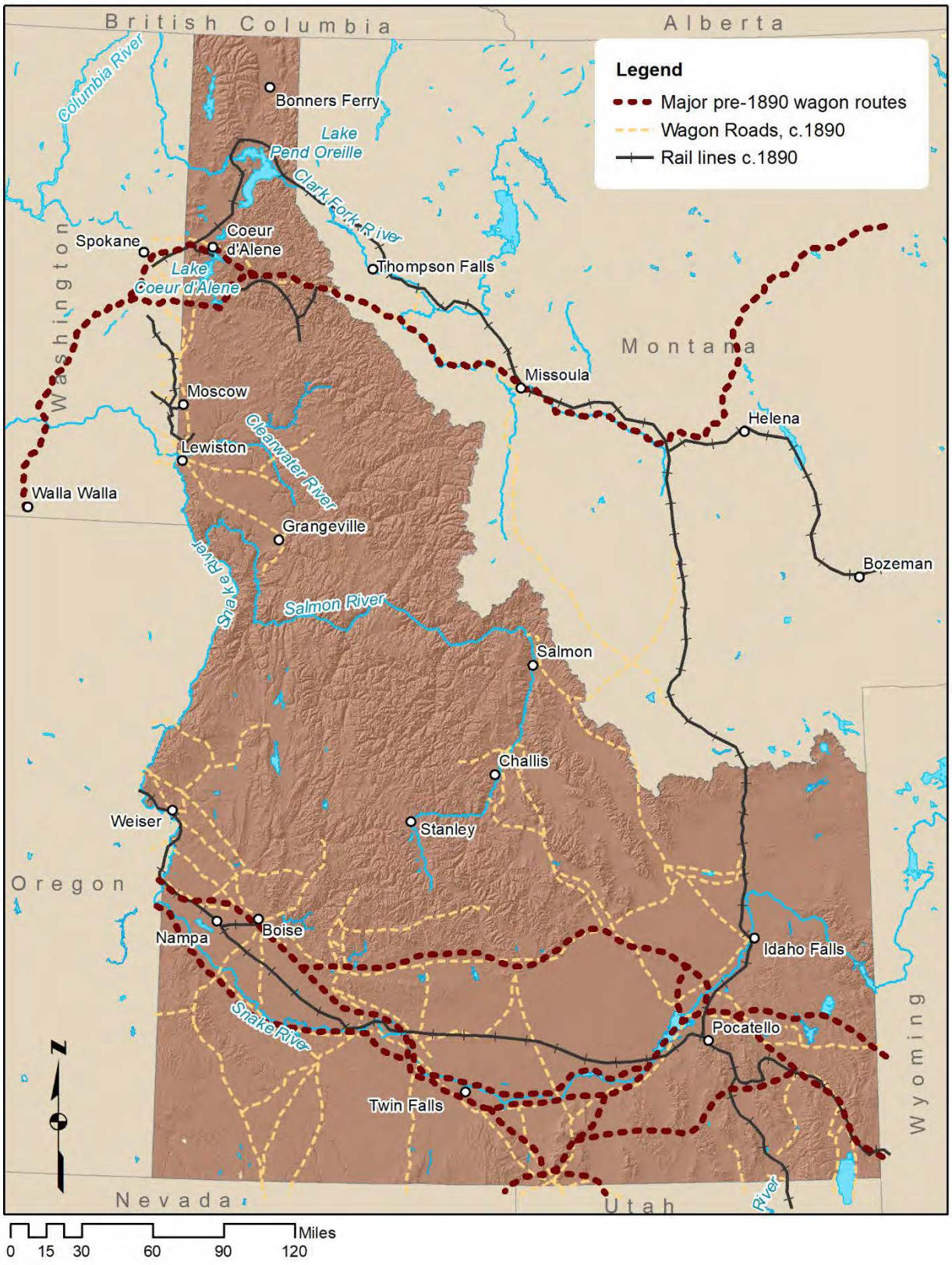


Figure 10. Wagon roads and rail lines c.1890.[99]

The second legislative session in 1893 established a more formal system of roads within this central portion of Idaho and authorized $135,000 in state road bonds to finance their construction (to be supplemented by contributions from the affected counties). The system was largely the same, albeit presented in greater detail. Specific to Boise, Custer, Lemhi, Idaho, Shoshone, Kootenai, Latah, and Nez Perce Counties, the system of state wagon roads included a main route "commencing at Banner and running thence by way of Bear Vallley…to the head of the north fork of the Salmon River" at the Idaho/Montana state line. The Little Salmon-Mount Idaho route was described specifically, beginning at the head of the falls of the Little Salmon River at the Washington/Idaho County line, down the Little Salmon to the main Salmon River, then downstream to link with an existing wagon road four miles north of White Bird Creek mouth. The route continued on the existing road to Mount Idaho with a separate branch from Clearwater to Elk City, while the main road was to extend northward via the mouth of the St. Mary's River and on to Wallace.[100]

The 1893 act also created a new administrative body to oversee the planning and construction of the state roads and required the boards of the county commissioners in each of the eight counties to appoint a resident citizen to a new road commission. The first of more than a dozen such groups assembled to supervise individual projects, the commission was responsible for hiring surveyors and establishing the definite location of the roads to be constructed, and the act specified the segments in which contracts were to be let, as well as the funds allotted for each segment.[101]

Although Governor W.J. McConnell signed the bill, he expressed reservations. McConnell recognized that the branches along the Salmon River, Clearwater to Elk City, and the branch through Boise County and eastward were important, but doubted whether the rest of the system was practical, such as the segment north of Clearwater.[102] Contracts were awarded for the 10 segments that comprised the proposed system late in 1893, but the project did not come to fruition as hoped. Funding issues and difficult terrain stalled construction, and the last portion along the Little Salmon River alignment was eventually completed as a privately built trail.[103] Elsewhere, inspectors sent by the commission found that road segments were not constructed to the required standards; portions did not follow the surveyed alignment, and contractors had failed to adequately grub, drain, and corduroy some areas. Upon completion, the roads were to be maintained by the counties, but this did not occur in a uniform fashion and portions soon deteriorated.[104]

Nearly 15 years after achieving statehood Idaho's population had more than doubled, but the process for funding and improving public roads was largely unchanged. A similar commission was established by a 1905 legislative act creating the Idaho Intermountain Wagon Road Commission, which was charged with constructing a system of wagon roads and trails to aid in developing the mining areas in central Idaho.[105] Bids were soon solicited for several road segments in the Wallace vicinity (now located on the I-90 corridor) to connect mines.[106] Like the previous state wagon road act, construction was to be financed by a $50,000 bond issue.[107] Roads built under the provisions of the act were to be maintained by the counties in which they were located and no appropriation was made to fund the projects.[108] By this time Idaho was one of more than 20 other states that had some type of roads commission or state aid program, but was one of the few in which the state did not provide any money, labor, or materials.[109]

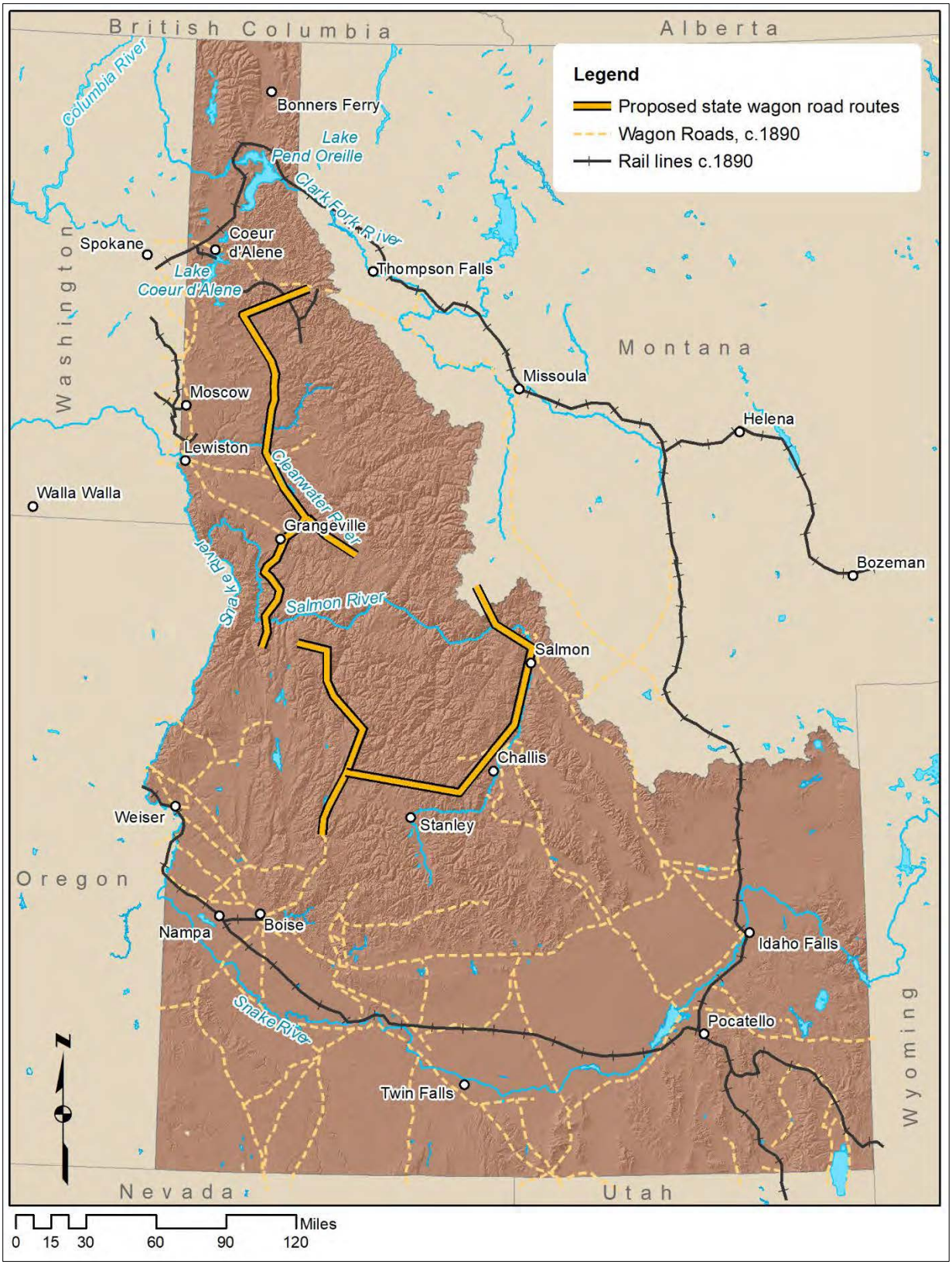


Figure 11. Idaho's roads and railroads in 1890 showing proposed general route of state wagon road system of 1893.

Lawmakers evidently viewed road building as a largely local responsibility, and with the rise of the Good Roads Movement the legislature created another avenue for groups of concerned citizens to take matters into their own hands. Although interest had grown in the early years of the twentieth century, Idaho still had no statewide Good Roads Association in 1904.[110] The movement in Idaho began in earnest in March 1905, when the legislature passed a law enabling the establishment of Good Roads districts.[111] According to the law, any portion of a county with at least 25 taxpaying residents was empowered to organize a Good Roads district, which could issue bonds to fund road construction and oversee projects, under the auspices of a three-person commission. The language of the act specifies that the focus of the Good Roads districts is on rural, county-level connectivity. Districts could not include any portion of a road that lay within an incorporated community, nor could a district encompass areas in more than one county.[112] Good Roads districts had already begun to form by the fall of 1905, but like prior commissions this approach did not lend itself to the development of a cohesive, statewide network of public roads, nor did the enabling legislation provide any mechanism to finance maintenance of roads once constructed.[113]

The lack of maintenance on earlier state-funded road projects appears to have motivated the creation of Idaho's first State Highway Commission in 1907, comprised of the Governor, State Engineer, and State Mining Inspector. Intended to safeguard the state's prior investments, its powers were largely punitive, either compelling counties to maintain roads, or granting private toll franchises if the counties did or could not maintain them.[114] Nevertheless, this early "commission" does not appear to have actually functioned or expended any funds from its appropriation.[115]

The 1909 Highway District Act was the first piece of legislation to establish agencies resembling modern-day county highway departments with the power to purchase, construct, and maintain public highways.[116] Under the direction of a three-person commission, districts could develop a plan for a county-wide system to be approved by the electorate and overseen by a skilled professional engineer. Additionally, subsequent legistion in 1911 allowed Good Roads districts to reorganize as highway districts.[117] These laws reflect the demand for better roads and presaged the establishment of the first effective state highway commission several years later. The early county and local commissions persisted long after the creation of the State Highway System; at least two Good Roads districts, 62 highway districts, and 34 county highway systems were still in existence as late as 1975, and county highway districts continue to cooperate with ITD today.[118] Biennial reports from the 1910s through the 1930s indicate that these agencies sometimes cooperated with the state highway department during this period as well. (A note on state highway nomenclature: Idaho's main road agency had multiple names over time and each of the agency names and years of use are outlined chronologically in this context; however, to provide consistency, Idaho's main road agency is generally referred to as "the highway department" throughout this document. When other states' highway departments or other Idaho state agencies are described, their full name is used.)

Figure 12. Bear Valley Wagon Road (north of Idaho City), c.1912.[119]

C. Construction and engineering

Road engineering practices in Idaho in the late nineteenth and early twentieth centuries reflect the desire (if not the ability) to transition away from "pioneer" construction toward a more professionalized approach. The text of various acts begins to include references to "qualified" engineers, and while construction standards were not codified, the 1893 act did contain minimal direction regarding engineering; along with various funding and administrative provisions, it noted that grades should be limited to 10 percent. Overall, most roads were cleared, graded, and earth surfaced during the period from 1890 to 1912, and while Good Roads boosters nationwide championed the sort of roads that would not turn to mud, the reality in Idaho looked rather different. In 1904, Idaho had 18,163 miles of public roads, but barely 200 miles in the entire state had been improved to a surface such as gravel or crushed stone.[120] By the end of 1909, the situation had changed only slightly; USDA figures showed that of 18,403 miles of public roads, only 510 were "improved."[121] In his 1911-1912 biennial report, the State Engineer stressed the lack of suffficient drainage of many roads, along with the need to construct roadways with proper cross-sections, lower grades, less curvature, and turnouts on mountain roads to allow passing.[122]

One notable project in 1912 proved an exception to the rule, when the Idaho legislature passed a law establishing a three-person commission and providing a $20,000 appropriation to improve a segment of road in Bingham County. The Ross Fork-Gibson road was a portion of the heavily travelled main highway between Pocatello and Blackfoot. This five-mile segment passed over drifting sands and was frequently impassable for automobiles, despite being the main route between Pocatello and points northeast, including Yellowstone National Park. In order to improve this segment, the legislature determined that the funds should be used to create the first hard-surfaced (macadamized) road in the entire state.[123] The initial

appropriation soon proved insufficient, and as construction on the first half proceeded, local Good Roads enthusiasts and automobile clubs managed to raise an additional $15,000 to complete the project.

The commission based the roadway design on the Illinois Highway Commission's standard practices for waterbound macadam pavement (see Figure 13) consisting of:

> …two 4-inch layers of crushed rock upon a 12-foot strip lying in the center of a 40-foot road. The shoulders are each four feet wide, thus leaving ample ditches alongside. Side drains from the macadam strip to the ditch are provided every 50 feet. The transverse slope of the macadam and shoulders is three-fourths of an inch to one foot.

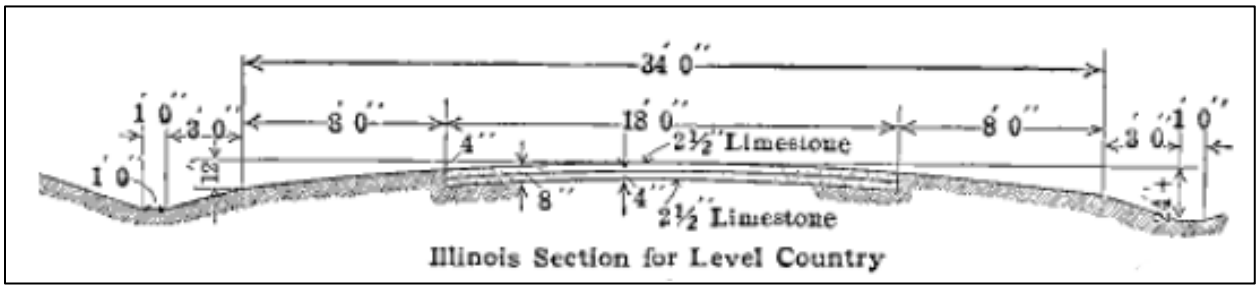


Figure 13. Typical waterbound macadam roadway in Illinois.[124]

In order to save funds, the commission eventually decided to reduce the crushed rock to two 3-inch layers and limit the width to a 30-foot roadbed. The pavement method used water rather than asphalt as a binder, and the crushed rock was rolled repeatedly with a 10-ton roller and finer aggregate brushed into the gaps to fill any voids, creating a firm, smooth riding surface.

The project had both a practical and a symbolic value. According to the state engineer:

> The construction of this piece of road has resulted beneficially in other ways than the mere improvement of a difficult stretch of highway. It has done a great deal towards awakening the interest of the residents of the southeastern part of the state in road improvement and has demonstrated by concrete example the many advantages of having modern, improved roads.[125]

SECTION 5.
DAWN OF THE STATE HIGHWAY SYSTEM (1913-1929)

A. National trends

At the national level, the period between 1913 and 1929 encompassed several major shifts in transportation and technology. Automobile use became widespread, and the federal government responded by introducing key pieces of legislation to assist in the development of state highway systems nationwide. World War I reduced funds and manpower for construction, but in the aftermath automobile registrations increased nationally, keeping pace with both the federal government's new investment in road building and states' growing expenditure on roads. Travelers sought to go longer distances and at increased speeds, and highways began to replace railroads for transportation of people and goods.

(1) Federal aid

Public demands for action were first answered in the Federal Aid Road Act of 1916. With this legislation Congress outlined the first formal highway policy with regular appropriations of funds to the states. Approximately $5 million was appropriated the first year, with funding escalating $5 million annually over 5 years to reach a combined total of $75 million. The Secretary of Agriculture managed the funding and allocated it to states by a formula based on a state's population, land area, and road mileage. Under this act the federal government would finance up to 50 percent of the cost of construction, not to exceed $10,000 per mile.[126]

This new source of funding came with a mandate that states create state highway agencies as well. Most states had already formed such agencies by this time, but the requirements of the act were the first step toward the modern-day concept of a state highway agency. In order to obtain federal funds, each state's highway commission had to meet new federal government standards as follows:

- Maintain a state highway department to administer the Federal-Aid Road Act
- Assume responsibility of all roads on which federal funds were spent (this could be delegated to local governments)

- Classify federal-aid eligible mileage based on traffic needs and services rendered
- Agree to uniform standards of construction and design
- Meet inspection requirements before bills were paid
- Match federal funds under mutually acceptable standards

State highway commissions also had responsibility for the preparation of plans and specifications and construction and maintenance on federal-aid projects, while the federal government held the right to inspect all projects.[127] This was the beginning of a state and federal government partnership to provide a better network for transportation by road.

Congress further committed federal funding for highway construction under the Federal Aid Highway Act (FAHA) of 1921. This act provided states financial aid for the construction of highways under the seven-percent system, in which each state was eligible for assistance for the construction of seven percent of its highways. Within two years each state was required to designate three percent of its primary roads and four percent of its secondary roads as part of the federal-aid highway system; as a result, these roads would be eligible for assistance. Federal funding was to be matched by state funds on a 50/50 basis. The 1921 act also designated previously established post roads as important interstate throughways to be developed into an integrated national road system, although the U.S. Highway System was not designated until 1926 (see below). The federal government set standards for road design including minimum width, grade, and adequacy of roadbed type for the traffic load.[128]

(2) Interstate travel and tourism

With the rise in automobile ownership came an increase in automobile tourism. In the early years of automobile tourism, drivers did not have the luxury of a unified system of clearly marked highways. In addition to Good Roads organizations concerned with road improvement, dozens of private associations, such as the American Automobile Association (AAA), formed to promote particular routes for cross-country and regional tourist travel. These associations designated their routes with grand-sounding names and marked them with distinctive, colorful signage. Some groups published their own magazines with descriptions of the various tourist opportunities along the way. Named auto trails were usually comprised of segments of existing roads, which could range from paved thoroughfares to rough section-line roads. National and regional auto trail associations sought improvements to these roads, partnering with local boosters in the communities along the route.

Many of the most important transcontinental and regional named routes were subsequently included in the U.S. Highway System. Intended to create a unified interstate network, this federally designated network utilized a single numbering system that used odd numbers for north-south routes and even numbers for east-west routes. Established in 1926, this nationwide system of highways, generally designated along existing roads, was selected by the American Association of State Highway Officials (AASHO, later the American Association of State Highway and Transportation Officials, or AASHTO), an organization that developed and promoted nationwide standards for highway construction, and was approved by the federal Bureau of Public Roads (BPR) in 1926.

B. Policy, funding, and administration

(1) The first highway commission

Idaho's State Highway System was first established in 1913 with the enactment of a law creating a State Highway Commission (SHC) with the authority to designate and maintain a statewide highway system. In the 22-year period between statehood and the establishment of the State Highway System, the Idaho government expended approximately half a million dollars on roads and bridges. Without an agency responsible for ongoing maintenance or oversight, these early transportation facilities often fell into disrepair.[129] Idaho's SHC was formed in 1913, three years prior to the federal requirement to obtain funds as outlined in the Federal Aid Road Act of 1916. The five-person commission included a chairman and four commissioners, including the secretary of state, state engineer, and a professor of civil engineering at the University of Idaho.[130] The commission appointed a State Highway Engineer, and by the end of 1914 the staff included 12 engineers grouped into three divisions by county.[131]

The newly formed SHC first set about determining the extent and location of the proposed system of State Highways, prioritizing the most important travel corridors in a group of six main routes (see Table 1 and Figure 15). At the time, Idaho had approximately 8,000 miles of "main traveled roads," and the SHC included approximately 1,300 miles in this initial group of State Highway routes.[132] These were intended to serve as the main arterials connecting markets and population centers. Although the route numbers shifted over the years as new highways were added, expanded, and rerouted, the commission established the practice of assigning named designations, which would remain largely consistent over the two decades that followed.

Table 1. Original State Highway System as designated by the SHC in 1914[133]

Route number	Route name	Approximate corridor (present day)	Approximate length
Route No. 1	Idaho Pacific Highway	• US-89 from Utah to Montpelier • US-30 from Montpelier to Fruitland • US-95 from Fruitland to Sandpoint	800 miles
Route No. 2	North Pacific Highway	• I-90 from Washington to Montana at St. Regis Pass	82 miles
Route No. 3	Idaho-Utah Highway	• US-91 from McCammon to Swan Lake • County Road D1 from Swan Lake to Dayton • ID-36 from Dayton to Preston • US-91 Preston to Utah • Branch line from Downey to Malad followed Old 191 (I-15)	57 miles
Route No. 4	Yellowstone Park Highway	• US-91 from Pocatello to Idaho Falls • US-20 from Idaho Falls to Montana	66 miles
Route No. 5	Idaho-Montana Highway	• Montana at Gibbonsville to Pocatello via Salmon and Idaho Falls (specific route was not determined at the time)	200 miles
Route No. 6	Sawtooth Park Highway	• US-93 from Twin Falls to Shoshone • ID-7 from Shoshone to Hailey	100 miles

Idaho's main road agencies through the years

Idaho's main road agency had multiple names over time, beginning in 1913. Each of the agency names and years of use are as follows:

- State Highway Commission: 1913-1919
- Department of Public Works, Bureau of Highways: 1919-1950
- State Department of Highways: 1950-1974
- Idaho Transportation Department, Division of Highways: 1974-present

Throughout this document, Idaho's road agency is referred to as "the highway department." When other states' highway departments or other Idaho state agencies are described, their full name is used.

Figure 14. State of Idaho Department of Highways logo c.1960.[134]

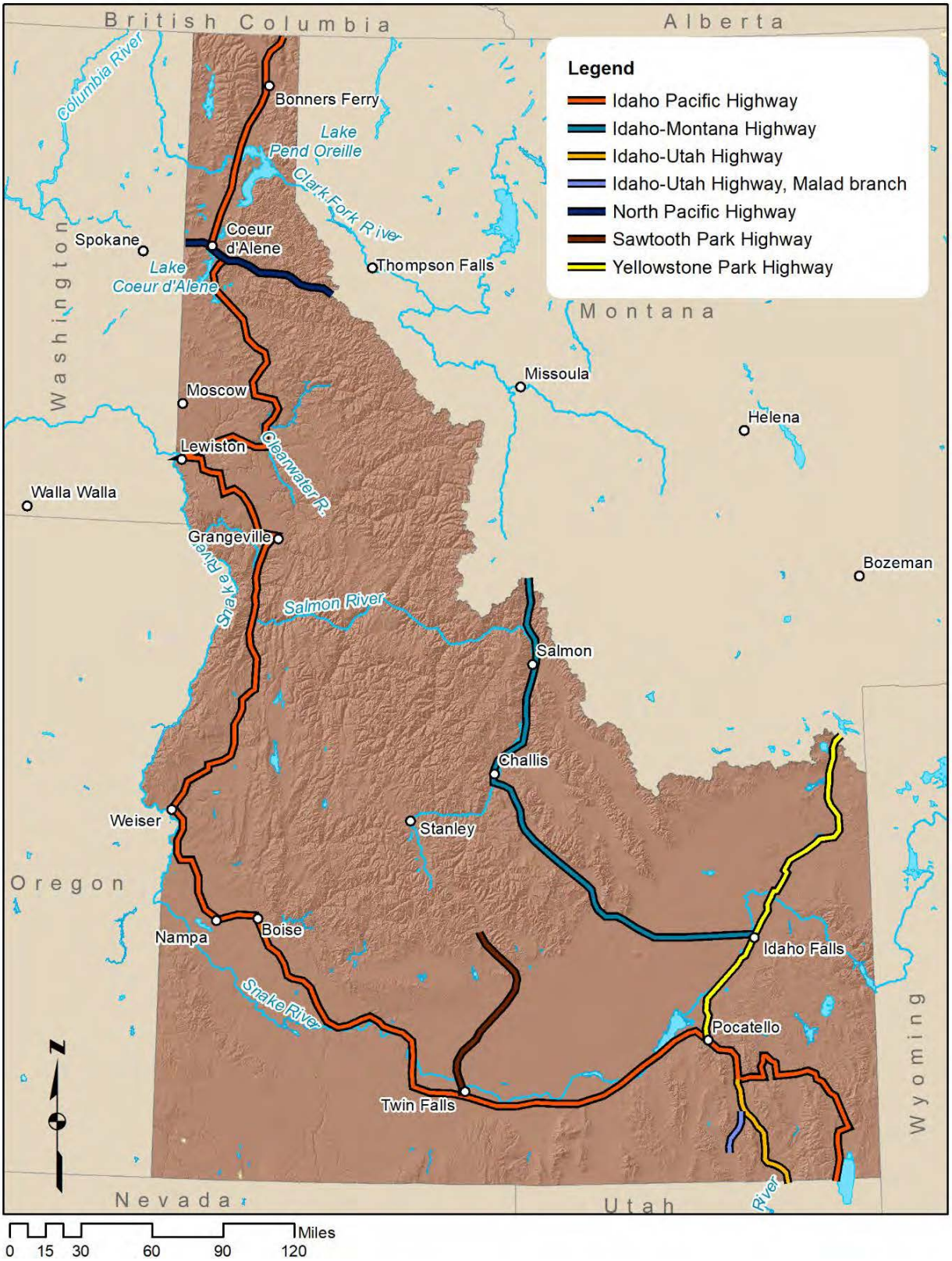


Figure 15. Map of the Idaho State Highway System as designated in 1914.

In the first year of construction on the system, State Highway Engineer E.S. Smith noted that Idaho's most pressing transportation needs were related to the low population density and unequal distribution of people. At the time, Idaho had no railroads linking the northern and southern parts of the state, and this barrier to trade was considerable enough that "nothing could be a greater asset to the people of the State than a first-class north and south highway, in fact, several of them connecting these two empires."[135] The existing main road through Idaho County was extremely difficult to travel (see Figure 16), with some grades over 30 percent and many portions underwater when the adjacent river levels were high.[136]

Figure 16. Image c.1914 showing "the average condition of mountain roads to be reconstructed" on future US-95 in Idaho County.[137]

The SHC sent location parties out in 1913, and by the end of 1914 nearly the entire six-route system was surveyed.[138] While a sizeable amount of mileage needed to be constructed largely from scratch, in some cases existing roads were of sufficient quality that the new highway could be routed along them. One example is the portion of the Idaho Pacific route between Caldwell and Nampa (Nampa-Caldwell Boulevard), which was already surfaced with sand-clay.[139] Another is the 13-mile gravel road built by Kootenai County to link Washington's "Apple Way" State Highway to Coeur d'Alene, which was incorporated into the North Pacific Highway.[140]

Many of the early State Highway routes followed older travel corridors. In some cases these were continuations of Euro-American wagon roads, as with the Idaho Pacific Highway, which followed the old route of the Oregon Trail across southern Idaho and portions of other wagon roads used by miners between Grangeville, Lewiston, and Orofino. Other State Highways used routes developed by Native Americans to cope with geographic constraints; the North Pacific Highway used the St. Regis-Borgia Trail corridor between the St. Regis Pass and the Spokane Valley, while the Yellowstone Park Highway entered Montana via the Targhee Pass, as had the Bannock Trail nearly a century earlier. The Idaho-Montana Highway also

roughly paralleled Jedediah Smith's route from Gibbons Pass south to the Idaho Falls vicinity. In some instances the new highways were literally overlaid on existing roads or trails; the Sawtooth Park highway used an existing ferry across the Snake River at Shoshone Falls, although a bridge was soon planned.[141] In some areas the SHC initially considered routing the Idaho Pacific Highway directly atop the old Oregon Trail route along the Snake River.[142]

In the 1915-1916 biennium, the commission was reduced to three members and the six-route system was expanded to include several additional highways. The highway department extended the Sawtooth Park Highway designation from Hailey to Challis, the portion of the Idaho Pacific route from Weiser to Sandpoint was renamed the North and South Highway, and six new routes were designated for future construction:[143]

- Boise-Arrowrock Highway (Boise to the Arrowrock Dam)
- Lemhi Highway (Gilmore to Salmon)
- Panhandle Highway (Post Falls to Eastport)
- Lewis and Clark Highway (Lolo Pass to Kooskia)
- Idaho Central Highway (Mountain Home to Hailey)
- Idaho-Oregon Highway (Caldwell to the Oregon state line)

The new additions were intended to increase connectivity both within Idaho and with neighboring states and provinces. Each of the routes branched off from main east-west or north-south corridors. The Panhandle Highway provided an international link, connecting with the Queens Highway in Canada, and the Idaho-Oregon Highway was planned to provide connection with an Oregon State Highway that, in turn, would link to a Nevada highway to Winnemucca.[144]

The construction of the North-South Highway remained a vital concern for the highway department. Although railroads traversed many portions of Idaho by the early twentieth century, none had ever been built in this north-south corridor, and the opening of a highway through this area would create an important new connection within the state.[145] Without a highway connection between Weiser and Lewiston, drivers were forced to travel via Washington and Oregon, and the commission hoped an Idaho link between these points would increase tourism as well. By the end of the 1915-1916 biennium, work was underway on several portions of the route, including segments between Midvale and Cambridge and at White Bird, as well as the Uniontown grade at Lewiston (later known as Lewiston Hill; see Section 5.D).[146]

With the passage of the 1916 Rural Post Roads Act, federal-aid funding was available for highways in two general categories: post roads (roads used for rural mail delivery) and roads within or adjacent to a national forest (see sidebar titled "Forest Highways").[147] With limited funds available, the commission prioritized the Idaho Pacific Highway as the main route through the state, recognizing that it carried a large amount of local traffic as well as most of the transcontinental traffic across the southern half of the state. The Yellowstone Park Highway was the second priority for similar reasons; it traversed one of the most densely populated parts of Idaho and was an important tourist route.[148] Without sufficient funds, however, the highway department was only able to grade slightly more than one-third of each route by the end of the biennium.[149] In the northern part of the state, the North Pacific Highway served as the main through route

and carried both tourist and local traffic. The commission also prioritized this route and began constructing the portion through Fourth of July Canyon in cooperation with the Forest Service.[150]

The system expanded again in the 1917-1918 biennium (see Figure 17), including the Bliss-Shoshone Highway (now part of US-26) and the Cassia Highway (now part of ID-77). Other routes were extended or reconfigured. The Malad branch of the Idaho-Utah Highway was extended south to the state line (Old 191/I-15), and the portion of a Route 5 from Idaho Falls to Challis was renamed the Lost River Highway. A connection was added between Hailey and Challis, extending the Sawtooth Park Highway to the Montana state line along the former Idaho-Montana Highway route, and a new Idaho-Montana route was designated further east, running north from Idaho Falls. A total of 490 miles had been constructed by October 1918, although much of this was taken over from former county routes.[151]

Despite its desire to expand the system, the SHC again found itself without sufficient funding. The passage of the 1916 FAHA had made federal funds available but the state could not provide the required matching funds necessary for the SHC to receive these federal allotments.[152] Attempts to fund work on the State Highway System using motor vehicle licenses proved inadequate, and by the beginning of 1917 State Highway construction had ground to a halt.[153] In order to provide additional funding, the state legislature authorized $1.4 million in bonds and work was able to continue, but the state was once again unable to provide matching funds to receive the federal aid allotment at the end of 1918.[154]

(2) Post-World War I growth

The end of World War I saw major changes for Idaho's State Highway System. The Idaho legislature established the Department of Public Works (DPW) in 1919, and responsibility for the system was transferred to the newly created Bureau of Highways (BOH) within the DPW, under the authority of a single director rather than a commission.[155] Fourteen new State Highways were designated, including new routes in Teton, Minidoka, Gem, Fremont, and Madison Counties, and the Panhandle Highway was incorporated into the North and South Highway, bringing the system to a total of 31 routes. In the 1919-1920 biennium, the restructured highway department was able to accomplish a substantial amount of work. One crucial factor was the 1919 passage of a two-mill ($2 per $1,000 of the assessed value) property tax, which provided an additional $2 million for the 1919-1920 biennium. With this new funding source (which in turn allowed Idaho to access federal matching funds), the BOH was able to let contracts for approximately $9 million in work in 1919 and 1920, accounting for 88 percent of the total work let since the establishment of the State Highway System. In order to keep up with new construction, the BOH increased its staff substantially. A separate maintenance section was established within the highway department in 1919 and was expanded to include construction activities the following year.[156] During this period, the War Department also began distributing surplus equipment to state highway departments nationwide; Idaho benefitted from this, receiving enough cars, trucks, and other equipment to require creation of a separate Motor Transport Section within the BOH.[157]

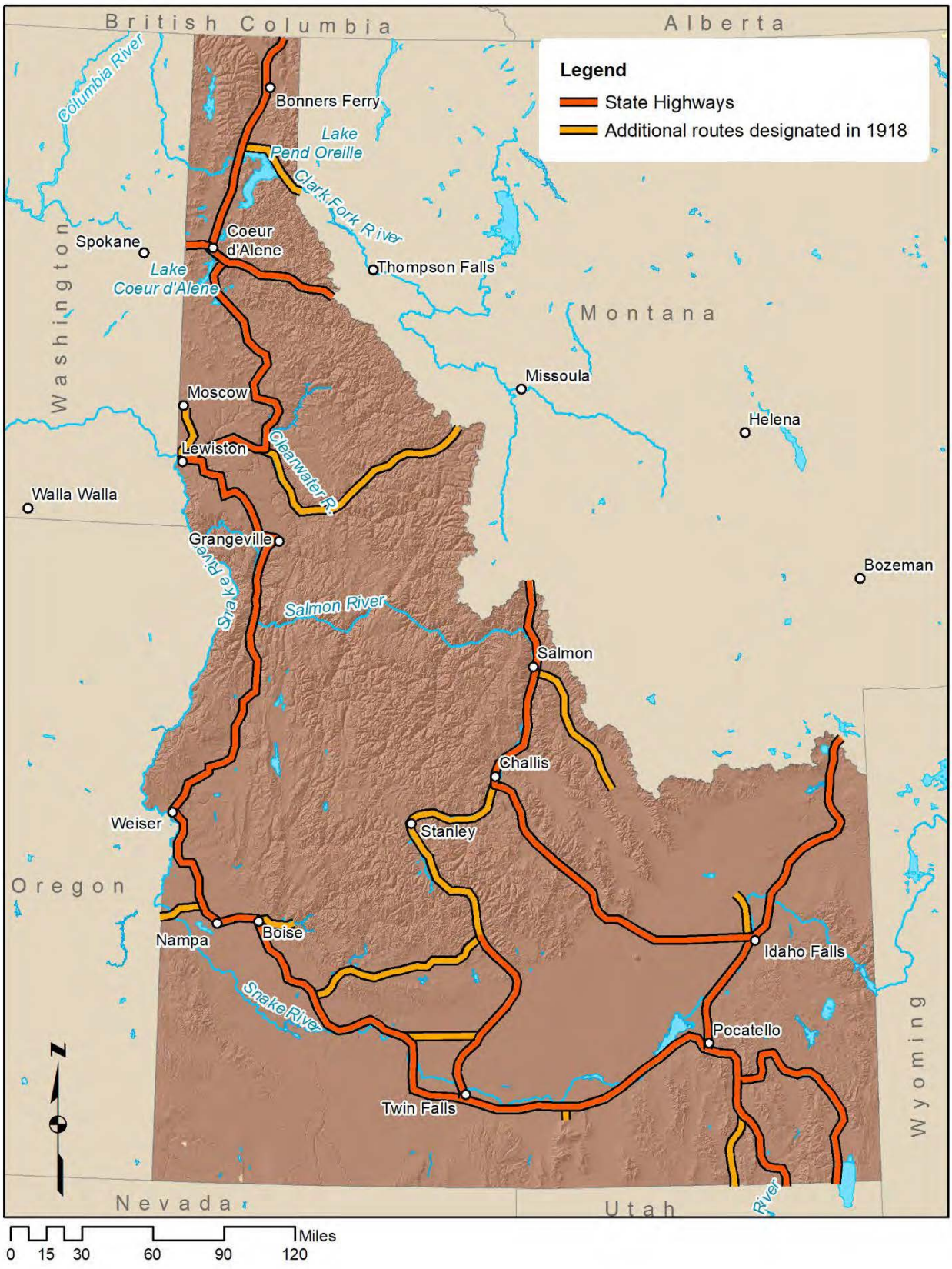


Figure 17. Extent of the designated state highway system at the end of 1918.

With the passage of the 1921 FAHA, Idaho's highway system was reorganized once again. Under the new act, Idaho was required to designate a system comprised of seven percent of the total road mileage in the state. The seven-percent system was further broken down into primary and secondary routes; the three percent primary system included Idaho's most important arterials and inter-state routes, while an additional four percent comprised secondary routes connecting counties. After a statewide inventory of Idaho's 40,200 miles of state, county, and local roads, the federal government approved a system of approximately 2,700 miles. This included roughly three-quarters of the existing 3,800-mile State Highway System, including the most vital routes (see Figure 18). The three-percent primary system consisted of 1,162.7 miles of the most important arterial routes in the state, including:[158]

- North and South Highway – Oregon line near Weiser to Canada at Eastport
- North Pacific Highway – Washington line near Spokane bridge to Montana line near Wallace
- Kootenai Highway – Bonner's Ferry to Montana near Leonia
- Idaho Pacific Highway – Weiser to Wyoming near Border Station
- Idaho-Utah, Yellowstone Park and Idaho Montana Highways – from the Utah state line near Preston to the Montana state line at Monida

Construction continued to progress, but 10 years after the highway system's creation only 1,630 miles (of a total of 3,800) had actually been improved.[159] Over the same period, however, vehicle ownership had risen from just over 2,000 automobiles and trucks to more than 62,000 statewide (see Figure 19). Although funding remained a concern, as the number of vehicles increased in the years after World War I, a new state tax of two cents per gallon on motor fuels provided an additional source of revenue for highway maintenance.[160] Nevertheless, the increasing traffic loads and new mileage to maintain placed a strain on the highway department. Although the 1925 Idaho legislature increased the gasoline tax from two to three cents, the same session reduced motor vehicle license fees so no additional funds were available despite the increase in mileage during this period.[161]

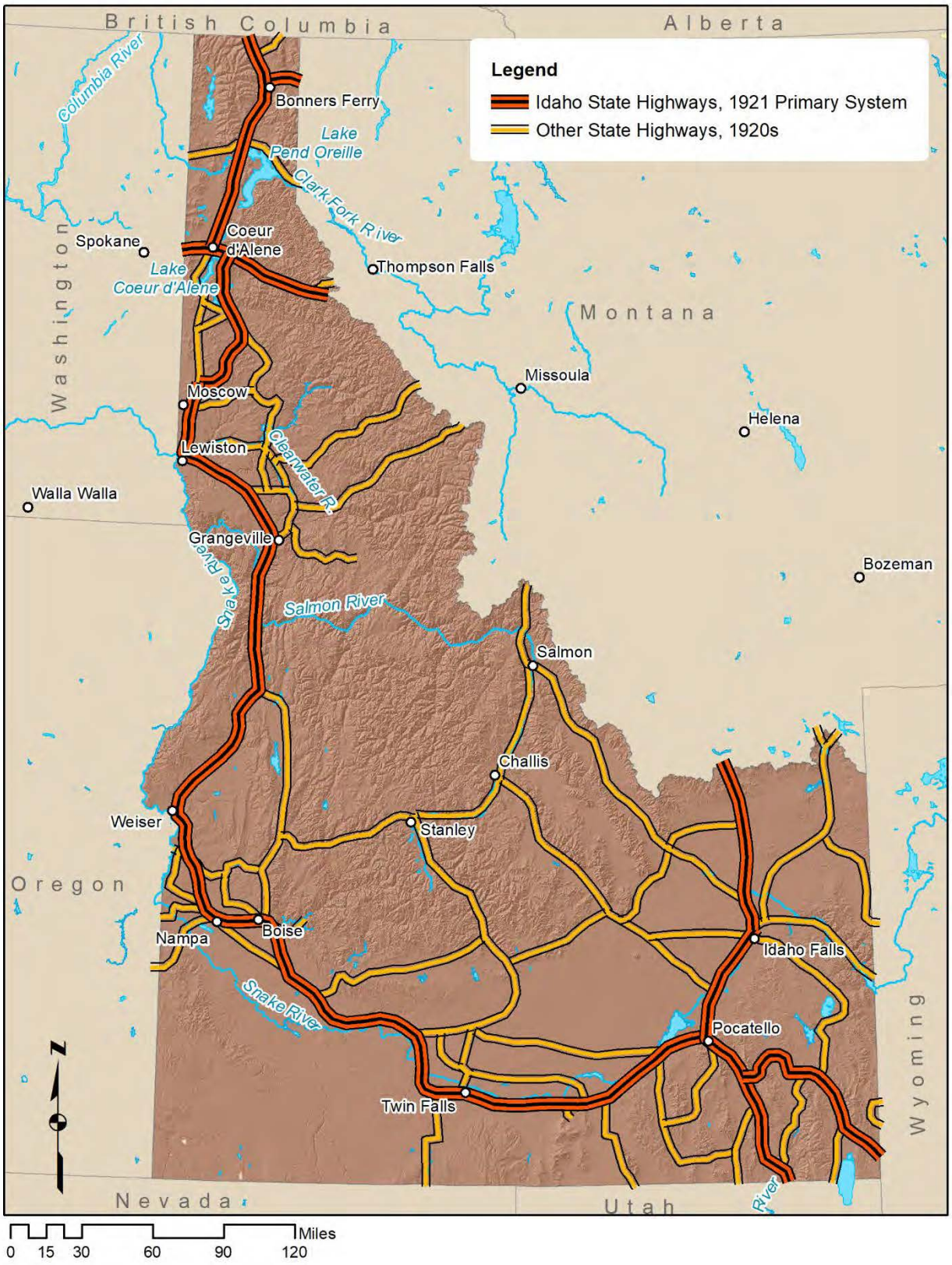


Figure 18. Idaho's Federal-Aid Primary Highways as designated in 1921.

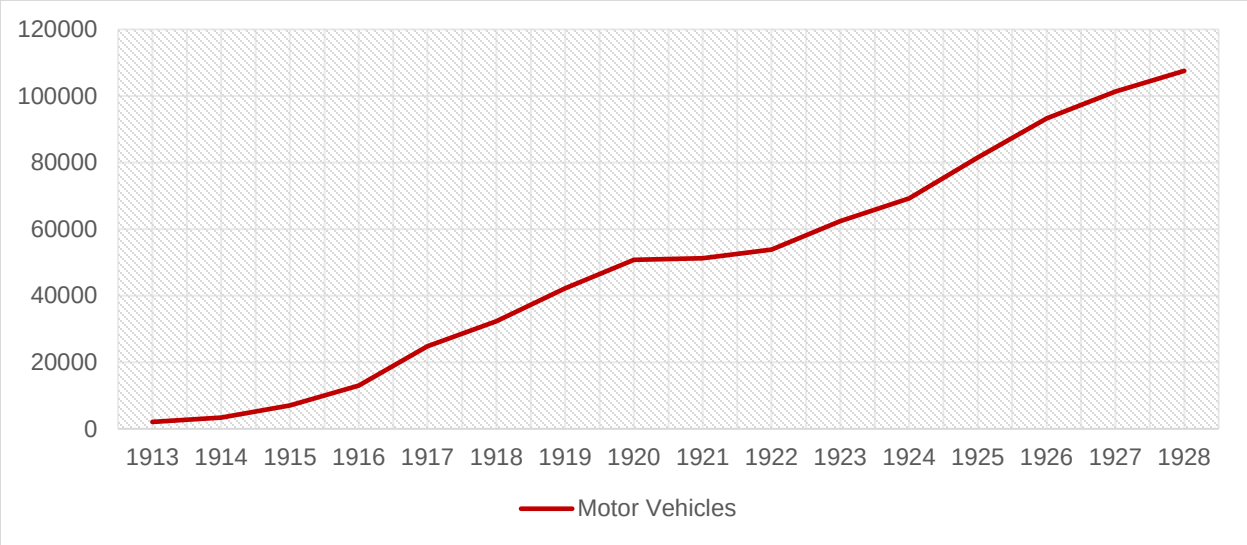


Figure 19. Idaho motor vehicle registration by year.[162]

With the establishment of the U.S. Highway System in 1926, many of Idaho's important arterials received a U.S. Highway designation (see Figure 20). These routes include the entire federal-aid primary system as well as several other important routes providing connection to neighboring states. By this time the Idaho system had grown to 45 routes and construction had progressed so that most were improved enough for automobile use. Very little of the system was paved, and paved areas outside of individual communities were generally limited to portions of US-10, US-30 from Nampa to Caldwell, and short segments of major routes in the Boise, Twin Falls, and Pocatello-Idaho Falls vicinities (see Section 4.C). Although more heavily used roads were generally graded and surfaced with gravel, many portions had been cleared but grading and drainage were not yet complete. Several notable gaps remained and were marked as "impassable" where the final location had been determined but no construction had been done. These include the Forest Highway segment from Lowman to Stanley, the last 20 miles of the Elk City Highway, and the portions of the Clearwater and Lewis and Clark Highways that passed through the Nez Perce-Clearwater National Forests.[163]

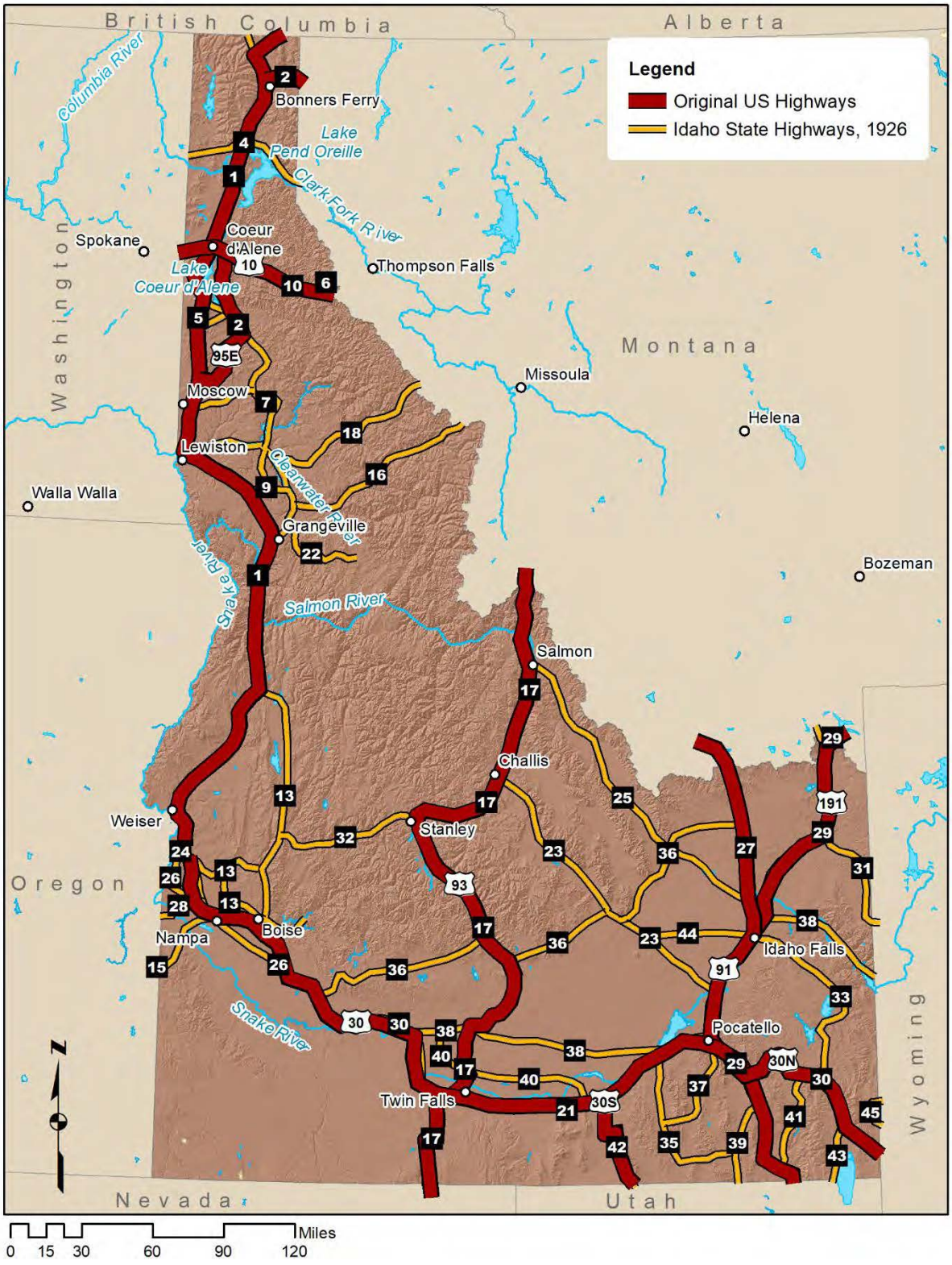


Figure 20. Map showing 1926 State Highway System and original U.S. Highway designations.

Even where some construction had already been done, connectivity remained a problem, and the 1926 biennial report identified a list of the most crucial projects for upcoming programming. These unimproved highway segments represented important gaps in main arterial through routes (see Table 2). To reach the Coeur d'Alene area, drivers from Lewiston or Moscow would have had to travel over one of the several routes that had not yet been fully graded and were marked on the 1926 condition map as "Designated, Partially Improved, Passable." These roads include the portions of the North and South Highway (US-95) from Potlatch to Coeur d'Alene and ID-6 from Harvard to Mashburn that passed through the Coeur d'Alene Reservation and St. Joe National Forest. The Harvard to Sandpoint segment of the North and South Highway in particular represented a vital but incomplete link between the Lewiston/Moscow area and points north.

Table 2. Important unfinished segments of the Idaho State Highway System, 1926

Route	Location	Length of unfinished portion
North and South Highway (US-95)	Salmon River Canyon	2.5 miles
	Harvard to Sandpoint via Coeur d'Alene	69.5 miles
	Copeland to Port Hill	9.1 miles
Clarks Fork Highway	Newport to Sandpoint	13.6 miles
Idaho Montana Highway	South of Spencer	7.5 miles
	North of Roberts	15 miles
	North of Idaho Falls	7 miles
Idaho Central Highway	West of Arco	15 miles
Sawtooth Park Highway (US-93	Challis to Galena Summit	97 miles
Old Oregon Trail Highway (US-30)	Glenn's Ferry segment	1.5 miles

Idaho's population in the late 1920s was still largely concentrated in several distinct areas centered around Coeur d'Alene, Lewiston/Moscow, greater Boise, Twin Falls, Idaho Falls/Rexburg, and in the area between Pocatello and Preston as well. In the southern part of the state, US-30 was the main artery and connected most of these areas (see Figure 21). Traffic counts on US-91 between Preston and Pocatello indicate a great deal of travel also occurred between Pocatello and population centers in northern Utah, such as Logan and Ogden. In comparison, the traffic counts show that the Lewiston and Coeur d'Alene vicinities were much more closely connected to neighboring communities in Washington than to one another; this is unsurprising as the roads between Moscow and Coeur d'Alene were only minimally improved.[164] With the onset of the Great Depression in 1929, Idaho's highway system remained a work in progress.

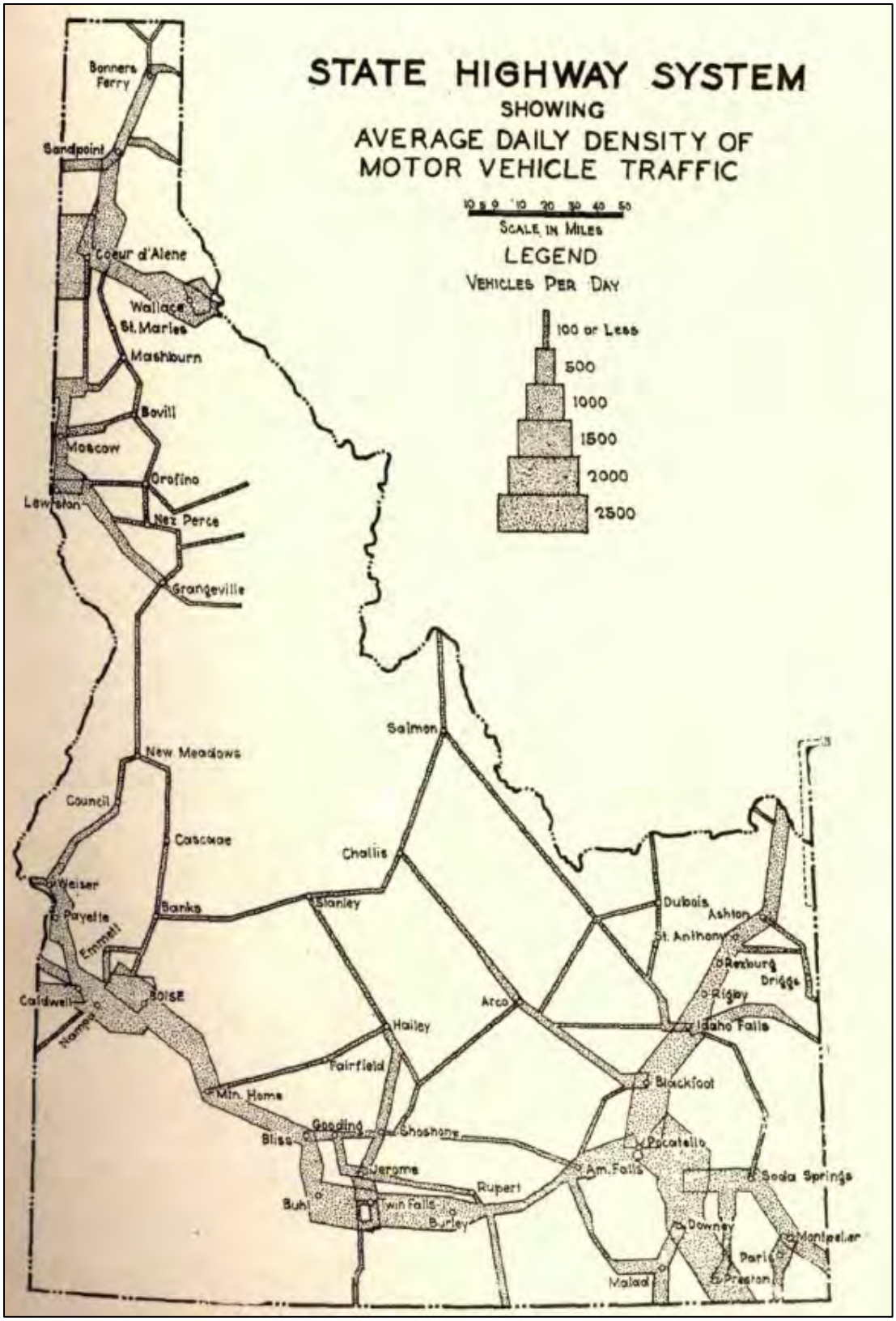


Figure 21. Map showing traffic levels on the State Highway System in 1928.[165]

Forest Highways

Alongside federal-aid funding for highways, the 1916 Act provided another category of funding known as Forest Aid (Section 8) for highways providing access to national forest reserves.[166] Unlike federal funds provided for the rest of a state's highway system, Forest Highway funds did not have a matching requirement and could fund 100 per cent of construction costs.[167] With the exception of the Idaho Pacific route across the Snake River basin, many of Idaho's highways lay at least partially within or near to a national forest (see Figure 22), and many projects were completed using Section 8 funds and/or constructed in cooperation with the U.S. Forest Service.

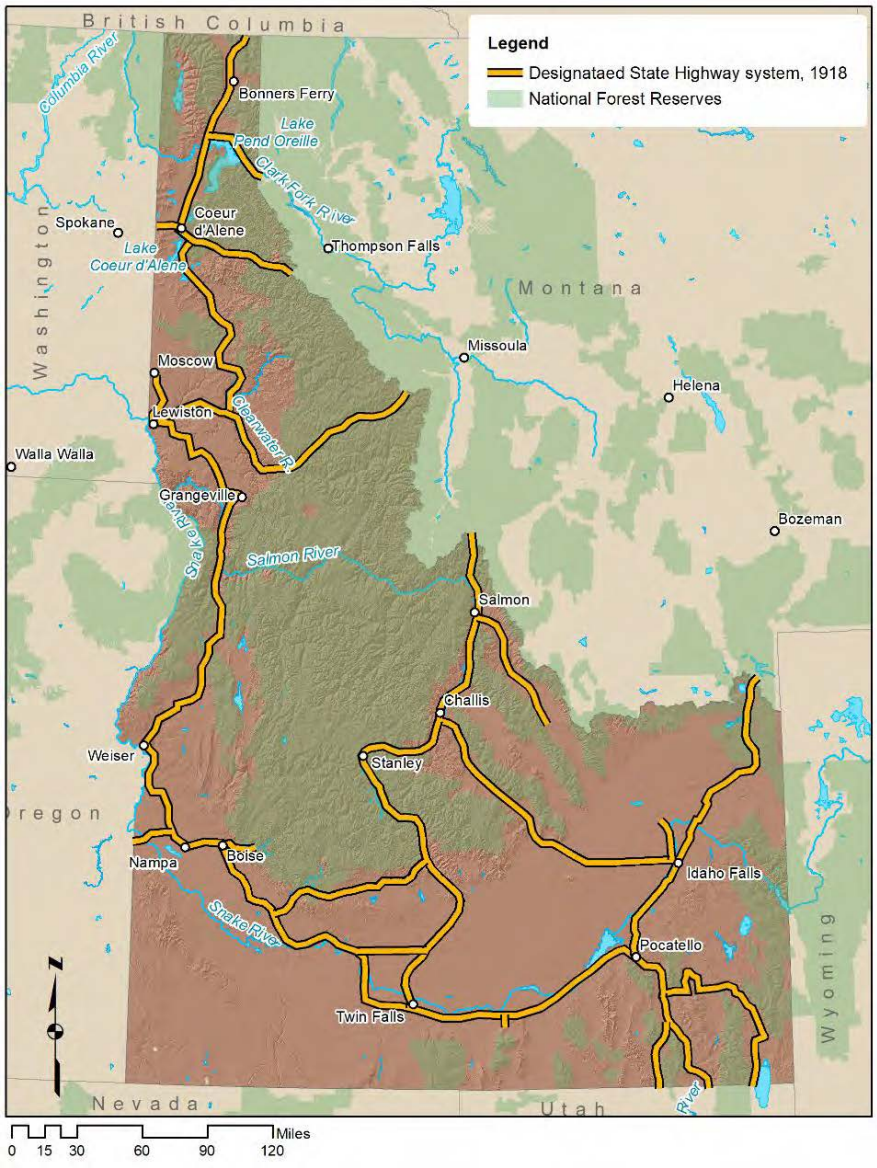
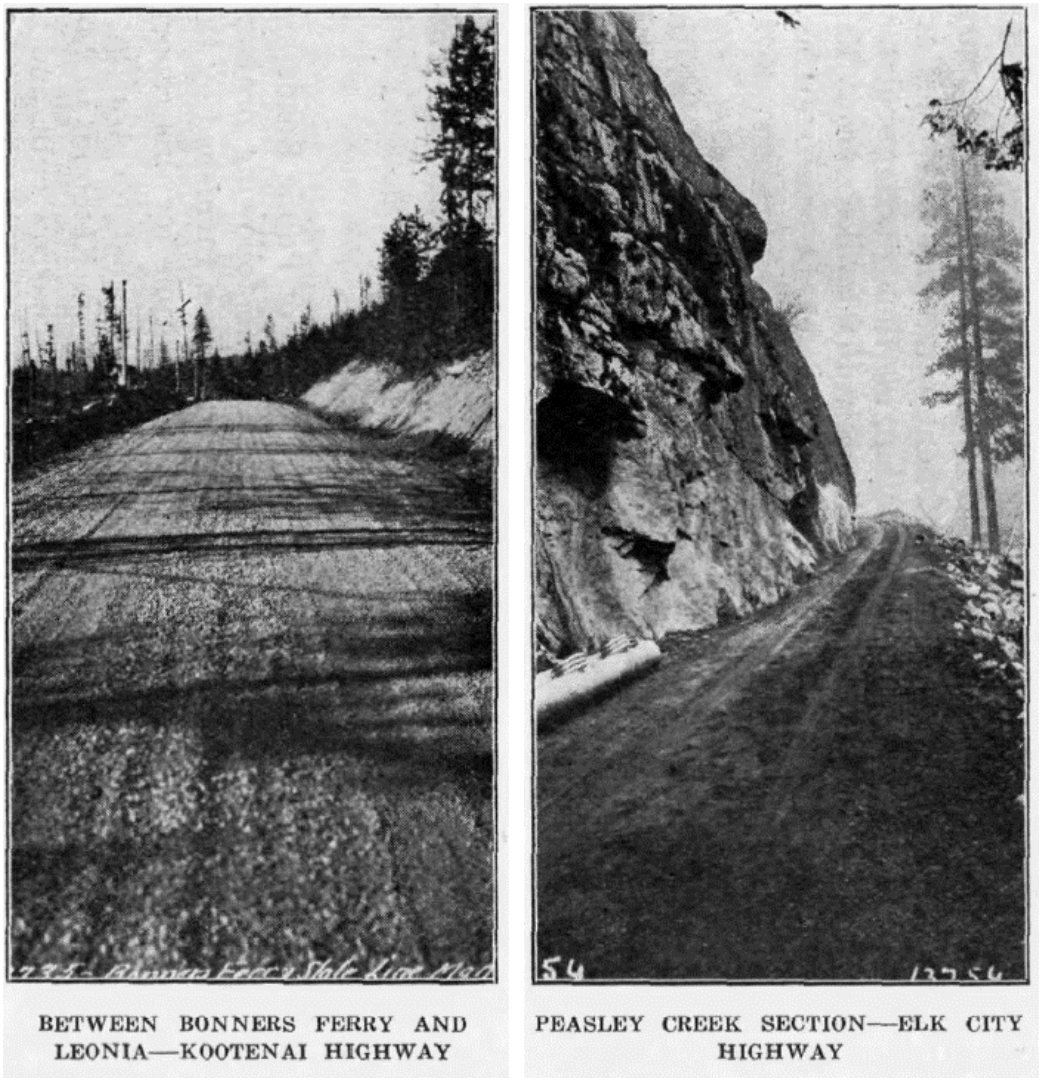


Figure 22. *Map showing the early state highway system and forest reserve lands.*

The federal law establishing "Forest Highways" defined them as roads adjacent to or within the national forests, and included those roads "contiguous to and approach[ing] the forests" that were "a necessary means of making effective the highways within the forests."[168] This larger group of highways was further subdivided into two classes. Constructed specifically to serve the needs of forestry, lumbering, livestock, or recreation, the class of Forest Development Roads were "not of direct interest to the state" and therefore not part of the State Highway System. The class defined as Forest Highways, however, were generally State Highways and constituted approximately 558 miles of the system by 1932. Although these highways were overseen by the U.S. Bureau of Public Roads and constructed by contract, they do not appear to have been distinguishable from the rest of the system and were described as "of standard type and are similar to those of the state and federal aid systems."[169]



BETWEEN BONNERS FERRY AND LEONIA—KOOTENAI HIGHWAY

PEASLEY CREEK SECTION—ELK CITY HIGHWAY

Figure 23. Examples of portions of State Highways within Forest lands.[170]

C. Automobile tourism

(1) Named auto trails

Automobile tourism increased substantially in the years after World War I, and by 1926 the highway department estimated that it accounted for more than 300,000 vehicles in Idaho each year.[171] In the 1910s and 1920s, travelers followed a variety of named routes, either as cross-country tours between eastern cities and the Pacific Coast, or as a way to reach popular tourist destinations such as Glacier and Yellowstone National Parks. Some early automobile touring routes were also intended to recreate or evoke the early emigrant trail routes of the nineteenth century, as was the case when the Old Oregon Trail touring route was first promoted between Salt Lake City Portland, Oregon in 1913 (following present-day US-30, I-84, and I-86).[172] Many of the transcontinental touring routes to the Pacific Northwest passed through Idaho (see Figure 24) and followed major travel corridors that were subsequently incorporated into the U.S. Highway System (and in some cases, the later Interstate Highway System; see Table 3).

These routes often partially overlapped, and many were fully concurrent through Idaho, particularly in the panhandle where the natural topography presented few viable east-west corridors for automobile travel. The present-day US-2, ID-200, and I-90 corridors each carried multiple popular touring routes across the northern tier of the United States, linking Chicago and eastern states to Portland, Oregon, and Seattle, Washington, through Wisconsin, Minnesota, the Dakotas, Montana, and Idaho. These include the Yellowstone Trail and National Parks Highway, both of which extended from Chicago to Seattle along what is now the I-90 corridor, as well as the National Park-to-Park Highway, promoted as a circle tour through the western United States linking a dozen National Parks in ten different states, which passed through Idaho along the route of present-day US-2.[173]

Table 3. Major early named trails through Idaho

Named Trail	Idaho State Highway	U.S. Highway number	Interstate Highway number
• Evergreen Highway	North and South Highway Idaho Pacific Highway	US-95 US-30	NA
• Yellowstone Trail • National Parks Highway	North Pacific Highway	N/A (former US-10 was subsumed by I-90)	I-90
• National Parks Highway • Theodore Roosevelt Highway • National Park-to-Park Highway	Kootenai Highway	US-2	NA
• National Parks Highway (alternate branch)	Clark's Fork Highway North and South Highway	ID-200 US-95	NA
• Old Oregon Trail • Evergreen Highway	Idaho Pacific Highway	US-30	I-84, I-86
• Utah-Idaho-Yellowstone Highway • Banff Grand Canyon Road	Idaho-Utah, Yellowstone Park and Idaho-Montana Highways	US-91	I-15

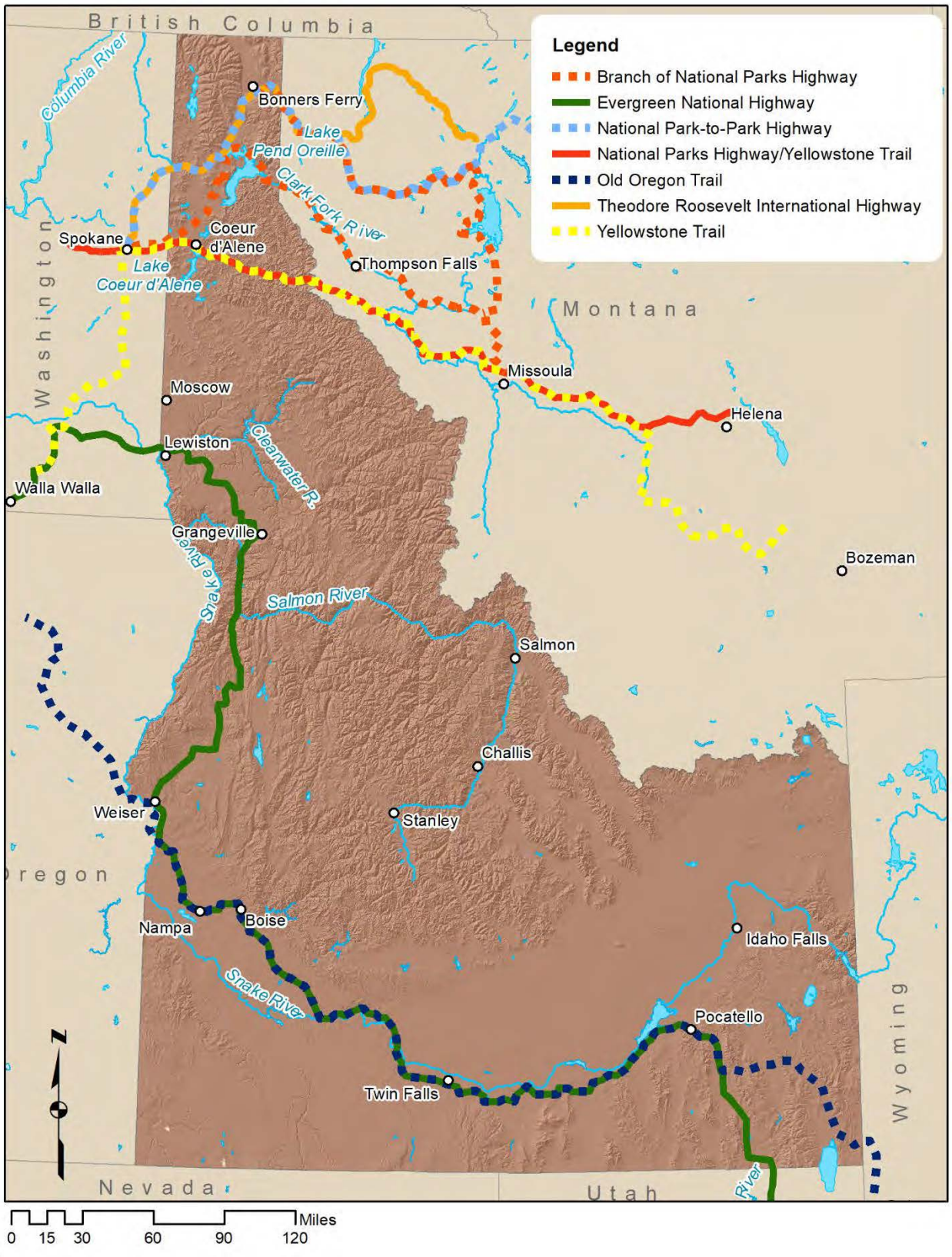


Figure 24. Major automobile touring routes through Idaho in the early 1920s.[174]

While many transcontinental touring routes passed briefly through Idaho en route to Glacier or Yellowstone National Park, the Evergreen National Highway was the route with the largest amount of mileage within the state. The route was first promoted in 1916 by a group of motorists who dubbed themselves the Evergreen Pathfinders and began to advocate for an all-season touring route between Galveston, Texas, and the Pacific Northwest.[175] Although tourist maps of the period often show dozens of regional and interstate routes, a 1923 map of the United States published by *National Geographic* included the Evergreen National Highway as one of the 34 "Important Automobile Trails and National Highways." The route entered Idaho from Utah between Ogden and Malad, extended west/northwest from Pocatello to Boise, and then ran largely north to Weiser, New Meadows, Grangeville, and Lewiston before leaving Idaho to travel west into the Columbia Valley and Walla Walla.

(2) Idaho's own: The Sampson Trails

In addition to the named trails promoted by various associations, one Idaho resident had a unique solution to the problem of finding one's way. While neighboring states including Oregon, Utah, and Wyoming had already done so, Idaho had not yet adopted a standard method of signing State Highways in the 1920s. Frustrated by this lack, Boise piano dealer Charles Sampson first began marking rural roads leading to Boise in 1914.[176] Begun as a publicity stunt to guide motorists directly to his musical instrument store, which he marked as "the end of the Sampson Trail," Sampson had signed 250 miles of trail by 1921 (see Table 4), and a 1926 automobile touring map shows the network of Sampson's routes alongside other auto trails in Idaho.[177] Signed alphabetically, the 1926 map shows that these did not necessarily follow the same routing as the designated U.S. Highways from point to point. For example, Sampson's "B" route ran from north to south along a corridor similar to US-95, but followed a different route between Coeur d'Alene and Moscow (now ID-97, ID-3, and ID-8).[178] Although ordered to desist after a 1929 legislative action restricting unofficial signage, 19 Sampson Trails ran through Idaho and into four neighboring states, boldly marked with orange and black stripes on boulders, buildings, and other fixed landmarks to direct drivers (see Figure 26).[179] In comparison, Idaho's State Highway marking was not nearly as thorough and, despite the highway department's displeasure, the 1933 Idaho legislature passed a resolution recognizing Sampson's efforts.[180]

Table 4. Sampson Trails in Idaho

Sampson Trail	Termini	Present-day Highway
A	Boise to Wyoming via Twin Falls and Pocatello	US-30 and US-30N
B	Boise to Canada via Lewiston and Coeur d'Alene	US-30, US-30N, US-95, and ID-1
C	Pocatello to Montana via Idaho Falls	US-91 and US-191
D	Boise to New Meadows via Banks	ID-15
F	Boise to Blackfoot via Stanley	ID-21, ID-17, US-93, and ID-27
G	Mountain Home to Picabo via Fairfield	ID-22
H	Bliss to Trude via Arco	ID-24, ID-23, ID-22, ID-29, and an unnumbered road
I	Pioneer to Idaho Falls	Unnumbered road
J	Nevada to Shoshone via Twin Falls	US-93
K	Utah to McCammon via Preston	US-91
M	Washington to Montana via Coeur d'Alene	US-10
N	Bonners Ferry to Montana	US-2
O	Oregon to Caldwell	ID-49 and ID-18
P	Utah to Downey	ID-36
Q	Declo to Fairfield	ID-25 and ID-46
S	Oregon to Nampa	Unnumbered road and ID-45
T	Star to Grimes Pass	ID-16, unnumbered road, and ID-17
U	Utah to Montpelier	ID-35
V	Hailey to Stanley	US-93
Y	Bonners Ferry to Canada	US-95

Figure 25. Example of Sampson Trail marking, c.1920.[181]

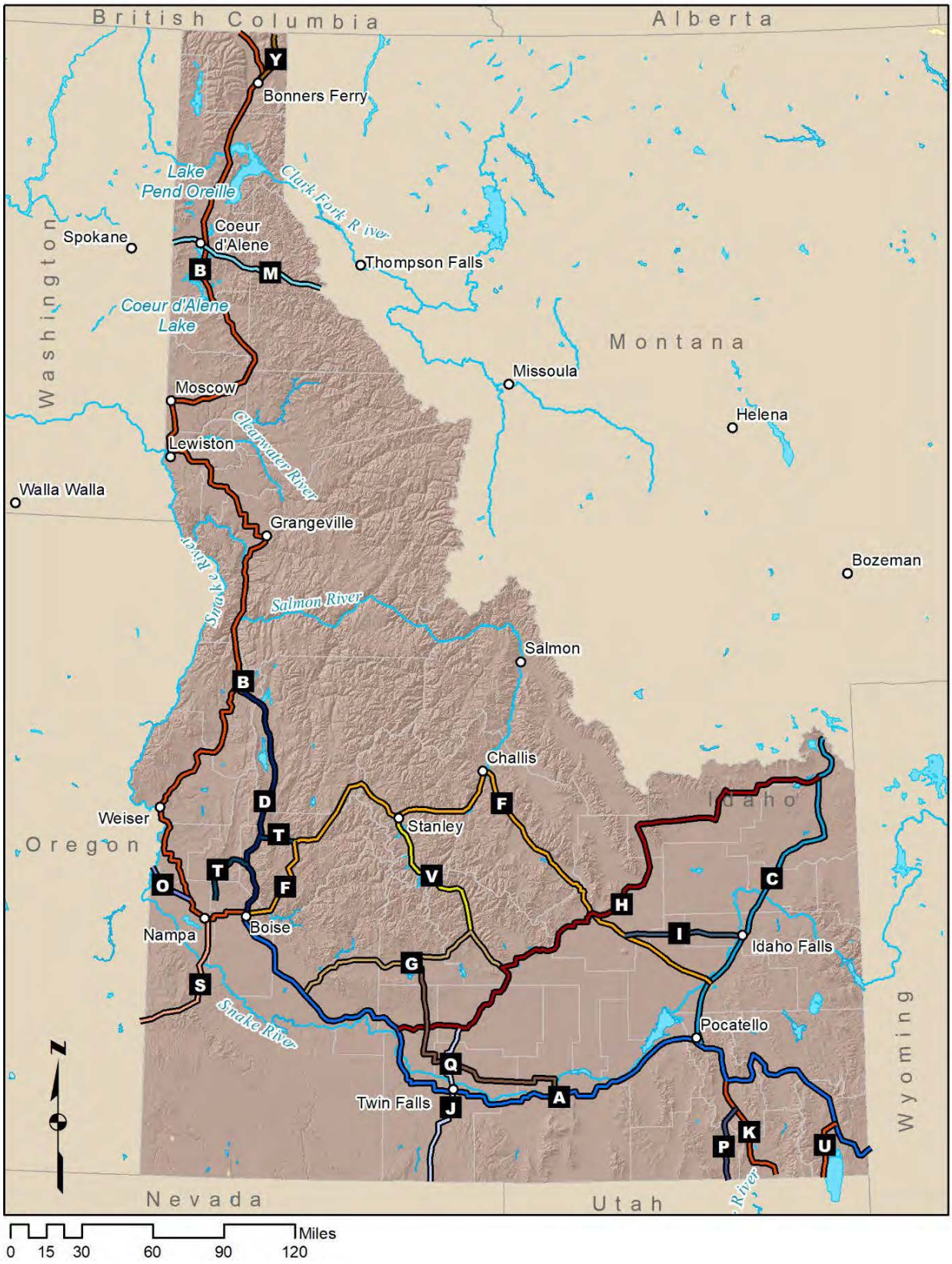


Figure 26. Map of Sampson Trails, mid-1920s.

D. Construction and engineering

> The day has gone by when plowing up the roadway and scraping sod into the middle constitutes a road and meets the requirements of modern travel. Nor should the farmers be expected to build and maintain roads, for road building, repairing and maintaining has come to be a science and not the business of the farmers…
>
> - E.S. Smith, State Highway Engineer, 1914[182]

(1) Road standards and surfacing

Aware of the advances in road building technology and the growing professionalization of engineering, the highway commission looked to neighboring states that had already begun to construct highways under a state agency. In its first biennium (1913-1914), the commission began to lay groundwork for a standard method of road building.[183] While macadam hard-surfacing was regarded as the best kind of surfacing for an all-weather road, the commission acknowledged that the population density and prosperity of the state were not sufficient to justify this type of surfacing in most areas. Instead, it elected to construct less expensive roads that would "at least lift the traffic out of the mud and ruts" and could serve as a base for an improved surface at a later time.[184] For the most part, the earliest highway projects were simply a graded earth road, and the first standards called for a 16-foot roadway and bridge width with an eight-percent maximum grade, although five percent was preferred (see Figures 27 through 29).[185] By the end of 1916, the commission recognized that roads with an average daily traffic of 500 vehicles or more would require paving of some sort.[186] As more mileage of earth-surfaced county and local roads were added to the system, it became apparent that this type of road would need extensive maintenance to prevent deterioration, and the commission was reluctant to assume maintenance responsibilities for unsurfaced mileage.[187]

Figure 27. Comparison between old road (at left) and new standard construction of the Sawtooth Park Highway, Lincoln County, 1914.[188]

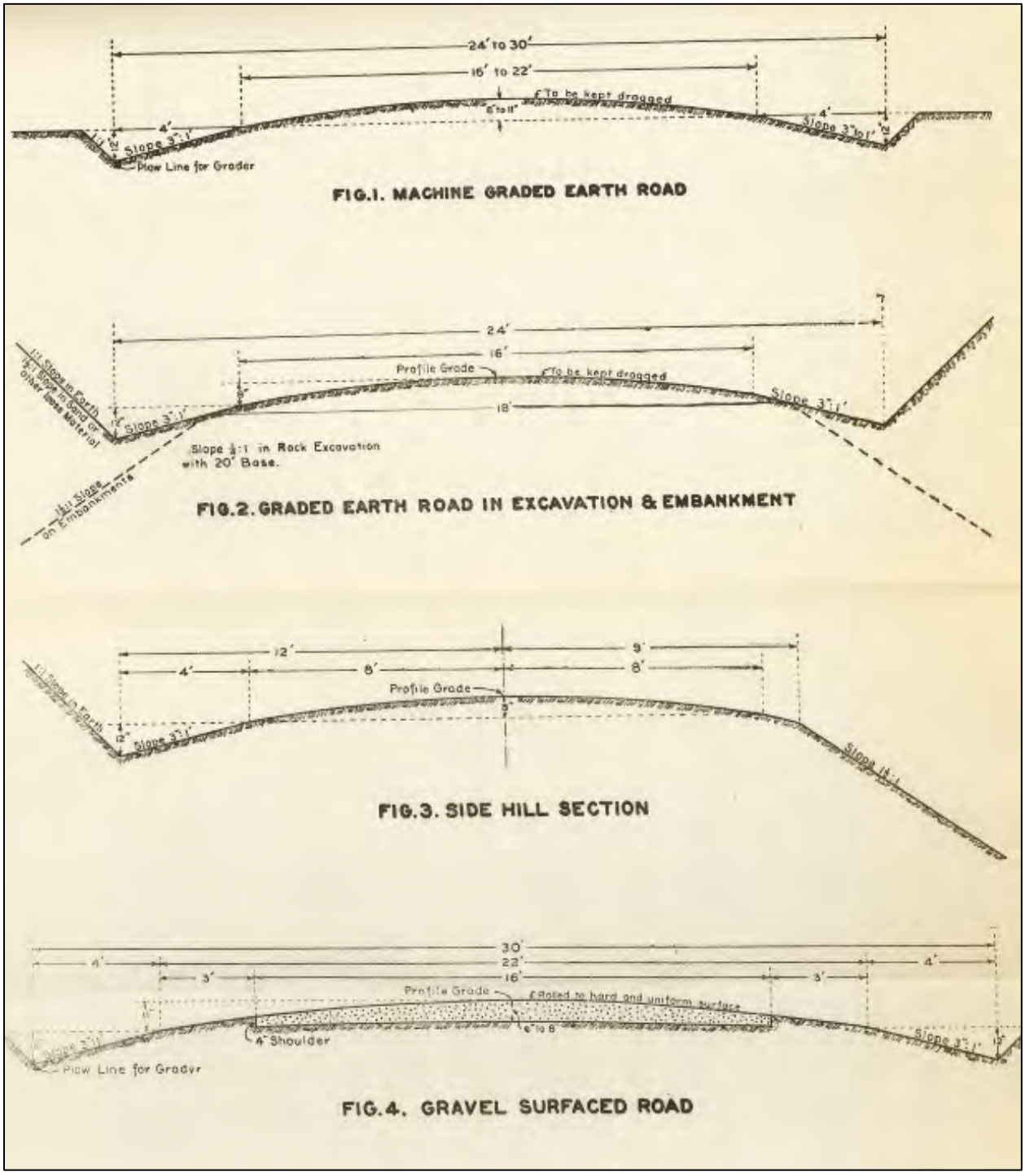


Figure 28. The highway department's earliest standard section for State Highway construction.[189]

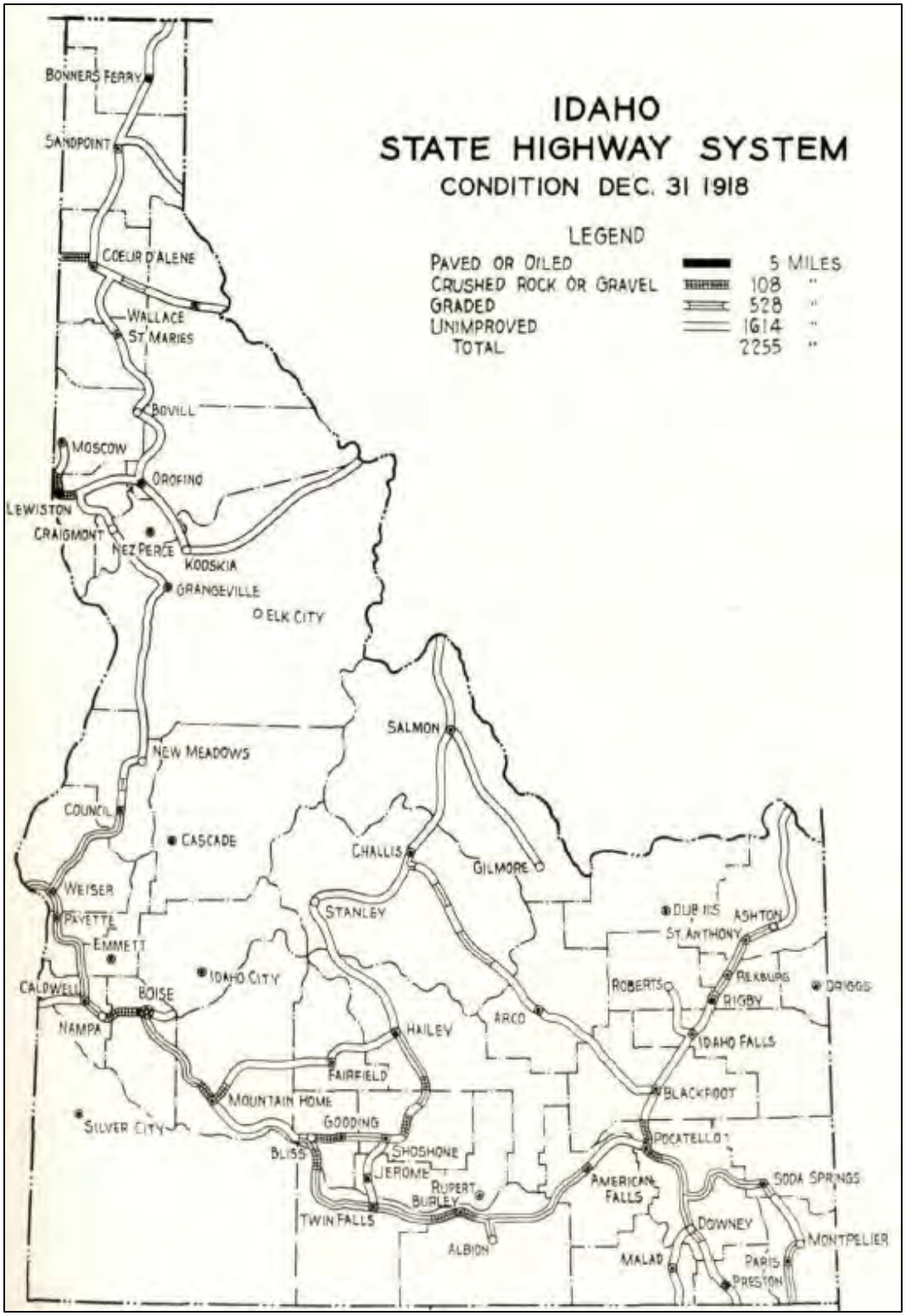


Figure 29. Surfacing on Idaho's state highways at the end of 1918.[190]

Idaho's rugged topography posed severe challenges to road building, particularly when constructing an alignment that reduced grades and sharp turns. To remain within the maximum grades and curvatures set

by early standards, conditions sometimes required construction of elaborate hill segments with serpentine switchbacks. Nowhere was this showcased more clearly than in the ongoing efforts to construct the North and South Highway, where several projects of this type were instrumental in opening the highway to through traffic. These include the Lewiston Hill grade, completed in 1917 (see below), and the National Register-listed Whitebird grade, completed in 1921.

One of the commission's early accomplishments was to complete a new alignment near Lewiston that eliminated one of the more terrifying segments of wagon road in the area and attracted national attention. Lewiston Hill had previously been the main geographic obstacle between Lewiston and the plains to the north, and construction of the new alignment was the first of several similar projects required to create a passable highway between Weiser and the panhandle region.[191] In order to carve a roadway over a hill requiring nearly 2,000 feet of elevation gain, the alignment incorporated 17 carefully contoured curves (see Figure 30) with a five percent maximum grade. Construction required the removal of over 75,000 cubic yards of earth and nearly 78,000 cubic yards of rock. The 10-mile project was begun in of 1916 and completed the following year, when motorists could enjoy a new road surfaced with crushed rock and sand mixed with clay.[192]

Figure 30. Postcard image of new road at Lewiston Hill, North and South Highway.[193]

While the application of newer, higher standards of roadbuilding was perhaps most dramatic in examples such as the Lewiston Hill project, the highway department adapted its standards to accommodate higher traffic volumes and speeds across the state. The standard roadway width was increased from 16 to 18 feet by 1920, and roadway designs included wider shoulders, ditches, bridges, and culverts.[194] Graded earth remained the most common surfacing for new construction, but gravel surfacing was provided where possible. Although some bituminous surface treatments were used in the early 1920s (see Figure 31), this type was not commonly used by the highway department until 1927 and the most common practice to

create a better surface was to mix crushed rock or gravel with clay as a binder.[195] While the majority of roads still did not receive hard-surfacing, more sophisticated pavements were constructed on the most heavily traveled highway segments, such as the bitulithic pavement (asphalt surface on concrete base) employed in the 1919-1920 biennium on portions of the Yellowstone Park Highway in Bonneville and Bingham Counties (see typical sections, Figure 32).[196] The use of these pavements, in turn, necessitated that the highway department establish its own materials testing lab at Boise in June of 1926.[197]

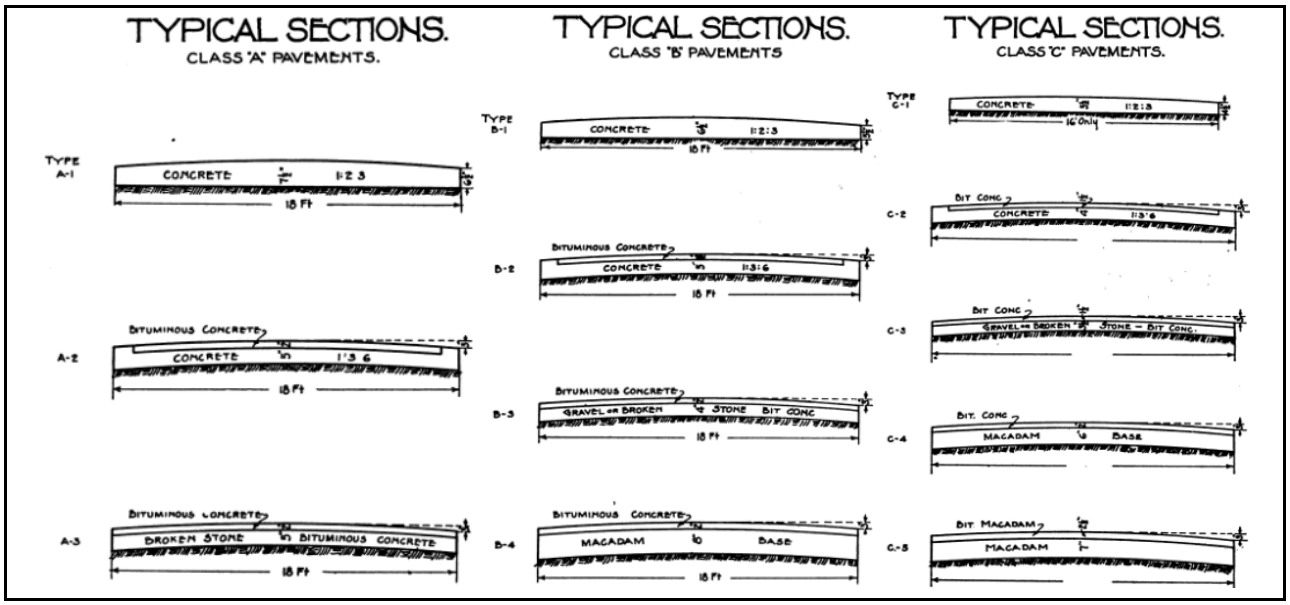


Figure 31. Typical sections for paved highways, 1920.

Figure 32. Typical highway construction on the Yellowstone Park Highway in Bingham County in 1923 showing an early type of bituminous surface treatment, 18-foot roadway, gravel shoulders, and ditches.[198]

SECTION 6.
THE GREAT DEPRESSION AND THE NEW DEAL (1930-1940)

A. National trends

(1) New Deal relief programs

Triggered by the stock market crash on October 29, 1929—Black Tuesday—the Great Depression witnessed widespread unemployment and economic distress across the U.S. Beginning in 1930 President Herbert Hoover authorized large sums for highway projects to stimulate employment. Hoover's highway spending was minor compared to what President Franklin Delano Roosevelt's administration would provide later, but it firmly established highway work as the leading solution to unemployment.[199] When Roosevelt came into office in 1933 he began to implement what he had proclaimed a year earlier: "a new deal for the American people." Faced with a 25-percent national unemployment rate and widespread poverty, Roosevelt's administration succeeded in boosting the economy by implementing a series of programs to provide relief, recovery, and/or reform: the "Three Rs."[200] Roosevelt's New Deal has been synonymous with the infusion of federal power and money into the national economy.[201]

A major component of the New Deal to combat widespread unemployment was "make work" transportation improvement projects. To provide employment to the greatest number of people possible, provisions established by the Emergency Relief and Construction Act of 1932 were continued as part of Roosevelt's New Deal programs. These provisions limited workers to 30 hours per week and specified the use of hand labor rather than machines for certain types of work. Road-related work, including highway planning, brought employment opportunities close to the homes of the jobless, and it was estimated that for every person directly employed on roads, at least two others were working in the manufacture and transportation of roadway materials and equipment.[202]

New Deal era programs came in a rush of names and associated acronyms often called the "alphabet agencies." Important agencies that funded road and bridge construction included:

- Public Works Administration (PWA) – Created soon after Roosevelt took office, the PWA distributed nearly $6 billion for construction projects in the 1930s, and in 1933 alone it accounted for a third of all construction in the U.S. From March 1933 to September 1936, PWA funds built 60,361 miles of roads and 2,641 grade-crossing viaducts nationally.[203]

- Federal Emergency Relief Administration (FERA) – Created by Congress in May 1933, FERA empowered Roosevelt to spend $500 million in cash grants to state and city work-relief projects, providing one federal dollar for three local dollars. FERA work typically involved grading and/or graveling of county roads or city streets, with culverts and bridges built where needed. FERA ended in 1935, and unfinished work was taken over by the Works Progress Administration.[204]

- Civil Works Administration (CWA) – A program that lasted from November 1933 to March 1934 as a short-term supplement to FERA, the CWA worked entirely on the federal level, employing workers directly rather than providing relief money to projects.[205]

- Works Progress Administration, begun in May 1935 and renamed the Works Projects Administration (WPA) in 1939 – The WPA, along with the Social Security program, was intended to replace FERA; it continued until 1943. The WPA funded the building of 572,000 miles of highways, 67,000 miles of city streets, and 78,000 bridges.[206]

- Civilian Conservation Corps (CCC) – Created in March 1933 at the outset of the Roosevelt administration, the CCC was designed to provide jobs for men between the ages of 17 and 24 whose families were already on relief. The CCC was under the administrative control of the U.S. Army and was organized into work camps for construction projects, including roads and bridges, usually administered by another agency. At its peak in 1935 the CCC employed one-half million people. Congress ended appropriations in 1942.[207]

Nationwide, federal relief programs kept the highway building boom of the 1920s alive through the 1930s, with 35 to 45 percent of all workers on federal relief building roads. Because of changes in federal appropriations in 1933, the BPR was required to devote some funds to roads outside the existing federal-aid system. Farm-to-market roads in rural areas, railroad grade crossings, and feeder roads to the federal-aid networks in cities all began receiving aid. Because of Depression-related budget cuts on the local level, officials became dependent on the new assistance. During the New Deal, federal highway funding was so powerful that almost no other area of the economy "recovered" so quickly. Between 1930 and 1940, surfaced highways in America roughly doubled from 694,000 miles to 1,367,000 miles.[208] Besides being a leading solution to unemployment, road-related work produced physical improvements that were needed in practically every county in every state.[209]

By the mid-1930s, decreased revenues from gas taxes and user fees forced many states to rely more heavily on emergency federal highway grants. In 1934, Congress passed the Hayden-Cartwright Act, which contained provisions to gradually transition states away from reliance on emergency funds. The act authorized $200 million for emergency highway construction without matching funds, but also required that states supply matching funds to receive their ordinary federal-aid appropriations. The Act also contained a number of other important changes to highway funding, including the requirement that all states prepare

planning surveys to determine future needs.[210] Other provisions funded secondary or feeder roads, including farm to market, rural free delivery, and school bus routes. Another major legislative change required that one percent of all federal funding be set aside for roadside improvements and beautification, and this type of project was frequently accomplished using laborers from various federal relief programs.

B. Policy, funding, and administration

Throughout the 1930s Idaho had a large highway system to maintain for a comparatively small population, but the State Highways were vital for the half-million people in the state. In 1930, most Idaho residents lived in rural areas or small communities, but 65 percent of rural dwellings were still within two miles of a State Highway. Although the State Highway System represented just over 13 percent of the total road mileage in the state, it carried 70 percent of the rural traffic by the end of the 1930s.[211] Idaho's State Highways thus formed the backbone of a transportation system connecting rural residents and hundreds of small communities at the start of the Depression. As New Deal programs and funding subsequently enabled large amounts of construction projects using relief labor, the 1934 biennial report noted that the highways "have themselves become a primary means of livelihood in a time of stress. They provide employment for the present and transportation for the future."[212]

(1) Highway funding changes

Idaho's highway system played a crucial role in the state's economy for the transport of people and goods, but had also grown into the largest sector of state activity by 1930, employing more workers and requiring more funding than any other state agency or program.[213] With more than three-quarters of Idaho's total land area held as federal or state park, forest reserve, or other public domain land, only 24 percent of the state was taxable, but this did not substantially affect the amount of revenue available to fund projects such as highway construction.[214] At that time, the majority of highway funding was derived from motorists (primarily the gasoline tax, as well as a small percentage from motor vehicle license fees) rather than property taxes. The department received approximately 10 percent of the license fees and 90 percent of the state gas tax, which accounted for roughly half of the highway department's total revenue at the start of the 1930s (see Figure 33).[215]

The preceding decade of highway construction and improvement had substantially increased the financial burden of maintaining the State Highway System and posed a severe drain on the highway department's budget by the early 1930s. Over the course of the 1920s maintenance costs increased from less than $216,000 to over $1 million. This in turn decreased the funds available to expand or further improve the system.[216] Congress authorized increased federal aid funding in 1930, providing over $1.5 million per year (as compared to the 1929 allotment of $933,902) and a special state legislative session early in 1930 provided matching funding that enabled the highway department to use these funds.[217] Thus, despite the immediate impact of the Depression, Idaho was able to increase its highway construction program by 60 percent over the previous year and use a greater percentage of available federal-aid funds than any western state besides Oregon or Utah.[218]

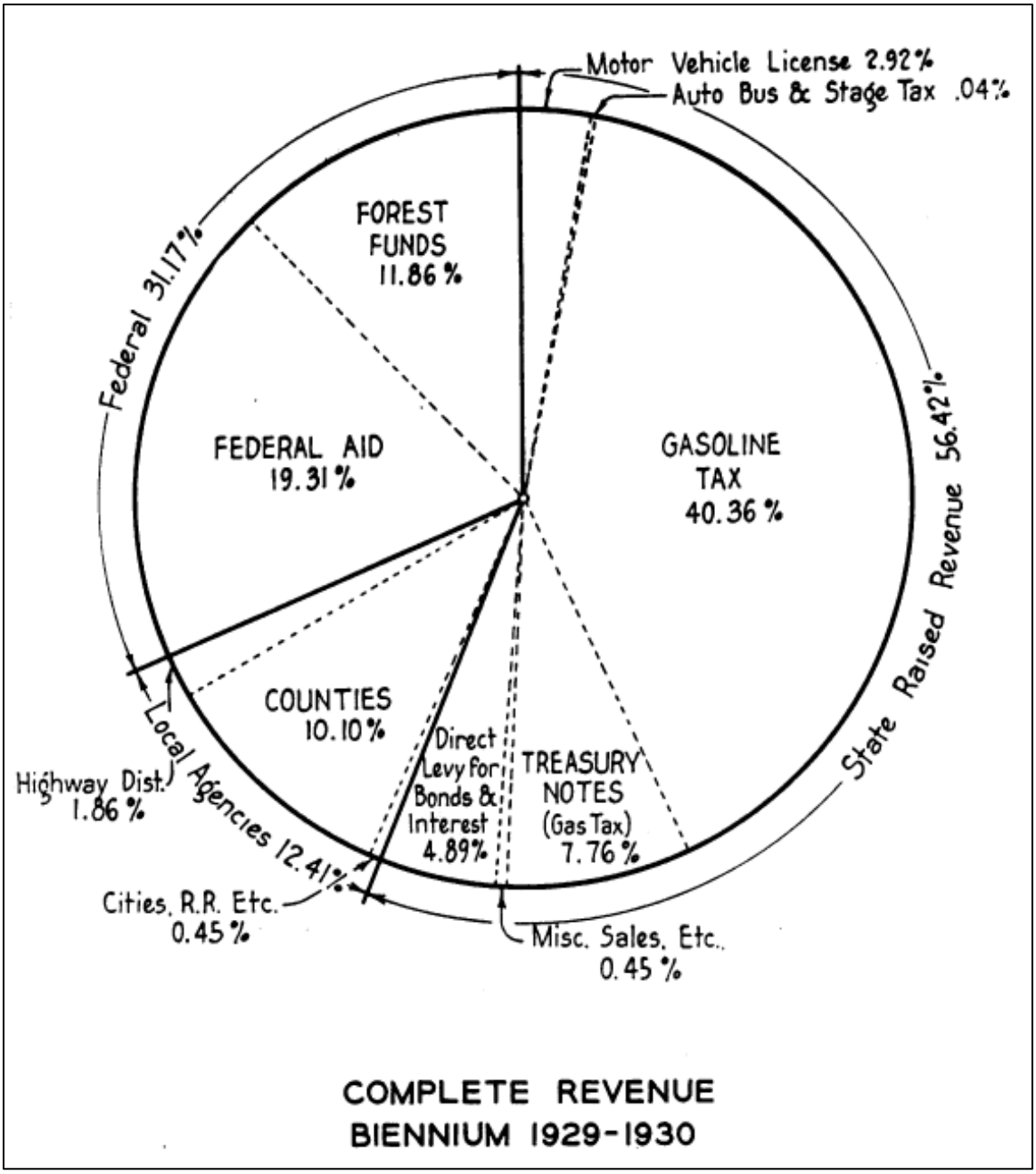


Figure 33. Highway funding sources at the onset of the Depression.[219]

Changes in federal funding for highways on public lands also benefitted Idaho during this period. Forest Highways continued to receive 100 percent of their funding at the federal level. An increased federal appropriation for Forest Highways permitted the highway department to complete most of the in-progress work within forest reserves, including the final links in the Clark's Fork, Payette, and Elk City Highways, as well as the Forest Highway "missing link" on the North and South Highway (a portion in Latah and Benewah Counties) by the end of 1930.[220] A 1928 amendment to the 1921 FAHA had permitted the addition of federal aid mileage within national forests, and by 1930 portions of the North and South Highway, Old Oregon Trail, Idaho Central Highway, and several other routes that lay within forest lands were added to

the federal aid system. Another amendment in 1930 permitted the federal government to pay the total cost of highways built across government-owned land outside of Forest Reserves.[221] This was of particular importance in Idaho, where over 20 percent of the total land area was held by the government as public domain lands.[222]

Federal aid had been the source of most of Idaho's highway funding since the 1916 Post Road Act, and the ongoing importance of federal funds can be seen in a breakdown of the State Highway System. In 1932, the federal aid system itself accounted for 65 percent of the total State Highway System and received 60 percent of its funds from the federal government. Forest Highways, which were fully federally funded, made up 18 percent of the State Highway System. Even prior to the inclusion of highway mileage across public domain lands, 83 percent of Idaho's State Highways received the majority of their funding from the federal government.[223]

Despite the $1.5 million in federal emergency funds issued in 1932-1933, the full measure of federal relief programs was not felt until the following year with the passage of the National Industrial Recovery Act (NIRA). The New Deal's impact on Idaho's State Highways truly began in the 1933-1934 biennium, when the regular federal aid appropriation was suspended and replaced by PWA funds, which required no state match. In total, Idaho received nearly $5 million in 1933-1934, compared to just under $3 million in the prior fiscal year.[224] While federal aid could previously only be spent on the federal aid system itself, the 1933 NIRA and Hayden-Cartwright Road Act of 1934 included provisions for secondary or feeder roads, including farm to market, rural free delivery, and school bus routes, thus expanding the availability of these funds beyond the most important arterials in the state.[225]

While the highway department would otherwise have been able to do little more than maintain the existing system, additional emergency federal funding and New Deal programs made it possible to substantially increase its level of activity through the Depression years.[226] Some new funding was specifically directed at safety improvements, such as elimination of grade crossings, while other funds were earmarked for roadside improvements. Over the course of the Depression, the federal government provided $15 million for highways and $2 million for elimination of grade crossings.[227] Overall, the infusion of federal funding allowed the highway department to upgrade a substantial amount of the State Highway System. Figures 34 and 35 demonstrate the extent of improvement between 1930 and 1940, and the summary of mileage by surfacing type shows that while the highway system itself expanded by less than 300 miles, the highway department was able to upgrade nearly 2,000 miles to a paved or oiled surface and reduce the amount of unimproved mileage by more than half.

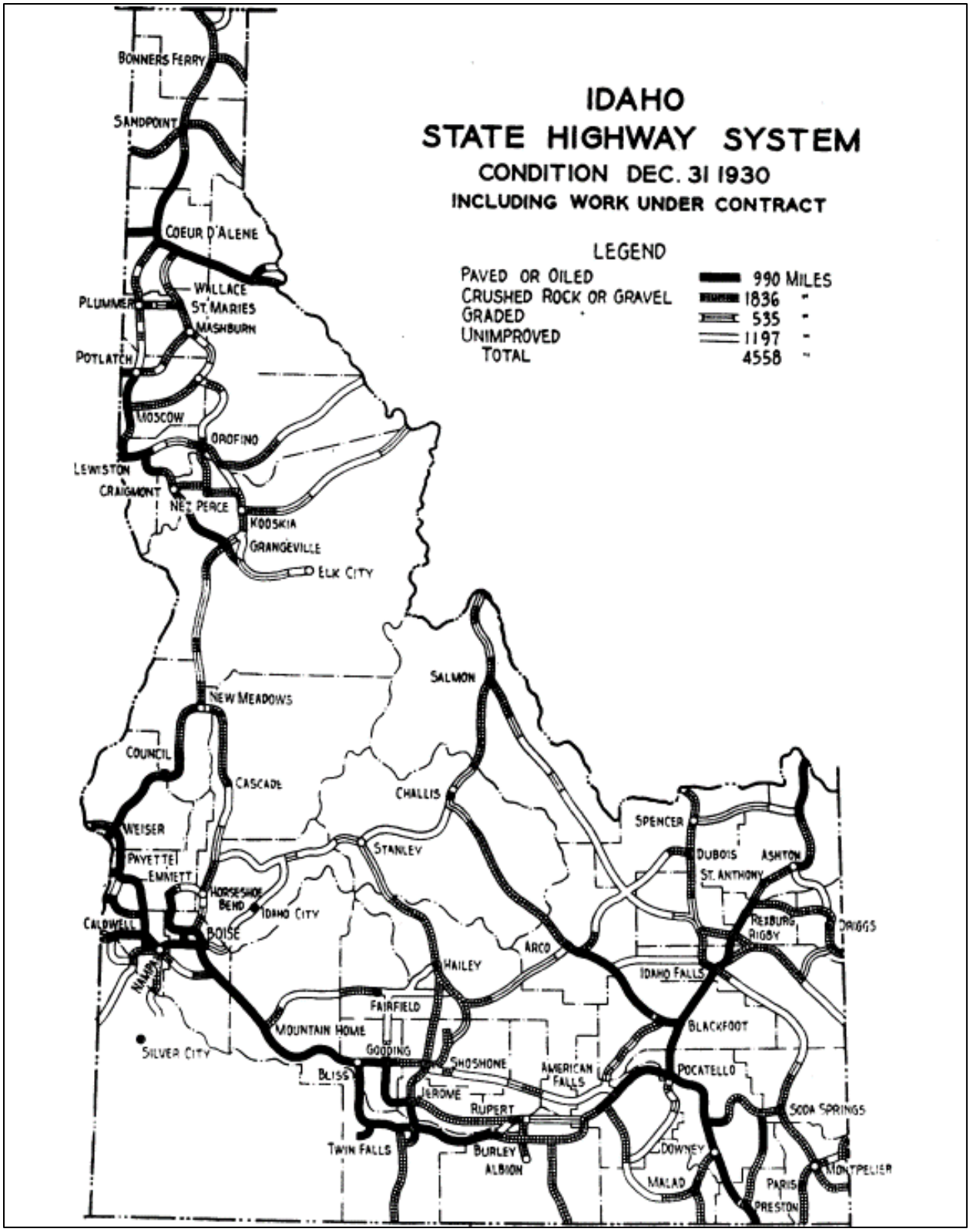


Figure 34. Extent of the State Highway System in 1930, showing improvement and surfacing.[228]

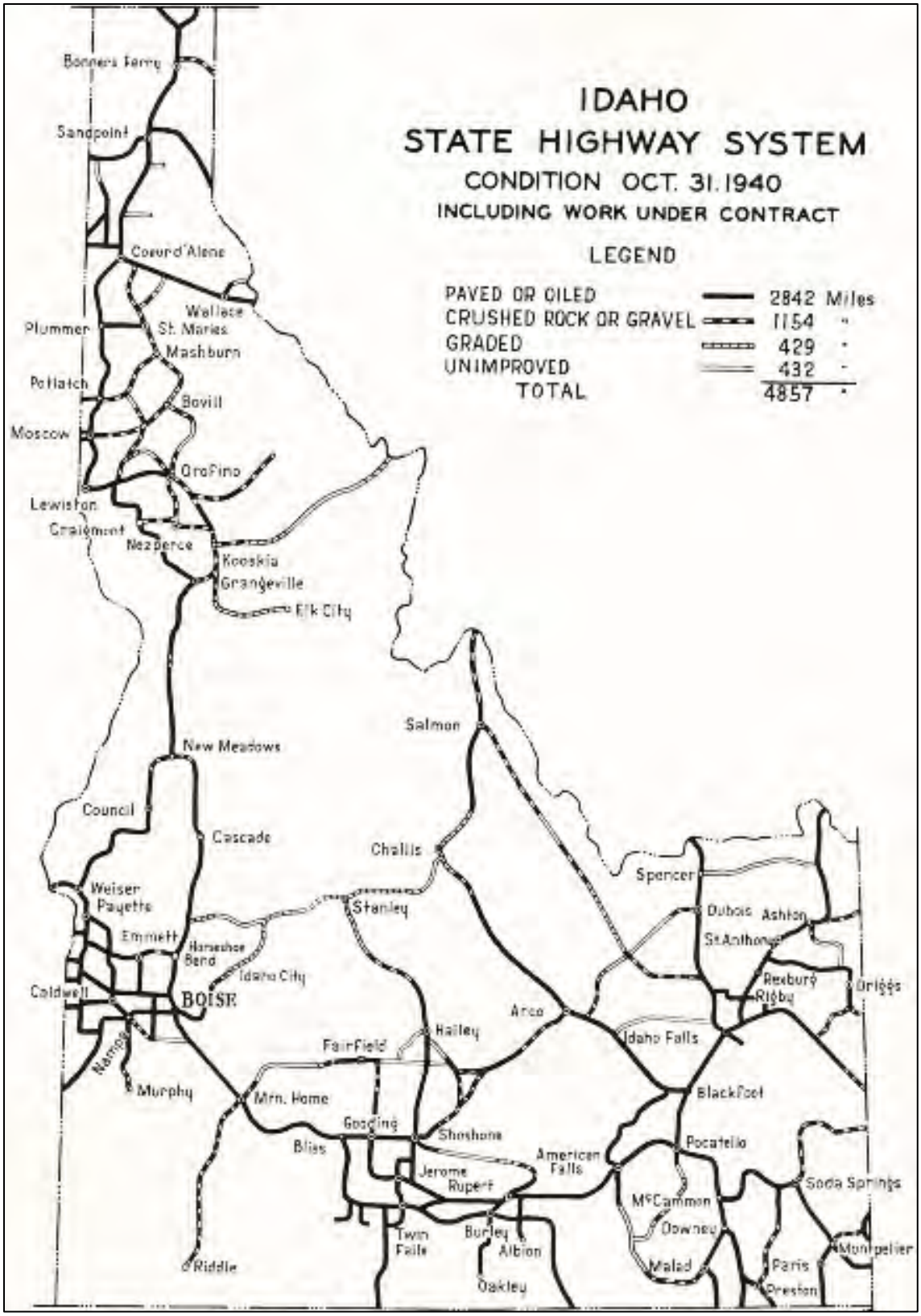


Figure 35. Extent of the State Highway System in 1940, showing improvement and surfacing.[229]

(2) Depression-era relief programs in Idaho

While many New Deal programs and policies were calibrated to an urban setting, Idaho was predominantly a rural state during the Depression, with only seven communities of more than 5,000 residents in 1930.[230] The road-related projects enabled by New Deal funds therefore had a profound impact on the state, improving connectivity between rural communities. Farm-to-market and other off-system routes improved farmers' ability to transport produce and livestock, and many were constructed by relief labor. Other routes were improved to facilitate the regional mining industry, such as the Duck Valley Highway, a heavily used route between the Mountain City copper mining district in Nevada and the nearest rail connection, located to the north in the vicinity of Mountain Home; the portion of the route in Idaho also connected farmers in southwestern Idaho to markets in northern Nevada.[231]

Prior to the Depression, federal aid and state aid projects were required to be let to private contractors by competitive bidding. Thus, when the first, limited, relief programs were set up under the Hoover administration, Idaho was only able to use relief labor on a small number of projects receiving certain emergency funds. By 1932 the highway department was making use of laborers on lists compiled by the state's Local Employment Committee for these emergency construction projects; while the stipulations regarding hand labor were similar to later relief programs, these projects appear to be limited.[232] With the inauguration of the Roosevelt administration in 1933, programs such as the CCC, CWA, and WPA soon changed the landscape, providing employment for thousands of people on road construction and roadside improvement projects.

Programs such as the PWA distributed funds for projects, including a total of $8.2 million for streets and highways in Idaho.[233] In contrast, the CWA directly employed workers, and during the brief period in which it existed, crews completed a number of highway projects, usually grading, including portions of the Payette Highway and the Payette Emmett extension.[234] This direct-employment program was soon eliminated and essentially replaced by the WPA, which provided funds to agencies on a project-by-project basis to employ as many workers as possible.[235]

The WPA extended or improved nearly 1,500 miles of highways, roads, and streets in Idaho, including work on over 1,800 culverts and 400 bridges across the state.[236] Although the vast majority of these projects noted in department literature were on farm-to-market and other county or local roads rather than on the State Highway System, numerous State Highway projects were accomplished with relief labor. WPA projects on major routes include portions of the Old Oregon Trail (US-30) between Hansen and Buhl, reconstruction at Lewiston Hill on the North and South Highway, and upgrading a portion of the Yellowstone Trail (US-10) near Coeur d'Alene to a four-lane concrete pavement.[237] WPA forces also began constructing a cut-off alignment between Cottonwood and Whitebird that would avoid Whitebird Hill (Graves Creek Road), although the project does not appear to have been completed.[238] WPA crews graded a new, short, secondary route between Plummer, Idaho, and Fairfield, Washington, making it easier for drivers from Washington to reach recreational areas of the Idaho panhandle.[239] In some instances, such as the reconstruction of a portion of the Bannock Highway south from Pocatello, the WPA cooperated with the CCC.[240] Numerous other examples involved shoulder widening, drainage, and roadside beautification.

Figure 36. Culvert on ID-62 at Seven Mile Creek, built in 1938 by WPA.[241]

Although the CCC cleared approximately 3,600 miles of roads in Idaho, their efforts appear to have focused on Forest Development roads rather than highways.[242] Development roads were generally primitive ones intended to provide the first vehicular access through wilderness areas in the national forests, although some were later expanded, such as the Bogus Basin Road that opened the area to ski resort development.[243] A CCC camp was established near Kooskia in 1933, but primarily built development roads; construction of the nearby Lewis and Clark Highway did not occur until two years later with the establishment of a federal prison camp nearby, whose inmates began work on the highway in 1935 (Figure 37; see Section 7.A.(1) for additional discussion).[244]

With the advent of additional federal funds came a new focus on roadside improvement as well. In years past, the highway department's primary aesthetic concerns focused on removal of advertising signage that could reduce visibility. Under new stipulations that one percent of federal funds be devoted to roadside improvement projects outside of municipalities, the highway department began to include roadside beautification as part of highway design, including what the highway department termed "conservation of existing natural scenic resources" and the use of plantings to improve appearance. Projects could encompass anything from general cleanup and pruning through detailed landscaping design. The first three projects programmed in Idaho for implementation in the 1935-1936 biennium span this gamut, including an intensive landscaping plan for the Fairview Bridge approaches in Boise; a 3.5-mile planting and trimming plan for the Lewis and Clark Highway near Orofino; and a general cleanup pruning, slope seeding, and campsite construction project along the Heyburn Park Highway between St. Maries and Plummer.[245] Idaho's traveling public apparently did not appreciate these early efforts, and reactions were subsequently described as "destructive and unappreciative."[246] Nevertheless, roadside improvement projects continued to provide

amenities for travelers, and were constructed by the highway department's maintenance division and by relief labor, such as the CCC-built rock wall and fountain on US-93 (see Figure 38).[247]

Figure 37. Lewis and Clark Highway, Lochsa River, c.1935.[248]

Figure 38. Image from 1938 showing ornamental wall, parking area, and drinking fountain built by CCC on US-93 in Lemhi County (exact location unknown).[249]

The statewide planning survey was also initiated in compliance with federal provisions, and this cooperative project with the BPR was authorized in 1934 and conducted from 1935 to 1937.[250] Intended to guide future work on the system, the program required a slew of investigations and compilation of comprehensive data including a statewide road and bridge inventory that addressed improvement status, condition, and location of public highways and other related transportation facilities. Other investigations included origin-

destination data, traffic volume, and financial analyses regarding taxation, funding, and distribution of revenue within the highway department.[251]

C. Construction and engineering

(1) Improved surfacing

During the early Depression years, road surfacing was the main area in which the highway department made substantial progress. A large percentage of the system was upgraded from untreated gravel, either through paving or application of a dustless surface treatment.[252] From a practical standpoint, over 2,800 miles of the total 4,558-mile system had been improved to the level of an "all-weather" road (passable even when wet) by 1930.[253] While the numbers may appear unimpressive to a modern reader, the highway department took pains to point out that when adjusting for population, Idaho in fact had more mileage of surfaced highways per inhabitant than nearly any state, with the exception of Nevada, Vermont, Wyoming, and New Mexico.[254] Given the historically low population density of Idaho and the other four states, this indicates that while there were fewer roads overall compared to more populous states, there was a higher degree of improvement on those roads that did exist.

The department had begun regular use of bituminous surface treatments shortly before the onset of the Depression, and by 1930 had determined that this method substantially reduced maintenance costs and improved safety. By impregnating the gravel, sand, or crushed-rock surface of a roadway with an asphaltic material, maintenance crews could eliminate the need to constantly replace surfacing that wore away in dry months. The treated surface cut down on dust, which could blind drivers, and provided a smoother riding surface as well.[255] The benefits over the prior method, which relied on locally available clay as a binder, were immediately apparent and it soon became widespread.

Figure 39. Mixing oil into surfacing material, Freezeout Hill, Gem County, 1930.[256]

The increased funding available in the early 1930s made it possible to apply bituminous treatment to hundreds of miles of State Highways. The department developed new standards and procedures for its use. Bituminous surfacing was applied as soon as the subgrade had settled (rather than waiting until the roadway had begun to deteriorate, as the highway department had done in the past), and a typical oiled section constructed to minimum standards consisted of a a well-compacted, 3-inch base with a 2-inch mat comprised of oil mixed with gravel, crushed rock, or coarse sand. The bituminous mat was usually created using the "road mixing" method, in which the surface aggregate was placed in windrows (heaped longitudinally) on the base, treated with oil, and mixed thoroughly with a grader prior to compacting (Figure 40). To prevent crumbling at the edges, the outermost 18 inches of the roadway received an extra inch of oiled material. [257]

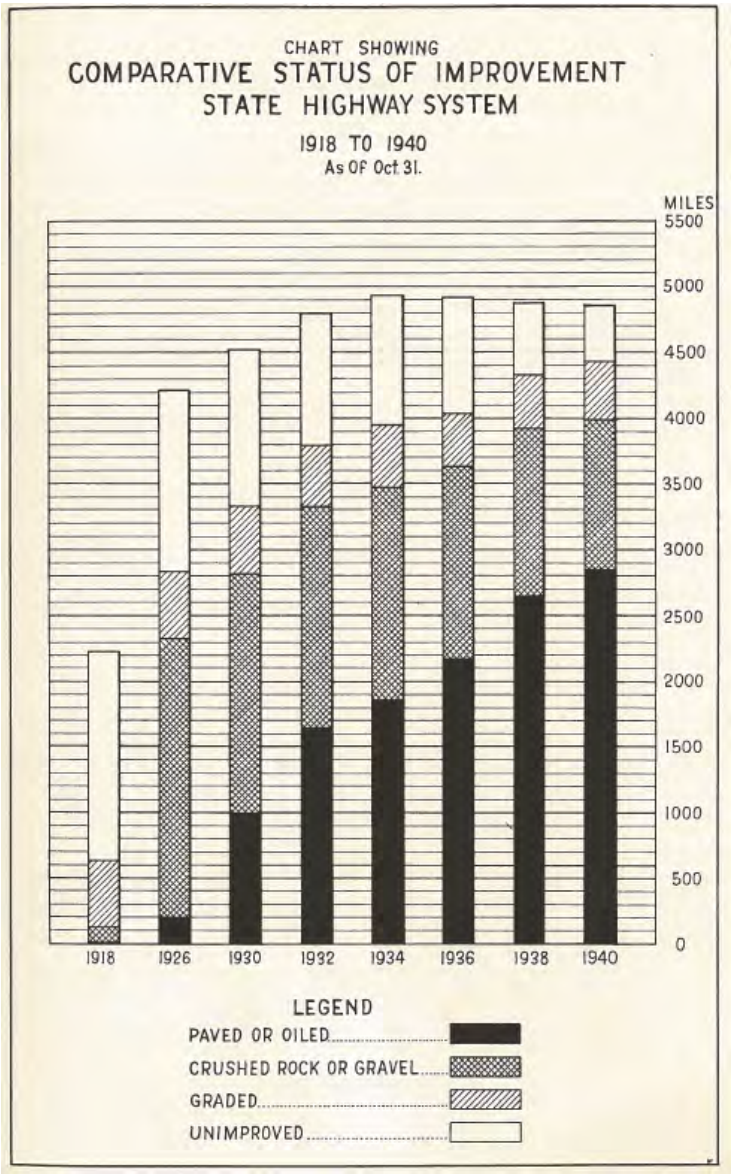


Figure 40. Improvement and surfacing, 1918-1940. [258]

Idaho oiled hundreds of miles of State Highways each year, nearly doubling the total mileage between 1930 and 1932. By that time US-30 was completely improved with oiled or paved surfacing from Utah to Oregon, as were segments of the North and South Highway from Grangeville to Potlach and from Coeur d'Alene to Bonners Ferry.[259] The demand for this type of surfacing soared, and within a few years, the highway department was unable to continue the typical section of the early 1930s due to cost, instead resorting to a temporary version consisting of two coats of oil and asphalt applied to an existing surface, followed by a cover coat of coarse sand or rock chips.[260]

(2) Safety and standards

Traffic weight, volume, and speeds had increased enough that by the mid-1930s the highway department advocated for more modern roadway design that would improve safety, including curve and grade reduction where possible. The 1920 standard width of 18 feet was increased to 20 feet in order to keep up with increased traffic, and other preferred roadway characteristics included flat slopes and shallow side ditches, as well as wide shoulders capable of accommodating parked vehicles or horse-drawn traffic.[261] Experiments with three-lane roadways appear to have performed poorly, as the 1936 biennial describes them as "murderous," with drivers from both directions fighting for control of the center lane. Instead, the highway department suggested the use of a divided four-lane section with central median for the most heavily traveled roads.[262] A 1937 state legislative act raised the maximum allowable vehicle weight from 50,000 to 68,000 pounds, reflecting the rising size and weight of truck traffic.[263] During this period, the highway department also increased the thickness of subbases; new construction used sand or sand/gravel subbases ranging from 6 to 18 inches in thickness, which helped to support increasing vehicular loads and also reduced susceptibility to frost heaves.[264]

Increased vehicle speeds also required stronger guardrail in mountainous areas. Despite the rugged topography in many areas, Idaho only had 72 miles of guardrail on its State Highways in 1936, comprised of a variety of wooden, wire, cable, and steel plate types. Some roadways simply included painted posts to serve as a "driving guide," while others used logs or rocks (see Figures 41 and 42).[265] Beginning in that year, the highway department adopted a BPR-approved standard guardrail consisting of a metal rail plate with wooden posts, using Tuthill and Resiliflex rails, both of which were early patented flexible designs intended to absorb impact and direct vehicles back onto the road (see Figures 43 and 44).[266]

Figure 41. Lava rock guardrail on Warm River-Yellowstone Road (ID-47).[267]

Figure 42. Log guardrail built in 1924 on North Fork-Payette Highway, Boise County.[268]

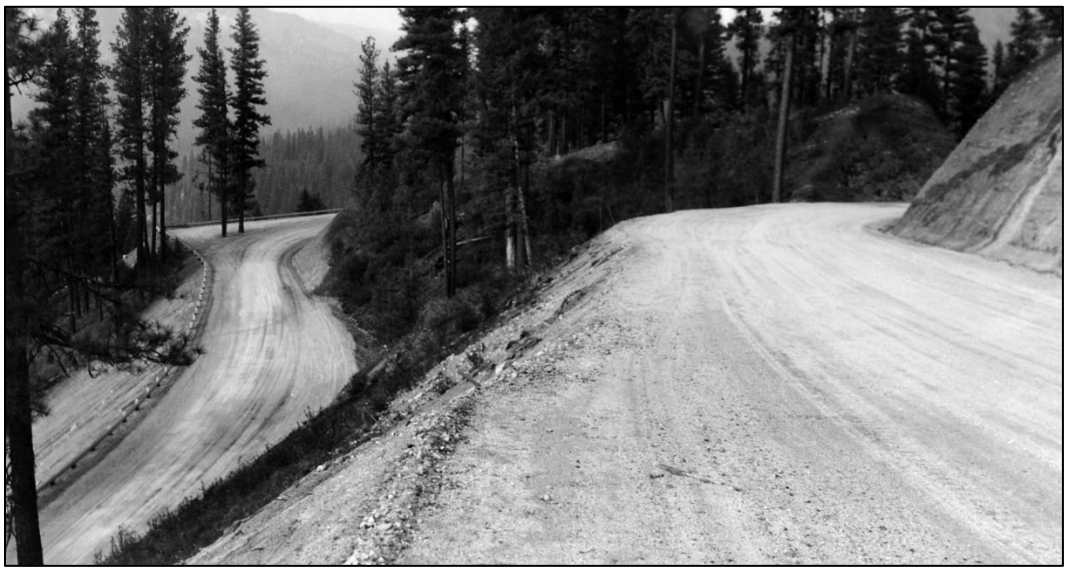


Figure 43. New construction on Idaho City-Stanley Forest Highway between Idaho City and Lowman in 1939 shows roadway design incorporating new concepts, including new Tuthill guardrail and roadside parking area at top left with mature trees preserved.[269]

Figure 44. Advertisement for flexible guardrail adopted by Idaho in 1936.[270]

Over the course of the 1930s, the highway department expanded its materials testing program first established in 1926, and the highway department constructed a new laboratory facility in Boise in 1939 (see Figure 45). Laboratories in Boise and Moscow (in partnership with the university) performed materials testing for the southern and northern halves of the state, respectively, and researchers studied new methods of soil testing to improve subgrade construction in the future. The Moscow laboratory helped to oversee an experimental emulsified asphalt stabilized base east of the city (ID-8 between Moscow and Joel) as well. With the introduction of centerline striping in 1935, other testing investigated traffic lacquers, and the Materials Division also initiated a statewide survey of all known materials deposits to improve efficiency in locating gravel pits and quarries adjacent to projects.[271]

Figure 45. New highway department materials testing laboratory, constructed in 1939 in Boise.[272]

Marking the way: signage

Idaho's highway signage developed slowly in the early decades of the State Highway System, and directional and regulatory marking was done by counties, districts, or in some cases by private individuals (see Section 5.C.(2)). By the 1930s, the BOH was already using standard regulatory signs developed by the nationwide advisory organization AASHO to mark stops, curves, and other road conditions, but did not adopt a standard statewide system of directional and informational signage, including the numbered highway markers shown in Figure 46, until 1934.[273]

Figure 46. Old and new regulatory signage in Boise, c.1930.[274]

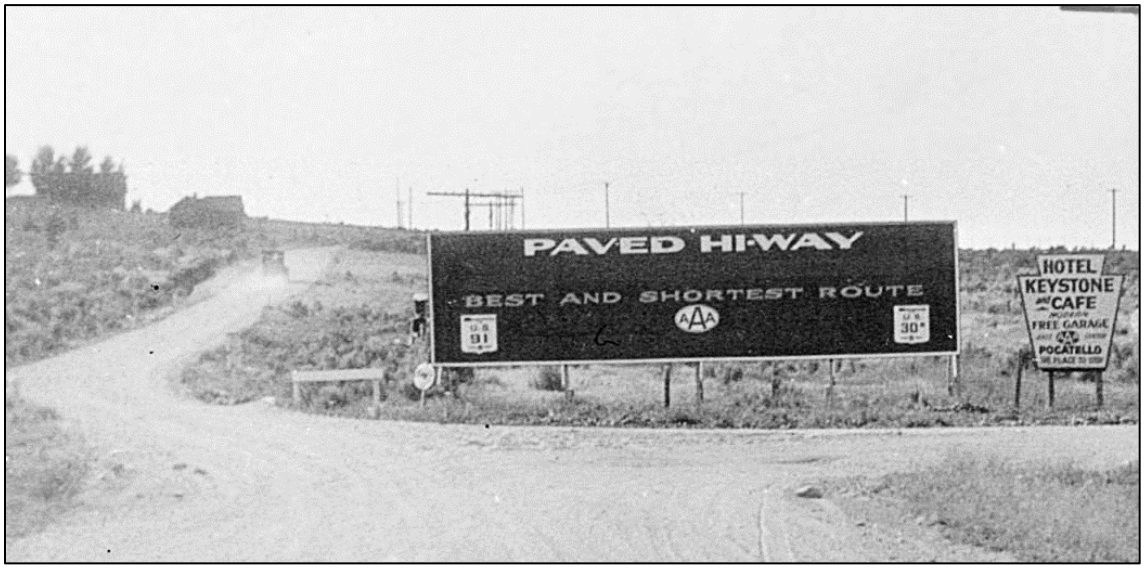


Figure 47. Unofficial signage placed by the American Automobile Association at Old Oregon Trail east of Burley, c.1930.[275]

Figure 48. Typical 1930s informative and directional signage.[276]

SECTION 7.
WORLD WAR II AND ITS EFFECTS ON IDAHO'S STATE HIGWHAY SYSTEM (1941-1955)

A. National trends

With the start of World War II, the federal government restricted funds to roads and bridges that served wartime needs, such as those providing access to military facilities or defense plants. Even before the U.S. became involved in the war, President Roosevelt backed a serious reduction in "nonessential" highway funding.[277] Following the attack on Pearl Harbor on December 7, 1941, the Public Roads Administration, under the direction of the War Department, began to direct remaining funding to state highways designated as part of a nationwide Strategic Highway Network. Strategic highways had been deemed important for the movement of troops and war materials, providing direct connections between cities and military facilities.[278]

As the war ended in 1945, many state transportation agencies turned their attention back to highway-building programs that had been severely restricted by war-related shortages of personnel, equipment, and supplies. Nationally, federal funding for highways increased, leading to the expansion of federal-aid primary roads throughout the country and eventually to construction of the Interstate Highway System. While the most important legislation regarding Interstates came in 1956 (see Section 8), important national developments in road building were made possible through funding and new policy provisions provided in a series of legislative acts adopted between 1944 and 1955.

The Federal-Aid Highway Act (FAHA) of 1944 expanded the federal-aid primary road system, encompassing roads that states had designated as main transportation routes of the national highway system. The act also provided new funding for construction of secondary roads (also known as feeder roads, which included farm-to-market roads, rural free delivery routes, and public school bus routes) and urban highways in cities with a population of more than 5,000. Previous federal aid had focused largely on primary roads and restricted the miles of secondary roads that could be improved with federal funds. The 1944 FAHA was the first time funding was provided for urban and secondary highways, without mileage limitations.[279]

The act provided $500 million nationally over a three-year period, with $225 million allocated to primary roads, $150 million to secondary roads, and $125 million to urban roads. Although a large sum, the money proved to be somewhat limited when distributed among all states. Funding for urban highways was distributed by population and for rural highways it was distributed to the states in proportion to rural population, geographic area, and post-road mileage (roads along postal routes). In general, states had to match federal allotments on a 50/50 basis.

While helpful for road construction, funding from the 1944 act was unable to adequately address the dramatic increase in automobile ownership and truck use in the postwar era. The unexpected flood of cars and trucks caused congestion in urban areas, increased pressure on the overall transportation network, and created greater maintenance costs for roads and bridges. The FAHA did, however, update and expand the federal-aid process and create a framework for highway funding and planning at the state level.[280] It also officially designated an approximately 40,000-mile National System of Interstate Highways. Selection of specific Interstate routes and funding for their construction would not come until later; however, the 1944 act established the initial system which was a vital step toward Interstate development.[281]

The Korean War, which lasted from 1950 to 1953, reduced federal highway spending somewhat as money was once again diverted to military needs. At the same time, the war also provided the opportunity for Interstate Highway supporters to argue for increased federal highway funding to support national defense.[282] The FAHAs of 1950, 1952, and 1954 increased federal spending for urban roads and continued to emphasize secondary highways while also authorizing an initial $200 million in Interstate funding.[283] A massive new funding mechanism for the Interstate Highway System would emerge in 1956 (see Section 8).

Idaho felt the impacts of these national road trends. During the 1940s and early 1950s, the highway department worked to address national defense needs by allocating federal funding and performing desperately needed maintenance following World War II. It took on these projects while the highway department was also chronically short-staffed during and for years after the war. Idaho's advances during the postwar years, in spite of many challenges, laid a solid foundation for future highway building.

(1) World War II impacts in Idaho

World War II had long-term effects on the national economy and road-building needs that played out in Idaho. Federal road appropriations dried up and the government rationed many of the materials that the highway department needed to do its work, such as gasoline for maintenance vehicles and steel to build bridges. The department also lost a significant number of staff who left to join the armed forces. At the same time, more than 1,000 miles of Idaho's highways were designated part of the nation's Strategic Highway Network and many of the state's resources, transported over the road system, became vital to the war effort. A bare bones highway department staff provided limited labor for wartime road improvements. These efforts assured that the State Highway System did not go into complete disrepair during the war.

Wartime rationing and materials shortages had a multitude of effects. As gas, tires, steel, and rubber became limited, road construction and maintenance were increasingly difficult. Gasoline rationing cut the gas tax revenue, an important income source for the highway department, by 35 to 40 percent.[284] This represented a loss of $2 million between 1942 and 1944.[285] Meanwhile, steel shortages slowed bridge construction and permanently halted the building of metal truss bridges throughout the state.[286] The bridges the state did construct during the war years used timber and unreinforced concrete.[287] Auto

production halted nationwide, and in combination with gas and tire shortages, this deterred travel and tourism throughout the state. Idaho saw the biggest decrease in percentage of travel of any state in the country in the first quarter of 1944 compared to 1941.[288]

Selected access road projects during the 1942-1944 biennium[289]

- DA-WM-2: South Mountain Mining Company; Grade, drain and surface – 19 miles
- DA-NR-1: Athol to Spirit Lake. ID-54 near Farragut Naval Base; Grade, drain, bituminous surface – 7.8 miles
- DA-NR-2: Garwood to Athol. US-95 near Farragut Naval Base; Extraordinary maintenance on present road – 8.1 miles
- DA-WR-22: Mountain Home Airbase; Grade, drain and bituminous surface – 10.2 miles
- DA-WR-37: Gowen Field toward Boise; Grade, drain, bituminous surface – 2.6 miles
- DA-RM-44. Triumph Mine; Bituminous surface – 6.0 miles
- DA-RM-65: Dickey to Ima Mine; Widening – 2.2 miles

Figure 49. Image from a surface inspection of an access road to Mountain Home Air Force Base, c.1945.[290]

Figure 50. Access road to the Ima Mine in Lemhi County, c.1940.[291]

A severe personnel shortage also restricted highway activities during World War II. Between 1942 and 1944, staff in Idaho's highway department decreased by 52 percent.[292] By that year 137 employees in the Department of Public Works (which oversaw the highway department) had left to join the armed forces, including 12 lab technicians, 46 engineering assistants, and 60 maintenance employees.[293] Notably, the impacts of this exodus lasted long after the war. In 1953, the highway department reported, "the shortage of qualified engineering and technical men is still a serious problem."[294] In response, the highway department instituted an engineer-in-training program, which helped mentor 72 staff members by 1957.[295] It also recognized the need to offer higher salaries and more promotion opportunities in order to compete with agencies like the U.S. Army Corps of Engineers.[296]

The highway department had to carefully plan and prioritize wartime work due to these funding, materials, and personnel restrictions. Non-war-related projects were cancelled or delayed. In 1942, a newspaper article announced that "Road building came to a virtual halt" after the federal war department rejected more than $3.5 million in planned funding to Idaho.[297] By 1944 the highway department reported that "practically all highway construction requires approval by the War Production Board."[298] Nevertheless, Idaho did have a number of resources and connective roadways that proved vital to military efforts. This resulted in limited highway development during World War II.

The national Strategic Highway Network was divided into first priority and second priority roads. As of 1940 Idaho had 683 miles of first priority roads and 504 miles of second priority roads, which modestly expanded by 1944 to approximately 1,215 total miles. The department described the strategic routes as being "superimposed" on Idaho's Federal Aid Highway System and State Highways and did not specifically identify them in its biennial reports.[299] A 1942 newspaper article, though, called out the east-west routes of US-10 in the north and US-30 in the south as important parts of the Strategic Network.[300] Construction projects authorized in the midst of the war during the 1942 to 1944 biennium included segments of US-10, US-30, US-91, and US-95, in addition to a number of small projects on state routes, confirming their inclusion on the Strategic Network.[301] The state's estimated costs to build or bring these highways up to the federal design standard was estimated in 1940 at more than $21 million.[302] The major design difference in comparison to the regular federal-aid system was width, which was 44 feet shoulder-to-shoulder with 24 feet of oiled pavement to allow army convoys to park on the side of the road. These highways were funded using federal aid with matching state funds and the government reimbursed costs at a relatively high rate of 80.95 percent because of their importance to national defense.[303]

As part of the Strategic Highway Network program, Idaho's highway department shared information with the federal War Department including maps; existing bridge conditions, load capacities, and clearances; and materials on access roads to military bases.[304] For example, when the War Department requested "detailed information for the use of possible army convoys," the Highway Planning Survey prepared a report that included "possible camp sites and listed all points where delay might be expected due to physical conditions or to conflict between military and civilian traffic movement."[305] Though construction and improvements related to the Strategic Highway Network were not complete by war's end, the program required the state to designate these highways as their primary routes to prioritize and receive funding for defense-related road projects.

Access roads for military bases and natural resources were included in the Strategic Highway Network and became vitally important during the war. As opposed to the main strategic routes, which required some state matching funds, these access roads qualified for full federal funding through the Defense Highway Act of 1941.[306] Several access road projects took place in the 1942-1944 biennium (see sidebar above). In 1944, the highway department reported that, "approximately 64 miles of military and strategic material access roads have been maintained by the Department by State Forces."[307] They included roads to the Farragut Naval Base in northern Idaho, between Coeur d'Alene and Sandpoint, which was made up of 4,000 acres and 800 buildings. At the height of World War II the base represented the largest concentration of population in Idaho. Other military infrastructure included an ordnance plant in Pocatello, which produced weapons and ammunition; the U.S. Army Air Corps' Gowen Field near Boise and Mountain Home Air Force Base.[308]

Other access roads on the Strategic Highway Network reached mineral deposits, mines, and forest resources vital to war efforts. Minerals that were extracted in Idaho and important to war production included molybdenum, cobalt, antimony, mercury, copper, tungsten, zinc, phosphates, vanadium, and lead.[309] The military needed lumber for everything from boxes and crates to ships and airplanes. In 1942 alone, Idaho produced 427 million board feet of lumber, mostly yellow and white pine, for these uses.[310] When allocating funding for these access roads the highway department had to balance different economic sectors' varied needs. The mining and forest industries both benefitted from highway development in rural mountainous areas, such as US-10 through the Coeur d'Alene National Forest. Agriculture, however, thrived in flatter mountain and river valleys, such as the Snake River Plain in southern Idaho.[311]

All of these resources required infrastructure (see Figure 51). For example, during the 1940-1942 biennium, highway department forces constructed about 6 miles of a "mine-to-market" road south of Ketchum in Blaine County from US-93 (now ID-75) to the North Star Mines.[312] In the 1942-1944 biennium, the highway department constructed 19 miles of roadway to reach a zinc mine at South Mountain in Owyhee County and about 7 miles of improvements along ID-13 between Stites and Harpster in Idaho County for timber access (see sidebar titled "Selected access road projects during the 1942-1944 biennium" above).[313] Later, during the postwar era, the highway department constructed the Twin Buttes Highway (US-20) as an access road to the National Reactor Testing Station in Idaho Falls using federal funds as a matter of national defense.[314]

During the war, Idaho was home to a number of camps where conscientious objectors, prisoners of war (POWs), Japanese-American incarcerees, and Japanese immigrant internees, lived and labored. Camps in McCall and Downey held conscientious objectors and a major POW facility was located in the Paul area. The Minidoka Relocation Center in Hunt, northeast of Twin Falls and run by the War Relocation Authority (WRA), held approximately 13,000 incarcerees who were mostly Japanese-American citizens.[315] Meanwhile, the much-smaller Kooskia Internment Camp in north-central Idaho held approximately 265 "Japanese aliens" who were not American civilians but, rather, internees of the Immigration and Naturalization Service (INS).[316] While most of the laborers from these camps worked in agriculture, helping shorthanded farmers harvest their crops, a handful of the facilities including Kooskia supported road construction.[317]

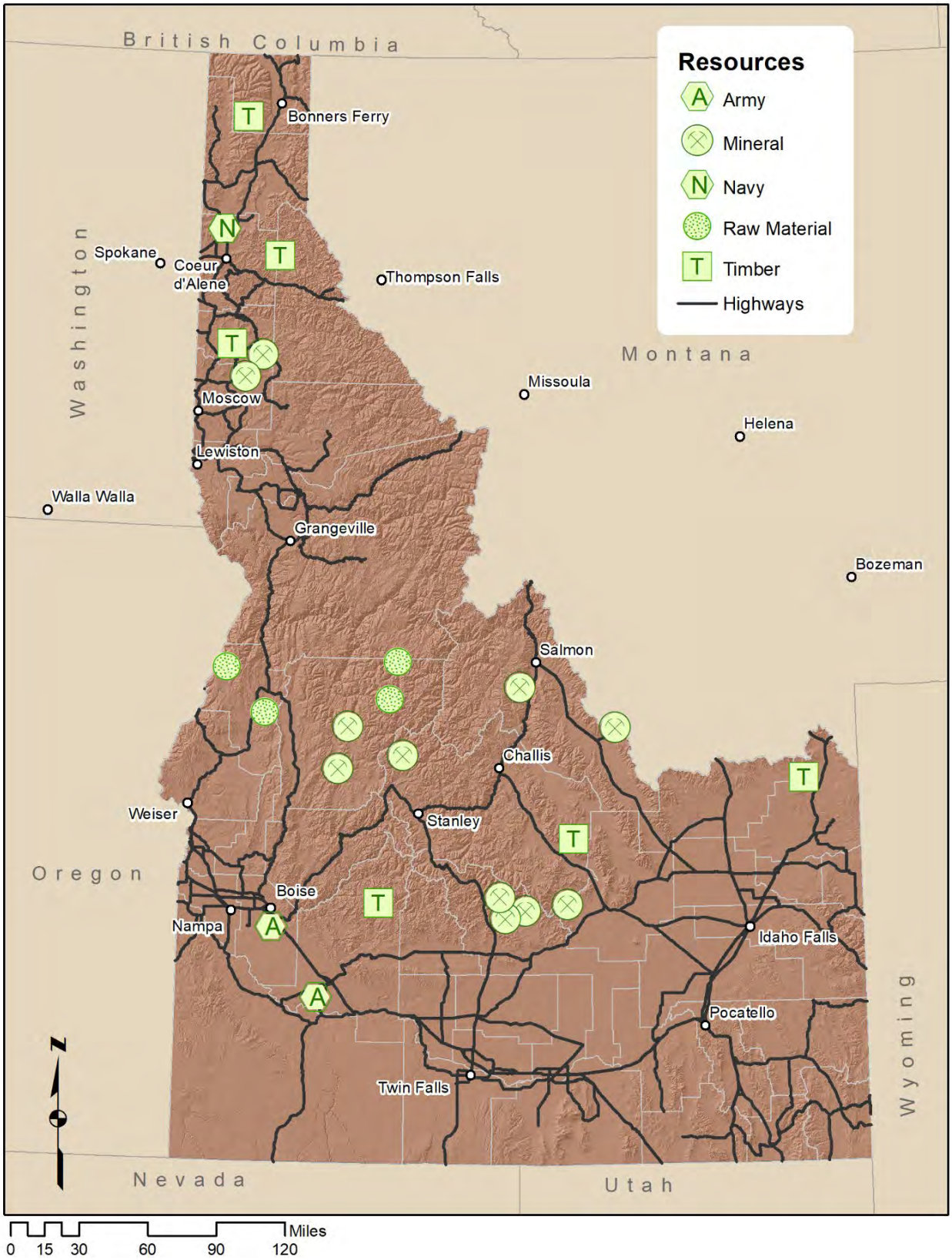


Figure 51. Map showing locations of important natural resources during World War II.[318]

Kooskia was a former CCC camp turned into a federal prison camp and finally, in 1943, an internment camp for Japanese "aliens," many of whom were recent Japanese immigrants who had not yet gained citizenship. These internees built segments of the Lewis and Clark Highway (formerly ID-9, now US-12) between May 1943 and May 1945 (see Figures 52 and 53).[319] Internees took on roles including clearing brush and shale slides and using jackhammers to blast away rocks to make way for the new, widened right-of-way.[320] Their labor helped improve the highway through a remote and mountainous area along the Lochsa River. The *Lewiston Morning Tribune* claimed that this was "the first experiment [in the United States] in the utilization of Japanese alien labor on government construction," arguing that its "satisfactory progress" made it a good model to use on a national level. Indeed, this is the first known instance of the government using Japanese detainees for construction labor; leading Kooskia scholar Priscilla Wegars explains that it was the "sole work camp for Japanese internees in the U.S." and argues that it was important for the ways in which its internees negotiated with the INS for better working and living conditions.[321]

Figure 52 and Figure 53. Japanese internees from the Kooskia camp completed road work in northern Idaho from 1943 to 1945.[322]

The end of World War II stopped nationwide funding limitations, rationing, and materials shortages that had long hindered road building in Idaho. The Idaho Department of Public Works' 1944 biennial report argued that, "the greatest problem now confronting all highway agencies is preparing for post-war rehabilitation of our various highway systems."[323] Although Idaho's highway department had put approximately 50 percent of the net revenue that it credited to the State Highway Fund toward maintenance during war years, it had not been enough and many roads were in need of complete reconstruction to bring them up to modern standards.[324] In this time of great need, the FAHA of 1944 provided funding for the federal-aid primary road system as well as secondary feeder routes and urban highways. The new funding allowed Idaho to construct and improve primary and secondary roads to complete its State Highway System.[325]

B. Policy, funding, and administration

As Idaho took part in the nationwide recovery in the postwar years, the state population and motor vehicle registrations climbed. Highways were increasingly important to the state economy and the highway

department, accordingly, took steps to organize its administration, increase and better allocate funding, and enforce new highway policies. The State Department of Highways was established in 1950 during this era of postwar growth.

(1) Department organization

Throughout the 1940s the highway department, called the Bureau of Highways, was part of the Department of Public Works. By the late 1940s, the state legislature formed the Idaho Highway Study Committee to evaluate and prioritize competing postwar needs. The committee released a 1949 report proclaiming, "Idaho needs better roads" (see Figure 54). At this time a mere 13 percent of Idaho's roads—approximately 5,000 miles out of 40,000—were under state control; however, those roads carried more than 75 percent of vehicular traffic through the state. As the report argued, "the State needs an effective administrative organization to plan, construct, and maintain an integrated system of modern primary roads."[326] The committee's recommendations became law with only a few exceptions.

Idaho Road Study Group Proposes Drastic Overhaul

$150,000,000 Improvement Program During Next 12 Years Conditioned On Organization, Revenue Changes

Figure 54. This January 5, 1950, headline article in Boise's Idaho Daily Statesman detailed proposed changes to the highway department organization and funding structure.[327]

In 1950, the highway department became its own separate agency, the State Department of Highways. Idaho's Highway Administration Act of 1951 reorganized and streamlined the newly independent department to address problems of poorly defined "lines of responsibility between the governor and director of highways" and an unclear relationship between the various department units.[328] The State Highway Commissioner position was abolished and became a three-person State Highway Board of Directors (State Highway Board).[329] Members of the board would be appointed by the governor for staggered six-year terms.[330] Moreover, they could only be removed through a public hearing and with just cause. In contrast, the previous commissioner could be removed by the governor for any reason.[331] The act also created a new position, the State Highway Engineer, as a single person to whom representatives from the various internal divisions would report. The highway department appointed Earle V. Miller of Arizona as the first State Highway Engineer, boasting that "his reputation for high standards is well known."[332] The department stated of the reorganization that, "political affiliations have been disregarded, salary scales increased and quality and morale of personnel have been improved correspondingly."[333] By the end of the highway department's first year of operation, the new board completed an ambitious, 10-year, $100 million road construction plan, which represented a "solid-long-range plan" in contrast to the previous "hit-and-miss" highway work.[334]

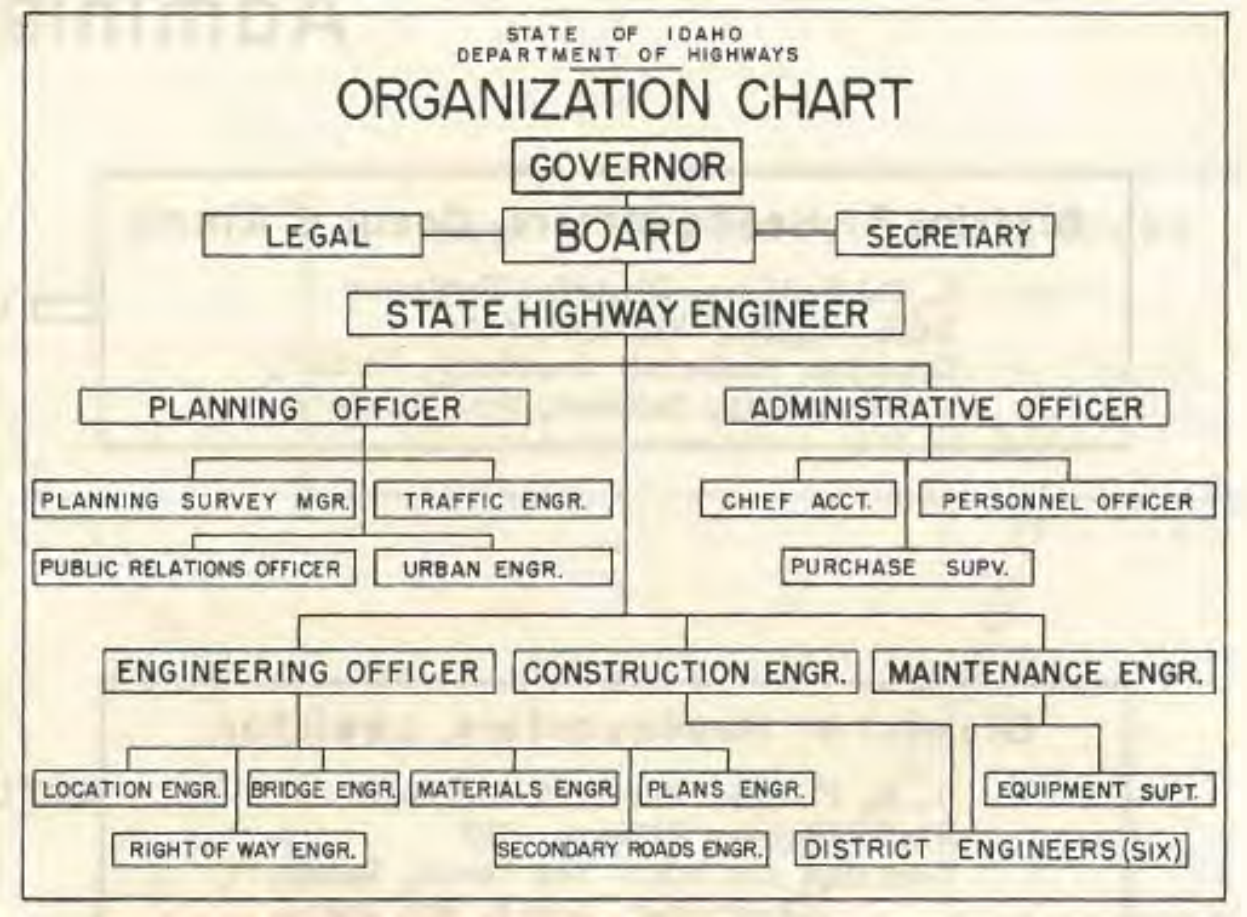


Figure 55. Organization chart showing the highway department following its 1951 reorganization.[335]

The department sought to centralize planning and construction in the main Boise office, rather than distributing responsibility among the six (increased as part of the reorganization from five) regional highway districts. To that end, the new agency had five divisions:

- Planning, which housed the Highway Planning Survey and Public Information, Traffic, and Urban Engineering Departments;
- Administrative, which included the Accounting Department and Personnel Department;
- Engineering, a large branch of the highway department, which had departments for Location, Materials, Right-of-Way, Bridges, Secondary Roads, and Plans;
- Construction, and
- Maintenance, which included the Radio and Equipment Departments.

Throughout the early 1950s, in the years after it became a separate department and reorganized, the highway department established several new sections as it fine-tuned operations and continued to focus on long-range planning. In 1952, the highway department created an Urban Engineering division. This division addressed issues with streets and highways in Idaho's 11 cities with populations of over 5,000.[336] In many of these areas, the State Highway System ran along main local thoroughfares that could easily become congested. The highway department had to find solutions to widen existing routes to accommodate traffic or else bypass or reroute the State Highways.[337] Also in 1952 the highway department created a new Public Information Department to increase transparency and share highway information with state residents and tourists alike.[338] This followed the new State Highway Board's stated goal to increase public knowledge of its work, which, as one newspaper editorial hoped, "will go a long way toward overcoming foolish and uninformed criticism," as well as giving the public "a better opportunity to make its voice felt in all matters related to Idaho's roads."[339]

(2) Travel and Tourism

The new Public Information division sent information to newspapers, radio and TV stations, and travel and trade magazines. It debuted a pamphlet and brochure that included a "See all of Rugged Idaho" map (see Figure 56). In 1953, the highway department distributed approximately 100,000 official Idaho highway maps, and that same year *Sunset* magazine featured US-95 in an illustrated spread on Idaho tourism, writing:

> …US-95 offers a sample of the state's whole topography: desert country in the south, then the timbered mountains of five national forests, some of the roughest rivers on the North American continent, and lakes that breed rainbow trout up to 30 pounds…You can make US-95 a main line for a leisurely trip up or down Idaho, looping off here and there for a day or two at a time to explore her lakes, rivers ,and wilderness areas.[340]

A mid-1950s pamphlet on US-26 similarly highlighted the major east-west corridor, calling it "the all-paved all-weather scenic way to the historic west" and calling out motels and restaurants along the highway in Idaho Falls, Blackfoot, Arco, and Gooding.[341] It had become clear that the State Highway System would support the state's budding tourism industry and vice versa. Nevertheless, as the highway department took on more specialized projects and long-range planning, focusing on urban development and marketing, it faced the challenge of postwar funding.

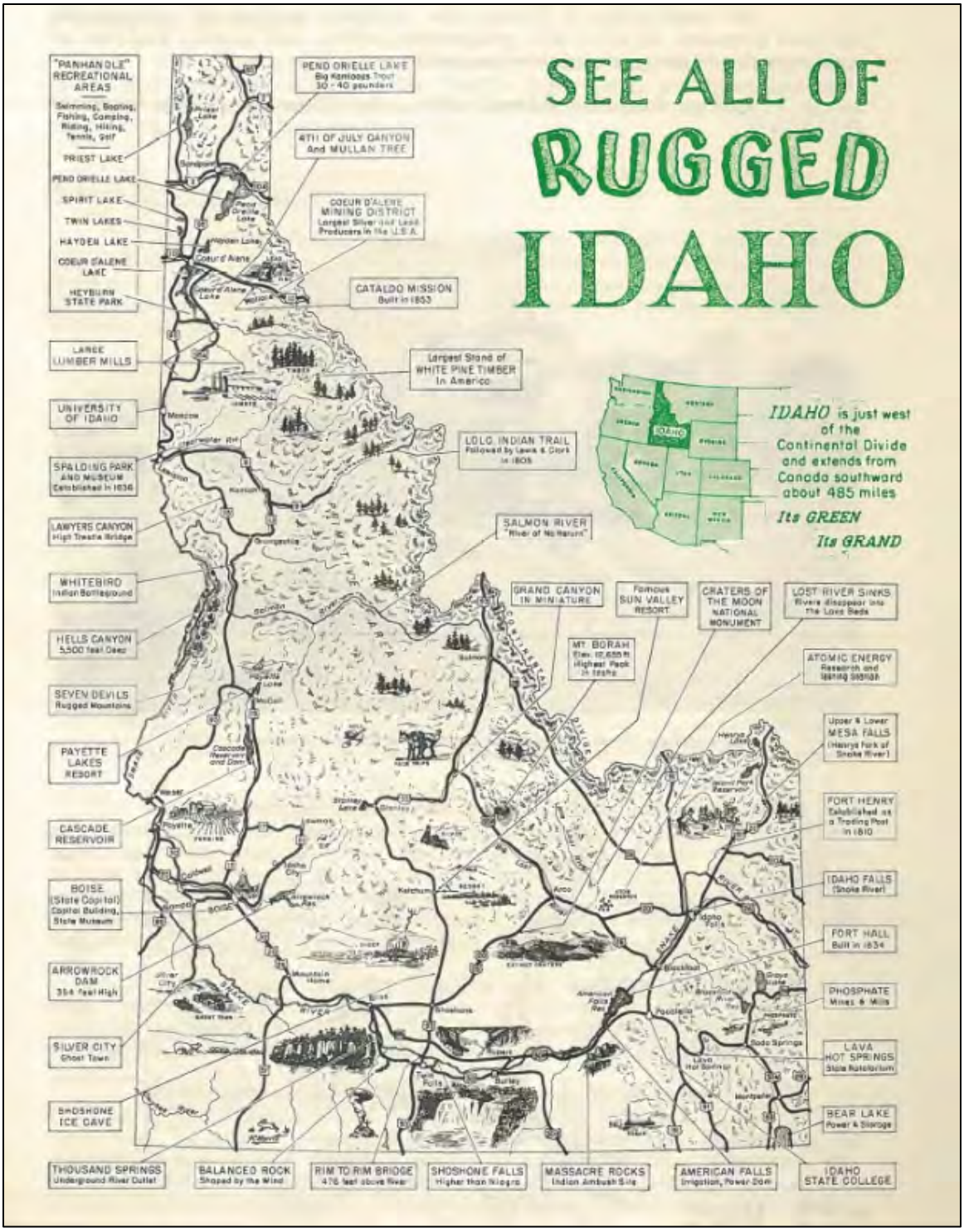


Figure 56. See All of Rugged Idaho poster from 1953.[342]

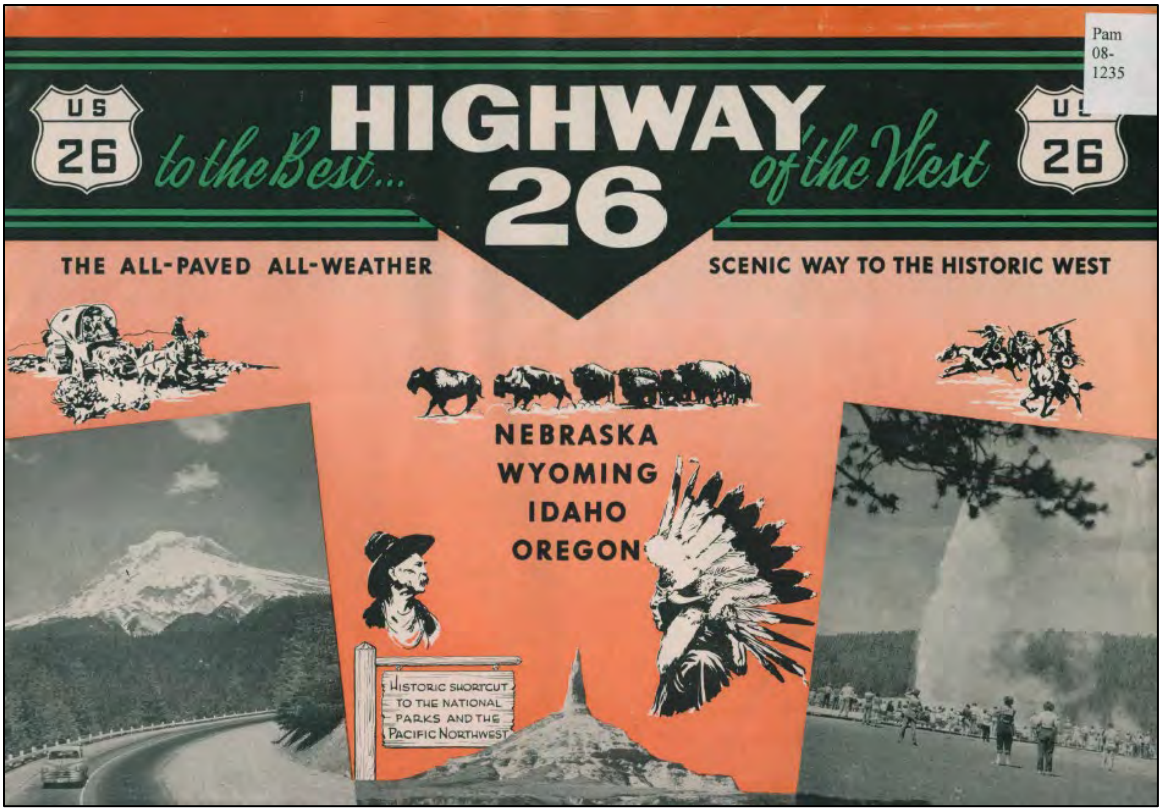


Figure 57. This pamphlet highlighted tourist destinations along US-26, a major east-west corridor.[343]

Figure 58. This photo of US-95 near Riggins is from a 1953 tourism article in Sunset magazine.[344]

(3) Road funding

During the World War II years, the highway department felt the double impact of a tight budget and high demands from the public.[345] By 1944, the highway department was already anticipating postwar improvements and investments. That year's biennial report stated: "The State has plans prepared for postwar projects to cost about $4,000,000 and is…develop[ing] further plans which will equitably distribute the benefits and financial responsibilities of this program among Federal, State, and local units of government."[346] At this time funding came from a combination of gas and vehicle taxes, federal aid, and some minor county and local support.[347]

The state gas tax and license and registration fees were the major sources of state-raised highway department revenue, representing significantly more than federal aid. For example, during the 1942 to 1944 biennium the gas tax brought in $8.3 million, or approximately 63 percent of the total highway department income, while the revenue from motor vehicles and registrations totaled $334,372 that year.[348] Nearly a decade later, buoyed by the postwar recovery, the Fiscal Year (FY) 1953 gas tax revenue totaled $13.4 million while motor vehicle registrations brought in $2.7 million.[349] Beginning in the early 1950s freight trucks were taxed based on weight loads to increase revenue.[350] By FY 1953 revenue from truck weight taxes totaled $1.8 million, which was 10 percent of the highway user tax revenue.[351]

Figure 59. An early truck weigh station. These became an important revenue source for the highway department.[352]

In addition to the revenue the highway department raised itself, funding also depended on aid from the federal government.[353] Due to Idaho's significant proportion of public lands it received federal aid at a rate of approximately 60 percent of a project's cost while matching the remaining 40 percent, which differed from the standard 50/50 match that many other states followed.[354] Nevertheless, state allocations for federal funding followed a formula based on one-third area, one-third population, and one-third road mileage, and due to Idaho's relatively low population and road mileage it received less funding than other states. Moreover, in the immediate postwar years the highway department focused on desperately needed maintenance projects largely completed without federal aid, since it was intended for new construction.

When the new State Highway Board was appointed in 1951, Idaho was ranked 47th of what were then 48 U.S. states in terms of the percent of allocated federal funds used.[355] Because Idaho had not used much of its available federal aid within the period of availability fixed by the 1944 FAHA, it risked losing that

funding. By the early 1950s, however, the highway department recommitted to matching all available federal funds and the state's highway allocations increased accordingly.[356] The FAHA of 1954 encouraged significant increases in federal funding; by 1956 Idaho received $6.9 million for primary, secondary, and urban roadways ($1.5 million more than 1955) and another $1.7 million (up from $0.3 million in 1955) for the Interstate Highway System (see Section 8).[357]

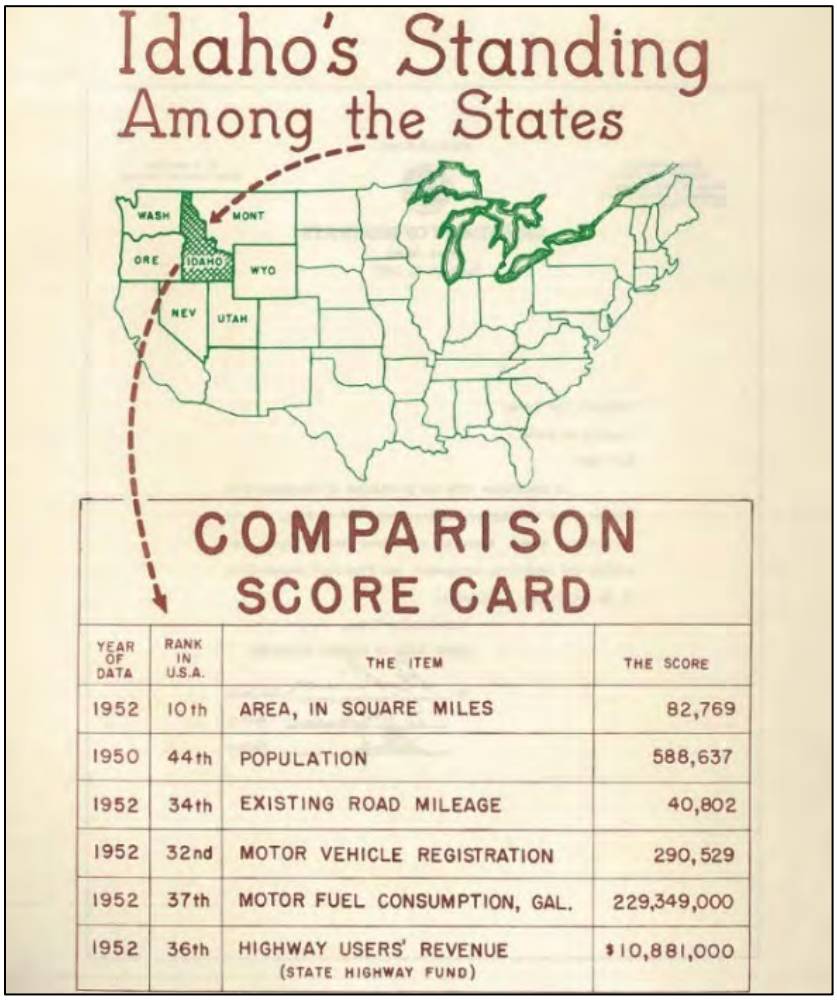


Figure 60. This graphic from the highway department's Second Annual Report shows how Idaho compared nationally when it came to area, population, and road mileage, all factors in the amount of federal funding the state received.[358]

The federal government allocated funding based on state designations of primary, secondary, and urban roadways. As of the early 1950s federal aid primary highways made up 3,166 miles of Idaho's State Highway System. Idaho also designated systems of federal aid secondary roads (consisting of 3,655 miles, with 1,300 part of the State Highway System), urban roads (comprising 44 miles in cities of 5,000 people or more), and Forest Highways (comprising 1,122 miles that received special aid apportioned under federal highway acts and amendments; note that these are different from federally controlled forest development roads; see sidebar below).[359]

Roads on federal lands and reservations

In contrast to highways on Idaho's State Highway System, including Forest Highways described above and below (see Forest Highways sidebar in Section 5.B.(2)), the BPR funded, designed, and oversaw construction on various types of roads on federal lands throughout the state. As of 1953 they included:[360]

- **Forest development roads**: 8,031 miles. "Forest development roads are those partly or wholly within or adjacent to the national forests and of primary value in the protection, administration and development of the national forest areas. All of the Forest Highways proper are portions of the State or county highway systems, while forest development roads are those serving the forestlands and are not on the system of the State or county."[361]

Figure 61. This photo of a forest development road in the Kootenai Valley Forest dates to the 1940s.[362]

- **Other federal lands roads**: "Federal lands roads through Public lands and Federal Reservations are those provided…[in] the original Federal Highway Act of 1921. Under the Act, the Secretary of Agriculture is authorized to cooperate with the State Highway Departments and the Department of the Interior, in the survey, construction, reconstruction and maintenance of main roads through unappropriated or unreserved public lands."[363]
  - National Park and Monument Roads: 12 miles
  - National Military Reservation Roads: 3 miles
  - State Park Roads: 5 miles

- **Roads on Native American reservations**: 512 miles. Jurisdiction over these roads was unclear; they did not entirely fall on the federal-aid system, but states were also reluctant to assume responsibility. Throughout the 1940s and early 1950s the U.S. Department of the Interior, Bureau of Indian Affairs coordinated funding and improvements for reservation roads in Idaho, and by the mid-1950s that agency began to turn reservation roads over to individual counties.[364]

During the postwar years, Idaho followed national trends in using FAHA funding for secondary road construction. These routes included the 1,300 miles that were part of the State Highway System as well as 2,355 miles of county and district roads.[365] The state's Secondary Highway System, approved in 1946, represented a new era of cooperation between state and local officials. If a road was not on the State Highway System, counties or local municipalities could raise matching funds to gain federal aid for secondary roads at a rate of 50 percent. From the beginning of the program in 1946 through the end of 1954, the state and/or local governments constructed or improved approximately 183 projects on 726 miles of secondary roads at a cost of $11.7 million.[366]

When the highway department reorganized in 1951, some of its goals were to spend more effectively and engage in long-range financial planning for roads.[367] It became clear that the highway department needed additional revenue and a comprehensive plan for how to allocate funds. Its 1953 annual report made a case for increased taxes, showing how small individual increases could add up; as the report stated, "each cent in gas tax will produce about $2,000,000 annually in revenue."[368] The state argued that the annual tax totals would be far outweighed by people's personal transportation costs, many of which (depreciation, repairs, tires, and gas) could be reduced with improved roads (see Figure 62).[369] Indeed, the truck weight tax initiated in 1951 and a new special motor fuels tax instated in 1953 helped boost revenue.[370] However, by 1955 the gas tax and license fees had not changed; it would take the major funding overhaul of the Interstate Highway era to see significant movement on this front (see Section 8).[371]

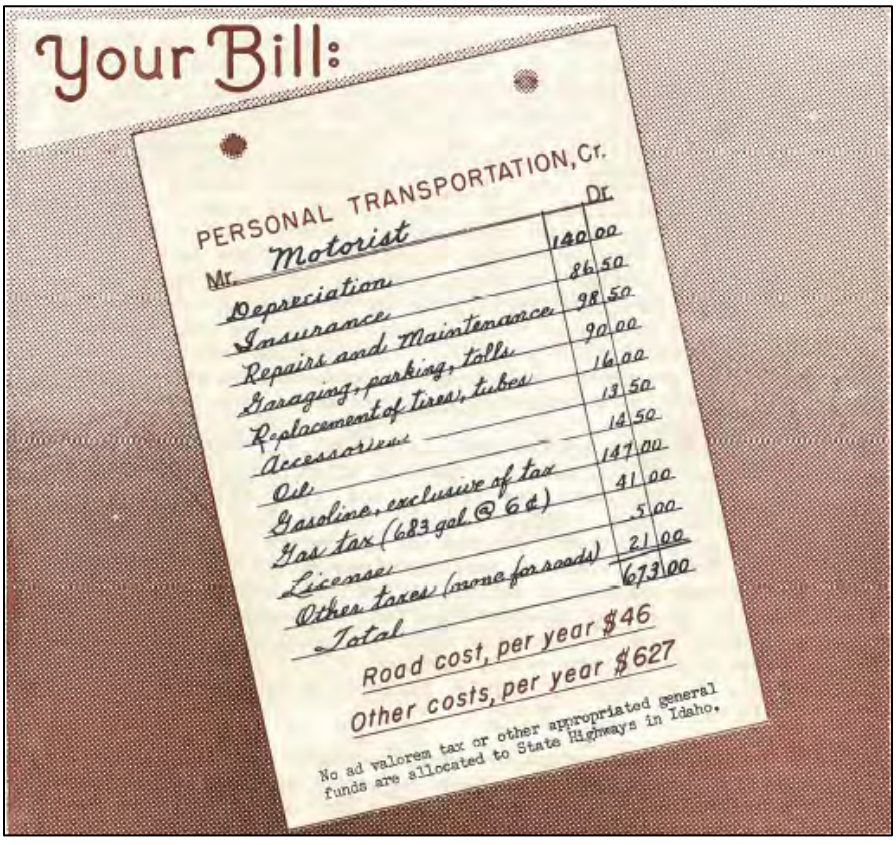


Figure 62. This "Personal Transportation Bill" from the highway department's 1953 annual report made the case for increased taxes.[372]

(4) Road studies and planning

Throughout this era the highway department completed a series of road studies to plan for future construction. A 1951-1952 State Highway System Sufficiency Rating Study was likely completed due to the influence of State Highway Engineer Earle V. Miller, who had previously developed a sufficiency rating technique (see Figure 63). The study evaluated 793 rural State Highway sections that totaled approximately 4,500 miles, finding more than one-third of them in bad or poor condition.[373] It estimated the total cost to bring the highway system to current 1952 standards would be approximately $200 million over 10 years, which was twice the amount of funding the highway department estimated it would have. The results of the study influenced plans for increased tax revenue and federal funding, discussed above.[374]

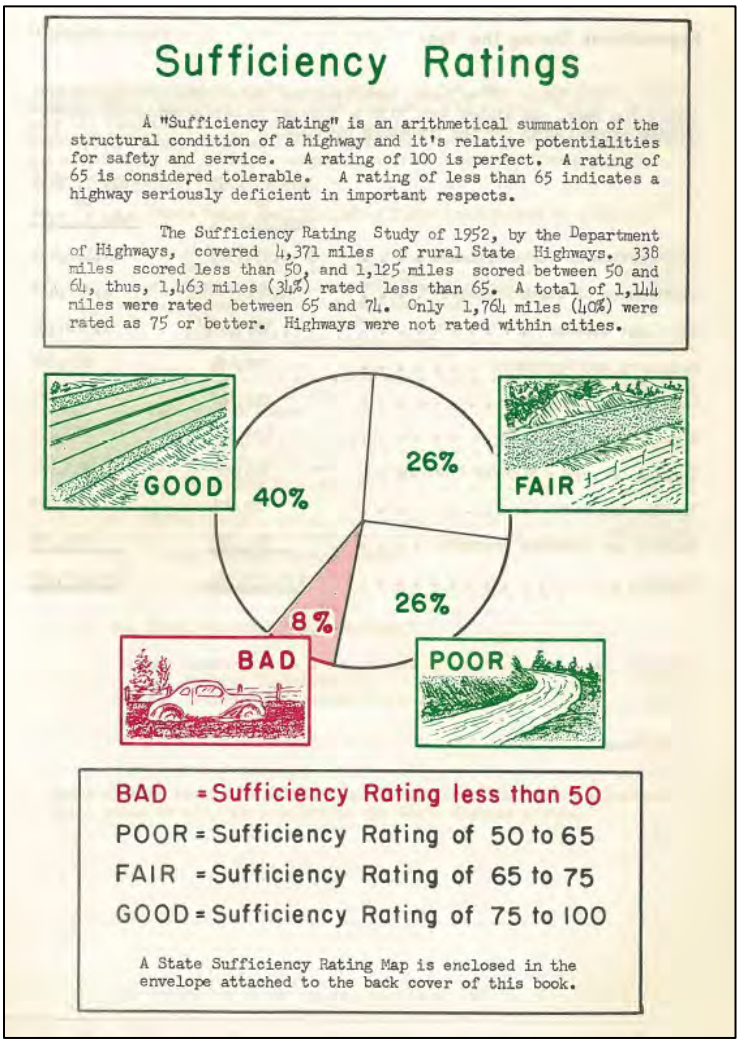


Figure 63. The results of the 1952 Sufficiency Rating Study, which found more than one-third of rural State Highways in bad or poor condition.[375]

A combination of factors, including long-range planning for a larger, better maintained, more interconnected State Highway System and design standards requiring wider roadways, meant that right-of-way acquisition

became an important highway department duty during this era.[376] National legislation passed in 1942 made federal funding available for right-of-way purchase. The federal government reimbursed right-of-way acquisition costs at 100 percent for military and access roads and 50 percent for federal aid and secondary projects.[377] In 1953, the state legislature passed a law allowing the highway department to acquire property titles in fee simple as opposed to easement right, which had previously been the case. This made it significantly easier to acquire right-of-way land.[378] Indeed, during the FY 1953 the highway department acquired right-of-way for 26 federal aid projects, 23 state secondary projects, and five Forest Highway projects for a total cost of $756,146. This represented an increase of 56 percent in right-of-way expenditures when compared to an average of the previous two years.[379] This right-of-way acquisition paved the way for large-scale highway development to come.

Urban highway planning was another area where long-range studies were especially important. In 1954, the Idaho Board of Highway Directors discussed community highways, in particular beltlines around the state's larger cities. These roads were challenging to design because they needed to provide local access in addition to efficiently allowing people to travel through communities. Planning them was often a politicized process because if roads bypassed or diverted traffic from an area, those changes could affect downtown business districts. The agency assured that "good roads are of great benefit to the people of Idaho and do attract development and travel."[380] Moving forward into the Interstate Highway era, the growing highway system would test these assertions.

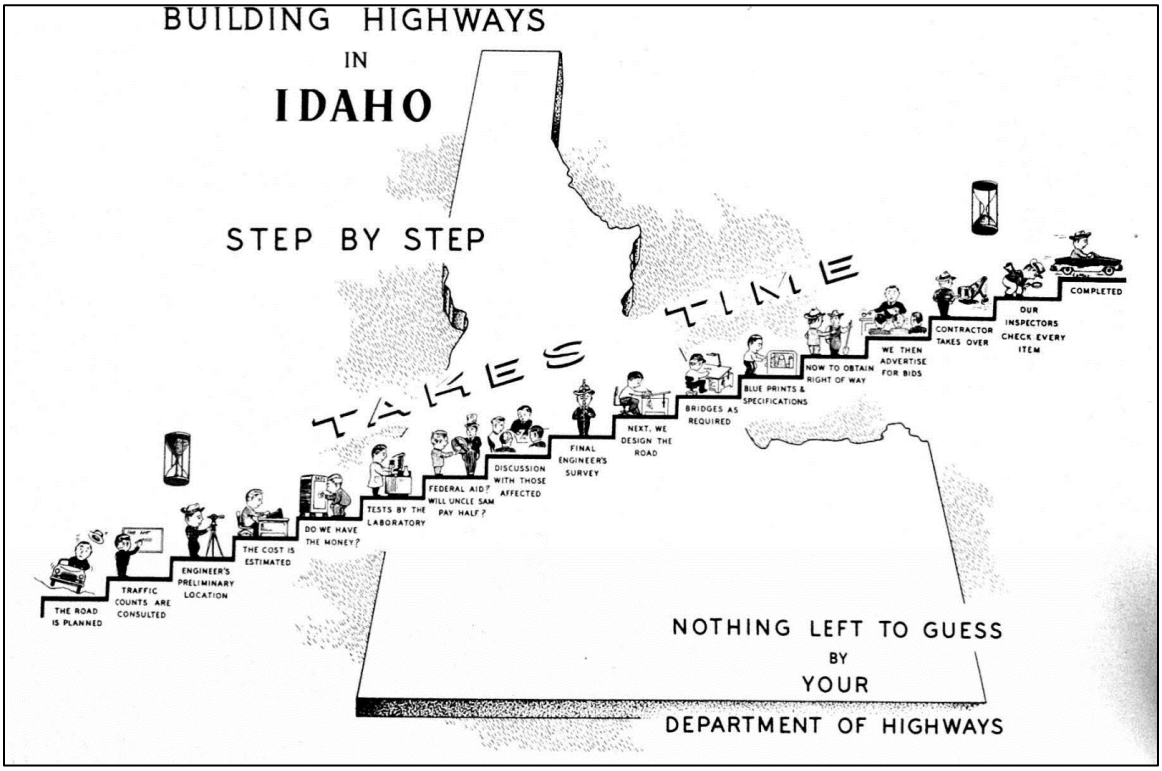


Figure 64. This 1955 graphic shows the various long-range planning steps to build a highway.[381]

In 1954, the highway department completed a wide-ranging highway needs study to build and elaborate on the first few years of the new agency's work. It initiated the report because, according to the highway department:

> No comprehensive study of State Highway needs, county and highway district needs, and the needs of city streets has been made in Idaho. Each of the authorities responsible for these groups of roads and streets is thoroughly conscious of the fact that he needs more money – a lot more money! – to construct and maintain his roads or streets in reasonably adequate condition.
>
> However, the situation must be studied thoroughly and firm conclusions reached. The problem is too large to be treated in any 'self-evident' or perfunctory way.[382]

The result of the study was that "needs are far greater than revenues." The department estimated an overall need—for State Highways, county roads, highway districts, and city and village streets—of $583 million over 10 years. Only $391 million in revenue was available under projected state tax revenue and federal funding allocations of the time. This resulted in an anticipated deficit of $19 million a year. Of the overall needs, a large proportion of nearly 41 percent was for State Highways (see Figure 65). The State Highway System alone had an anticipated deficit of nearly $124 million in 1955.[383]

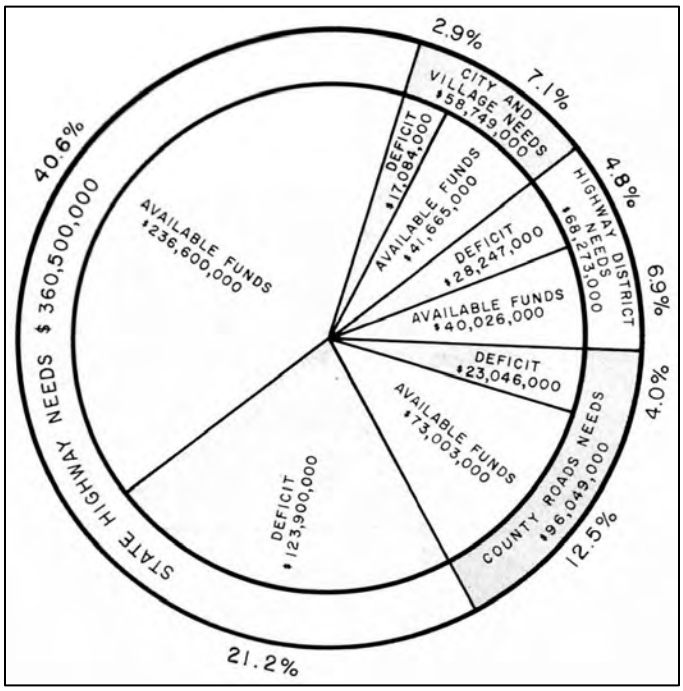


Figure 65. The results, in graph format, of the 1954 Highway Needs Study.[384]

Despite the dire projections, the highway department was ultimately encouraging about the value of modern, well-built highway system, arguing that it was the best investment Idaho could make:

> …our studies indicate that investments of public funds in highway, road and street improvements in the amounts indicated would pay dividends in less wear and tear on vehicles, in savings in time and operational costs, in fewer accidents, in fact, in all the benefits that are produced by a modern, safe and thoroughly adequate highway and street system. The statement that it is cheaper to buy and

> operate good roads than to continue the inefficiencies of bad ones is as true in Idaho as it has been proven elsewhere.[385]

Through highway department administration, funding, and policy, Idaho was already on the way to a modern, safe, and adequate highway system. The final, and perhaps most important, factor in improving the system was the design and construction of the roads themselves.

C. Construction and engineering

(1) Construction

During World War II, Idaho's highway system had fallen into serious disrepair. A series of feature articles in Boise's *Idaho Statesman* in 1952 on the history and status of the state's highways described the physical effects of war: "Before plans could be brought up to date or roads designed to fit new demands, traffic boomed." In fact, traffic returned to 1941 levels within a year after the war and kept rising. "Highway construction," the *Statesman* concluded, "never caught up."[386] Another article underlined the problem of spending money on new highways and the long-term costs of putting off maintenance:

> Time and time again, highways which have been laid down after expenditure of state funds have not stood the test of time and the test of traffic wear and tear, and as a result have added additional burdens to state expense in the form of costly repair and maintenance requirements.[387]

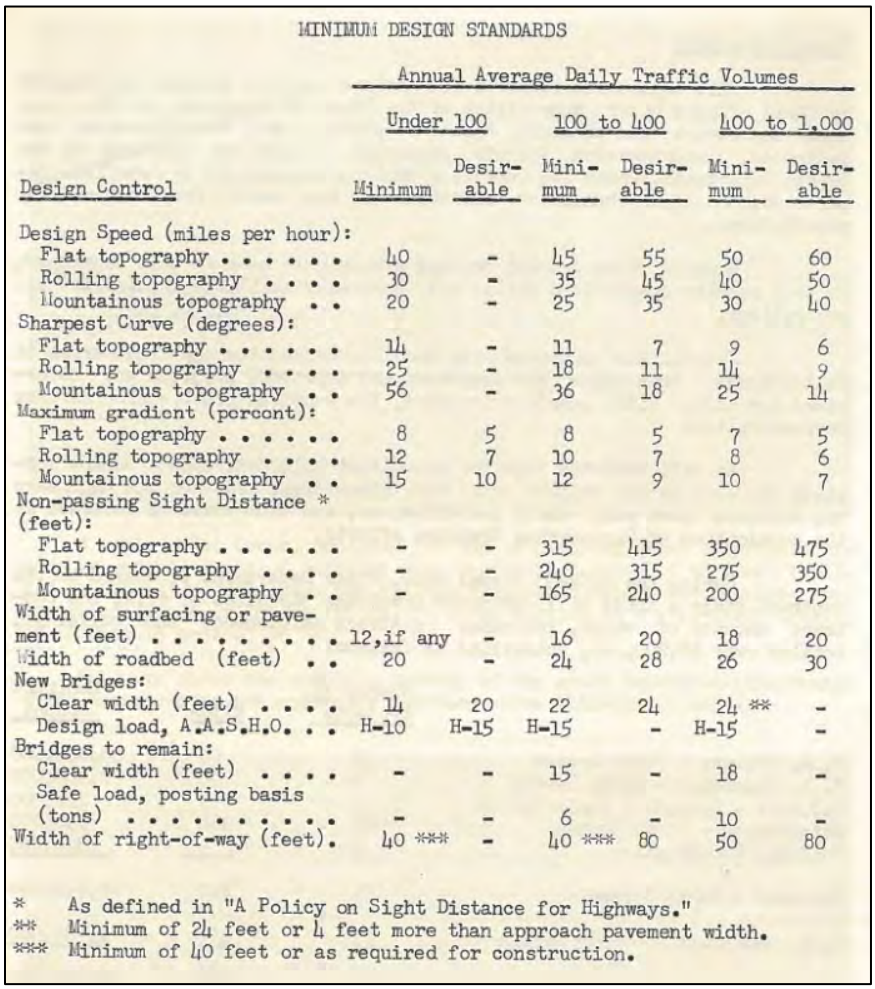
The postwar era was marked by the newly reorganized department's efforts to build and maintain roads in the most efficient ways possible while using limited funds. The highway department worked to enforce safety and improve older and rural roads, all while ramping up new construction. As it did with funding and policy, the highway department took a long-range view to construction. The building schedule shifted from year-to-year to three-to-ten-year comprehensive planning, "in order to effect a logical scheduling of improvements and proper timing of the various phases from engineering location through design and acquisition of right-of-way to actual letting of contracts for construction."[388] From the beginning of the postwar era in 1945, the highway department used minimum design guidelines to direct construction. The federal government guided these standards (see sidebar below). The guidelines dictated elements from speed limits to curve radii to gradients. Widths of pavement and roadbed, in addition to standard measures for new bridges, also standardized (see Figure 66). The guidelines helped to streamline the construction process.

National design standards for highways

Plans and guidance developed by the BPR and professional transportation organizations like AASHO (later AASHTO) were instrumental in setting federal transportation policy and disseminating information regarding new materials and technology, standard bridge designs, and best practices to state departments of transportation. National design standards, plans, and specifications were frequently adopted by state departments of transportation, and they assisted the state in efficiently and economically implementing bridge planning and construction. In the postwar period, the technical approach of the BPR and AASHO culminated in the Interstate Highway System, which put in place a new and different set of highway design

criteria and standards that seemed appropriate for unprecedented growth in highway travel in the 10 years following World War II.

Changes in standard plans and specifications were reviewed annually by AASHO and revised periodically, often in cooperation with the BPR. Both organizations were seen as cooperative partners to the states. Updated AASHO specifications were published in 1949, 1953, 1957, 1961, and 1963, with such regular updates reflecting rapid developments in new materials and technologies. Bridge design standards developed by federal engineers and BPR officials were frequently disseminated under AASHO's name.[389] The BPR published its first edition of standard bridge plans in 1953 and periodically updated these plans to reflect new technologies and materials. In 1956, AASHO adopted *A Policy on Design Standards, Interstate System*, which included standards to address the new Interstate Highway System.[390] For rural roads, updated standards were provided by AASHO in its 1965 publication *A Policy on Geometric Design of Rural Highways*.[391]



MINIMUM DESIGN STANDARDS

	Annual Average Daily Traffic Volumes					
	Under 100		100 to 400		400 to 1,000	
Design Control	Minimum	Desirable	Minimum	Desirable	Minimum	Desirable
Design Speed (miles per hour):						
Flat topography	40	-	45	55	50	60
Rolling topography	30	-	35	45	40	50
Mountainous topography	20	-	25	35	30	40
Sharpest Curve (degrees):						
Flat topography	14	-	11	7	9	6
Rolling topography	25	-	18	11	14	9
Mountainous topography	56	-	36	18	25	14
Maximum gradient (percent):						
Flat topography	8	5	8	5	7	5
Rolling topography	12	7	10	7	8	6
Mountainous topography	15	10	12	9	10	7
Non-passing Sight Distance * (feet):						
Flat topography	-	-	315	415	350	475
Rolling topography	-	-	240	315	275	350
Mountainous topography	-	-	165	240	200	275
Width of surfacing or pavement (feet)	12,if any	-	16	20	18	20
Width of roadbed (feet)	20	-	24	28	26	30
New Bridges:						
Clear width (feet)	14	20	22	24	24 **	-
Design load, A.A.S.H.O.	H-10	H-15	H-15	-	H-15	-
Bridges to remain:						
Clear width (feet)	-	-	15	-	18	-
Safe load, posting basis (tons)	-	-	6	-	10	-
Width of right-of-way (feet).	40 ***	-	40 ***	80	50	80

* As defined in "A Policy on Sight Distance for Highways."
** Minimum of 24 feet or 4 feet more than approach pavement width.
*** Minimum of 40 feet or as required for construction.

Figure 66. *Minimum design standard measurements for federal-aid secondary roads in Idaho in 1953.*[392]

Major construction projects during this era took place along the state's main routes, which included roads on the Strategic Highway Network and those otherwise important for national defense or connecting major population centers. US-10 and US-30, the state's major east-west routes in the north and south, and US-95, the predominant north-south highway, all saw a number of projects. In particular, US-30 underwent major construction from Glenns Ferry to King Hill and Regina to Cleft.[393] A major Forest Highway undertaking was ID-9 (now US-12), the Lewis and Clark Highway. US-95 saw a large project with the completion of the Sandpoint Bridge, a massive undertaking that rerouted the highway along a more direct route over the Pend Oreille River at Lake Pend Oreille.[394] Several urban projects improved the highway system around population centers including US-20/30 and US-20/26 in Caldwell and US-20/26/191 in Idaho Falls.

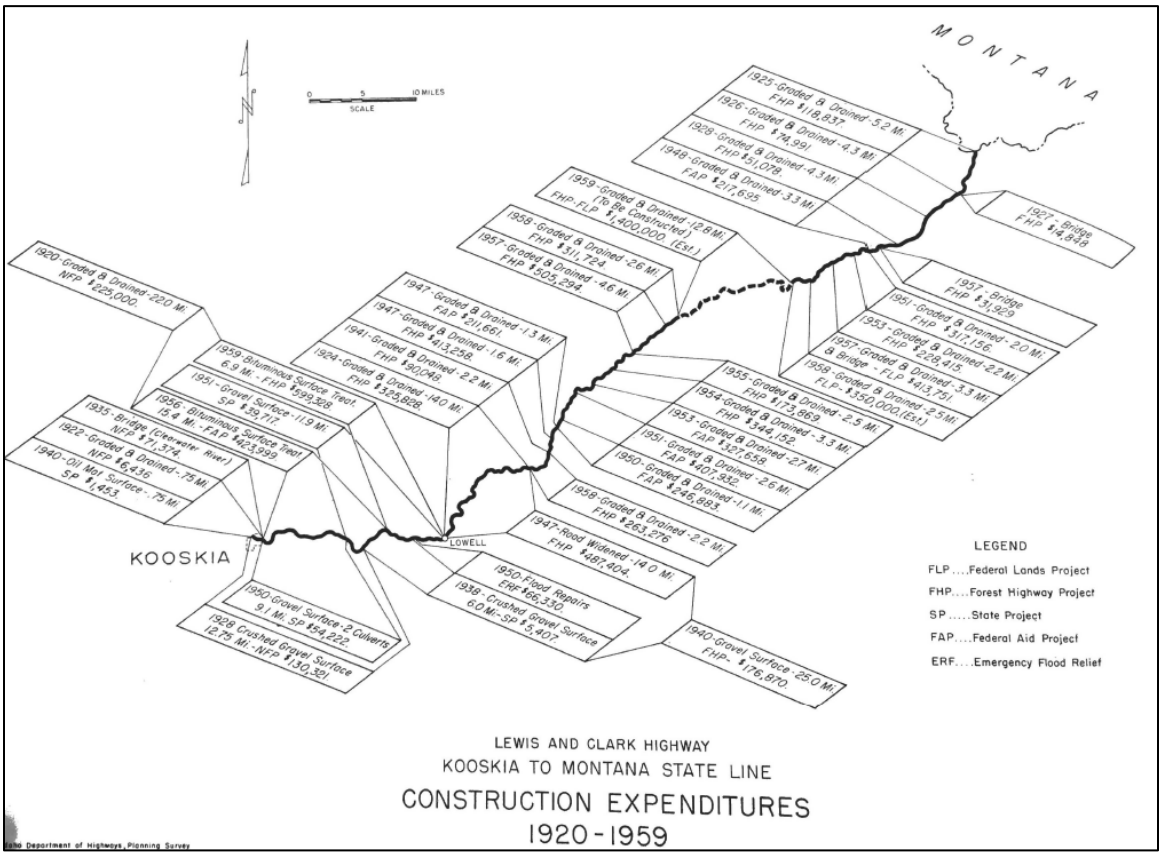
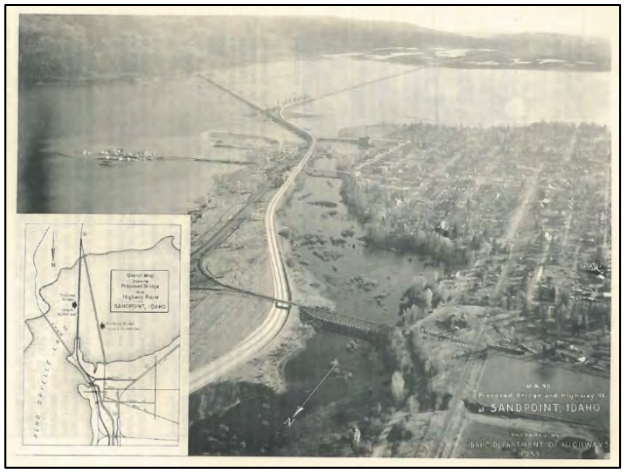


Figure 67. Many of the major projects on the Lewis and Clark Highway, a Forest Highway, from Kooskia to the Montana State Line were completed during this era.[395]



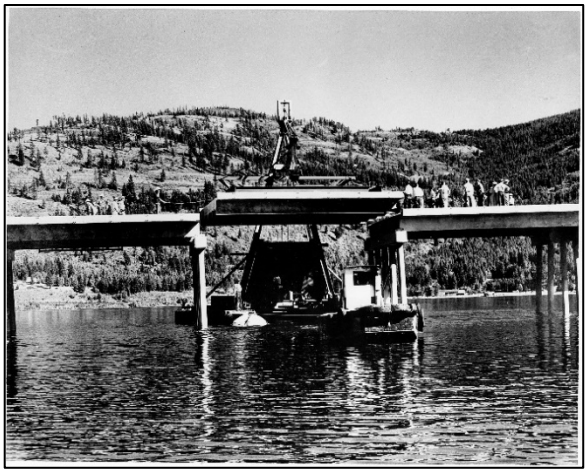


Figure 68 and Figure 69. Planning for the Sandpoint Bridge along US-95 in 1953.[396] Placing the final span in 1956.[397]

Some of the important projects for the early future include the following:

Route	County	Location	Type of Work	Length
SH 25	Jerome and Gooding	Wendell - Jerome	Grade, Bit. Surface Tr.	8 1/2 mi.
US 20	Canyon	Caldwell - East	Grade, Plant Mix	1 1/2 mi.
US 26	Bingham	Reverse - People's Canal	Grading	8 miles
US 30	Twin Falls	Twin Falls - West	Grade, Bit. Plant Mix	1 1/2 mi.
US 91	Bingham and Bannock	Pocatello - Idaho Falls	Preliminary Engr. & R/W	- - -
US 95	Nez Perce	Lewiston - East	Grade, Bit. Surface Tr.	4 miles
US 95	Bonner	Sandpoint - South	New Bridge	2 miles
US 95	Idaho	Riggins - Whitebird Cr.	Reconstruct, Widen	6 miles
SH 32	Fremont	Drummond - Lamont	Bituminous Road Mix	19 miles
SH 39	Power	Springfield - Blackfoot	Grade, Road Mix	8 1/2 mi.

Figure 70. Looking ahead in 1953, these were some of the major projects the highway department anticipated.[398]

(2) Maintenance

Maintenance was a large focus of Idaho's highway department during the postwar years. Between 1946 and 1948, the highway department ran a special "betterment program" to address built-up maintenance needs neglected during the war. Many highways required immediate repair and reconstruction. Meanwhile, labor and materials shortages were still slowing road work.[399] Under the betterment program, and for approximately five years total following the war, the highway department had to construct "many miles of 'stop-gap' improvements in order to carry traffic" over unimproved roads.[400]

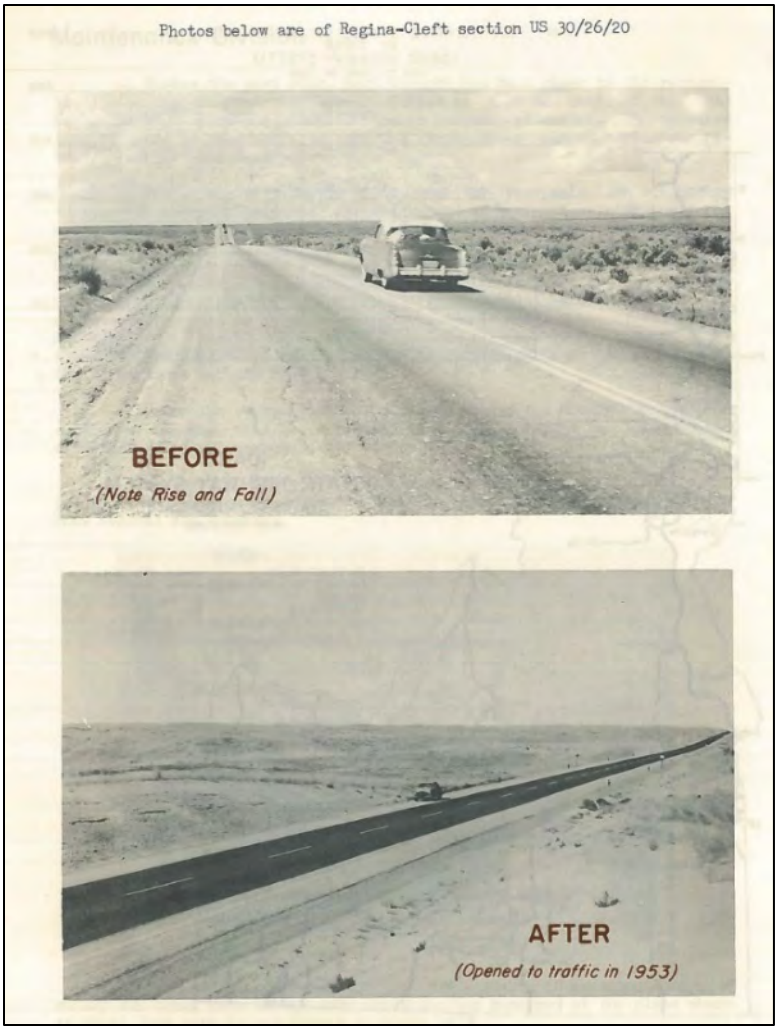


Figure 71. An example of a postwar improvement project on a U.S. Highway.[401]

Even after some of the immediate postwar needs had been addressed, maintenance remained a priority. A 1952 sufficiency study determined that 1,463 miles of rural State Highways, which represented nearly a third of Idaho's total, were "markedly inadequate for the traffic volumes. In 1953, the bridge department reported 63 inadequate bridges, 35 of which needed replacement "as soon as possible." The department warned in its annual report that "posted load limits on these inadequate structures are being disregarded constantly, and their deterioration is being correspondingly accelerated."[402] As of 1953, even with more revenue available, high rates of increasing traffic as well as harsh weather presented major maintenance hurdles for both roads and bridges.[403] In fact, during the early 1950s maintenance was the highway department's second-largest annual expenditure after construction. It spent more than $4 million on these needs in both FY 1952 and FY 1953.[404]

Figure 72. This 1953 photo shows a secondary road project, highlighting some of the typical improvements made.[405]

Idaho's natural environment remained a maintenance challenge. Severe floods in 1947 and 1948 caused landslides and damaged or destroyed roadways across the state.[406] One area that flooding badly affected in 1948 and again in 1955 was the Little Salmon River Canyon along US-95.[407] Water tore up large chunks of the road and landslides covered the corridor. The road closed after these natural disasters, which meant travelers between northern and southern Idaho had to reroute through Washington and Oregon. Following each of these floods the highway department received federal emergency relief funds to reroute and reconstruct the highway.[408]

Snow removal was the largest and most constant winter task for the approximately 170 employees that managed 600 to 1,000 miles of highway in each of Idaho's six highway districts. Avalanches that entirely buried the roadway were not uncommon and snow plow operators often looked out their windshields to see "snow…refilling the roads faster than [they] could clean them out." As the *Idaho Statesman* described, "It begins with the first substantial snowstorms and continues, on the higher summits, until mid-May."[409] The

department invested substantially in snow removal; by 1954, $480,097 or 11 percent of the $4.3 million maintenance budget went toward sanding and snow removal.[410]

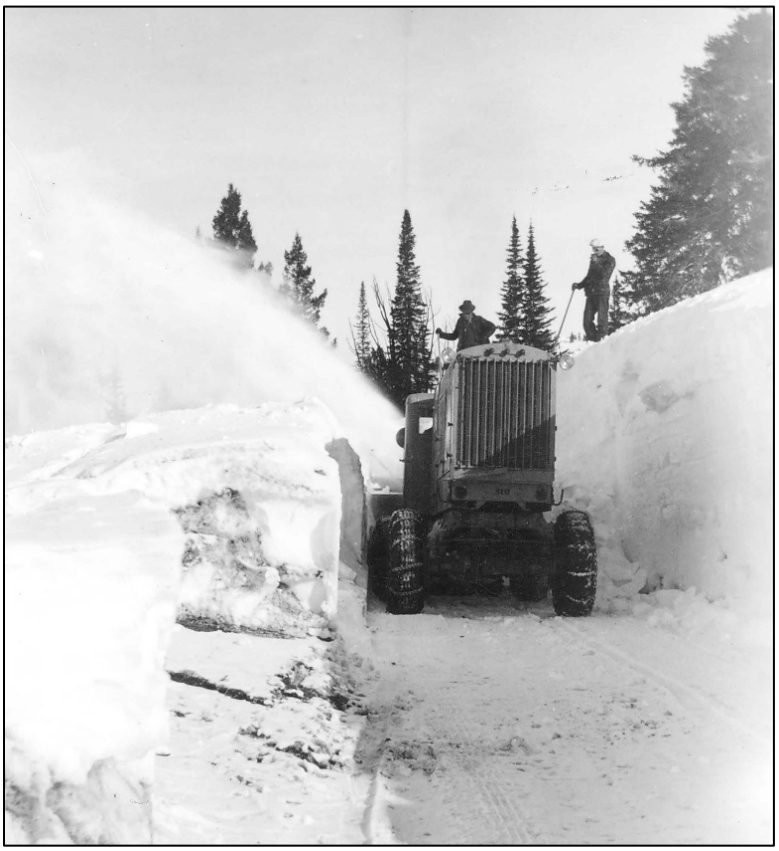


Figure 73. This department photo shows a snow plow at work c.1950 in extreme conditions.[411]

In the face of ever-increasing needs, the maintenance division made several major advances during this era. For one, it initiated a new patrol system so stretches of highway would not go unsupervised for days at a time.[412] It also constructed a new shop in District 6 that was 17,089 square feet in size and cost $190,000 (see Figure 74). Finally, the highway department instituted a radio program to streamline communication.[413] This program, which began in 1949, encouraged connections across the six statewide districts.[414] By 1952 the *Idaho Statesman* reported that the radio equipment was "probably the greatest time and effort saver for road crews since the invention of the pickup truck," boasting that almost 80 district staff used radios in the field to report accidents, breakdowns, and natural disasters like avalanches and landslides. They also used the devices to order and dispatch equipment where it was most needed (see Figure 75).[415]

Figure 74 and Figure 75. Left: The new District 6 shop completed in 1953.[416] *Right: A radio operator in the Boise headquarters, 1952.*[417]

(3) Traffic and safety engineering

Traffic was rapidly increasing in Idaho during the postwar era, which necessitated better safety infrastructure. Between 1946 and 1953, traffic throughout the state jumped 83 percent.[418] Meanwhile, by the early 1950s data from the National Safety Council indicated that the cost of traffic accidents in Idaho amounted to approximately $17 million annually. This astounding number was more than the highway department's annual construction budget at that time.[419]

The highway department took several steps to improve highway safety. A safety director, first appointed in the early 1950s, had duties that included distributing safety manuals; holding meetings in each district; and recording, mapping, and analyzing accident reports.[420] The department also invested in grade-separation structures to improve highway safety at railroad crossings, including signal equipment to better alert drivers when a train was approaching.[421] Standard signage, handled by the traffic department, created a consistent look for various traffic directives across the state. By 1953 the traffic department was almost done with two major projects: one installing mile markers at 10-mile intervals across the state, and the other posting the speed limit on all highway curves.[422] It also took on painting projects to mark center lines, no-passing zones, and other pavement symbols. All these initiatives represented major safety advances.

Placing Symbolized Map Pin on Traffic Accident Spot Map

Figure 76. The highway department tracked accidents to improve safety awareness.[423]

(1 & 5) Overhead Reflectorized Signs; #1 near Coeur d'Alene, #5 near Boise
(2) Destination Board, small size
(3) Safe Speed on Winding Road
(4) Destination Board, large size
(6) Single Town Guide Sign
(7) Three Name Distance Sign
(8) Advance Warning of Junction

Figure 77. Standardized statewide signage represented a major safety advance.[424]

(4) Materials and research

In addition to traffic and safety advances, materials and road conditions throughout the State Highway System also improved significantly during the postwar era. Roadway surfaces, whether they were dirt, gravel, oiled, or paved, were important markers of highway improvements. In 1944, out of 5,134 miles on the system, 3,135 had been paved, with another 500 miles paved by 1950.[425] By 1953 only 85 miles were completely unimproved (see Figure 78).[426]

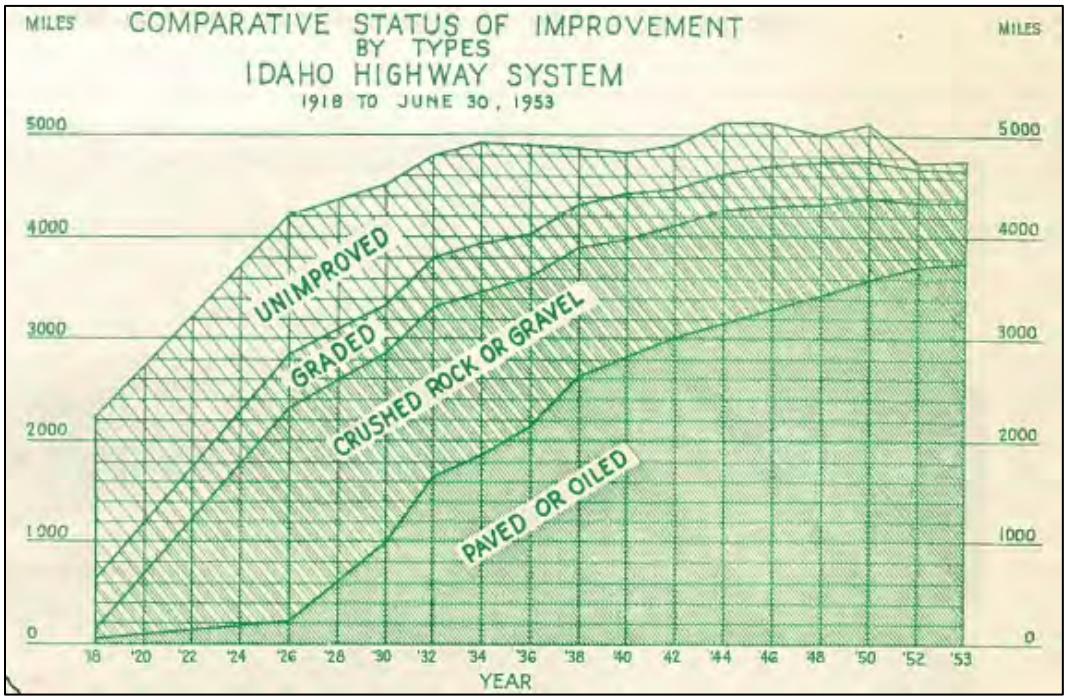


Figure 78. Comparative roadway status chart from 1953.[427]

Advances in asphalt production, flexible pavement design, and soils testing allowed for these pavement improvements.[428] The highway department began conducting flexible pavement experiments in 1942 following guidance from the North Dakota Highway Department. It developed an equation called Idaho Formula A to determine pavement thickness. Beginning in 1950, the highway department increased flexible pavement thickness by 50 percent. That same year it initiated experiments using a device called the Hveem Stabilometer to run Resistance (R)-Value Tests. These experiments determined soil strength and contributed to flexible pavement design.[429]

The highway department's Materials Laboratory, located in Boise with a satellite office at the University of Idaho in Moscow, produced significant research during the postwar era. The division led efforts to test materials and soils involved in highway construction, recommending materials for roadway bases and pavement in addition to bridge elements such as piping, steel, timber, and cement. Between 1950 and 1954, the number of samples tested at the two laboratories almost tripled from 6,000 to more than 16,000.[430] Department scientists gained national recognition for their use of a tool called the Vane Apparatus to test soil strength.[431]

Concrete was an important material for both pavement and bridge design. Because a steel shortage was still in place immediately after the war, concrete became the preferred material for new bridges.[432] In the early 1950s, however, Idaho experienced problems with disintegration and cracking of concrete in bridges in the southeastern part of the state due to brands of cement used.[433] While this did not result in structural failures to any major bridges, the state did have to reevaluate bridge materials. Around the same time, the highway department introduced prestressed-concrete girders for bridges between 50 and 120 feet long. After a successful test using the girders on the Big Wood River Bridge along ID-68 at Stanton Crossing (see Figure 79), the state built several plants to produce these beams, which by the late 1950s would be indispensable for the growing Interstate Highway System.[434] The state also made adjustments in the concrete used on its roads. The state's first major use of Portland Cement to stabilize roadway bases, following national design trends, was on the Arimo-Downey Highway (US-91) in Bannock County in 1953.[435] This new base material had a significantly higher load bearing value than untreated gravel. Subsequent projects in 1954 and 1955 used this technique along ID-55 in Valley County south of Cascade.[436]

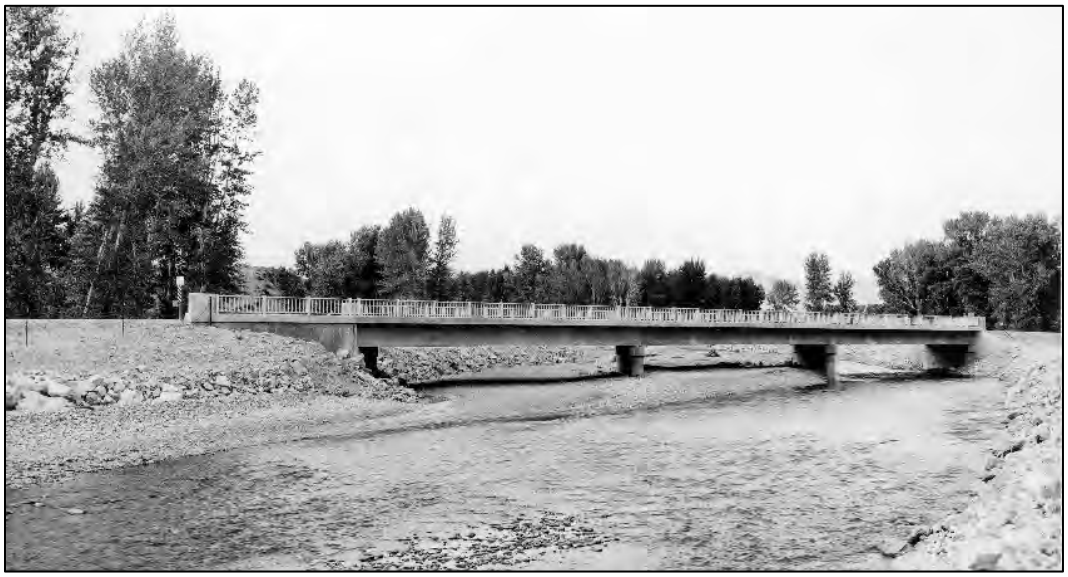


Figure 79. The Big Wood River Bridge, pictured in 1957, was the first use of prestressed-concrete girders in Idaho.

As a final note on materials advances in the postwar era, the national Highway Research Board performed its Western Association of State Highway Officials (WASHO) Road Test south of Malad in the early 1950s. It tested roadways with the Benkelman Beam, a tool that had been developed to test pavement deflection caused by dual tires. The deflections reflected the strength of bituminous pavement and, by extension, the roads it was used on. Highway department engineers in Idaho observed the road test "with much interest" so they could use the results to design and construct highways over similar soils, which comprised about 25 percent of the state's highway system. The nationally-published results influenced roadway design across the country.[437]

Throughout World War II and the following decade, Idaho's highway department worked to recover from wartime deficiencies and address dire maintenance needs, while at the same time instituting better long-range planning for a complete State Highway System. To achieve this goal the highway department reorganized, accepted increased federal funding, and added new taxes for highway users. It also enforced standard design guidelines and safety measures, and pioneered research for better highway materials. All of these efforts laid the foundation for the massive infrastructure building that was to come as the Interstate Highway era began.

SECTION 8.
THE INTERSTATE HIGHWAY ERA (1956-1973)

A. National trends

The modern era of the Interstate Highway System began in the early 1950s as lobby groups pushed for construction of a nationwide road network. The FAHA of 1952 included the first authorized federal funds for Interstate Highway construction, a nominal $25 million nationally.[438] The 1954 FAHA increased the federal share of Interstate Highway construction from 50 to 60 percent. President Eisenhower, recognizing the importance of a national highway system for defense, appointed a committee to study American highway needs in 1954 at the height of the Cold War. The committee advised Eisenhower that an Interstate Highway System was needed, which paved the way for unprecedented road building.[439]

The FAHA of 1956 was a significant piece of federal highway legislation, overshadowing earlier road acts. This act made the first substantial appropriations for construction of the Interstate Highway System. It also increased federal aid to states for primary, secondary, and urban highway construction. The act brought uniformity to nationwide road-building efforts and included a provision requiring the BPR to work with AASHO to develop design standards to accommodate traffic forecasts through 1975. Safety standards ensured national uniformity of design, provided for controlled access roads, and eliminated at-grade crossings.[440]

The Highway Revenue Act, also of 1956, provided the funding for programs outlined in the FAHA. Provisions were included for expansion of the nation's Interstate System to 41,000 miles with allocations for 90 percent of construction costs. States would be responsible only for the remaining 10 percent, a major departure from earlier federal aid match requirements that were generally around 50 percent. The entire Interstate System was anticipated to cost more than $27 billion nationwide. In order to finance construction, the legislation created the Highway Trust Fund, which was supported by an increased federal tax on gas and diesel fuel. The 1956 legislation also authorized an initial 13-year construction period for Interstate Highways, which would eventually be extended as states faced routing and funding difficulties.[441]

With the creation and authorization of the U.S. Department of Transportation in 1966 and its official start in April 1967, the functions of the BPR transferred to the new Federal Highway Administration (FHWA). The FAHA of 1968 again authorized the Interstate Highway System's expansion, this time to 42,500 miles; minor

changes in mileage and funding eligibility were also made in 1973 and 1978. Notable policy changes during the late 1960s and 1970s had continued impacts on transportation project planning and development to the present day. These federal laws called for improvements to highway beautification and safety, as well as protection of historic resources and the environment through the 1966 National Historic Preservation Act (NHPA), 1969 National Environmental Policy Act (NEPA), and other federal regulations.

(1) Effects of federal highway legislation in Idaho

(a) FAHA and Highway Revenue Act of 1956

The FAHA and Highway Revenue Act of 1956 both had significant impacts on Idaho. Though they represented major advances for the federal Interstate Highway System, the State Highway Board reassured Idahoans that funding for other highways would not lapse, explaining:

> The Interstate Highway Program will be in addition to the normal program of Primary and Secondary State Highway Systems, with the object in mind that [they] will not suffer at the expense of the accelerated Interstate program. Federal Aid monies are being fully used on a current matching basis...[442]

Indeed, the legislation increased federal aid authorizations for primary, secondary, and urban roads by $125 million initially and then an additional $25 million in subsequent years. State allocations followed a formula based on one-third area, one-third population, and one-third road mileage, with the exception of urban roads funding which was entirely based on population. Idaho's federal aid rose substantially, with funding for primary, secondary, and urban highways more than doubling from $5.3 million to $10.9 million between 1953 and 1957.[443] The state also retained a favorable federal matching rate of approximately 63 percent to the state's 37 percent.[444] Forest Highway authorizations also increased. Of the $30 million that the FAHA of 1956 allotted to Forest Highways nationwide on an annual basis, Idaho received approximately 10 percent due to its large proportion of national forests.[445]

Forest Highway System

As described above (see Forest Highways sidebar in Section 5.B.(2)), Idaho's Forest Highway System was concurrent with many of its federal-aid and State Highways. By this era, three federal and state agencies were working together to allocate funding for Forest Highway construction: the U.S. Forest Service, BPR, and Idaho's State Highway Board.[446] These roads served sparsely populated areas in and around national forests; for the most part, the areas surrounding them had a population distribution of only about 2.5 people per square mile. By the late 1950s, they were some of the only east-west routes through rural portions of Idaho, such as the Bitterroot range of the Rocky Mountains. A major 1959 report on the *Value of Forest Highways* in Idaho found that, though Forest Highway usage had been steadily increasing at a rate similar to or greater than other roads, the Forest Highway program lagged behind that of the national Forest Highway program and the state's general highway program. It set the goal of refocusing attention and resources on Forest Highways. By the early 1960s, this program was underway.[447]

Figure 80. Forest Highway construction along ID-21 between Stanley and Lowman.[448]

As of 1962 some of Idaho's major Forest Highways of 30 or more miles included:[449]

- US-93 from Ketchum to Challis: 115.8 miles
- ID-21 from Idaho City to Stanley: 106.7 miles
- ID-9/the Lewis and Clark Highway northwest of Kooskia (now US-12): 100.0 miles
- US-10/the North Pacific Highway in the area of Coeur d'Alene (now I-90): 60.1 miles
- County Road from McCall to Stibnite: 57.1 miles
- ID-14/Elk City Highway south of Harpster: 50.0 miles
- County Road/St. Joe River Road from St. Maries to Avery: 49.2 miles
- US-93 from Salmon to the Montana Line: 41.9 miles
- ID-75/Trail Creek Road in the area of Ketchum: 41.8 miles
- US-191/Yellowstone Park Highway: 41.4 miles
- ID-57 from Priest River to Nordman: 37.2 miles
- ID-15/North Fork Payette Highway from Horseshoe Bend to Smith's Ferry: 32.4 miles
- US-95/the North & South Highway in the area of Bonners Ferry: 30.0 miles

That same year the highway department made significant allocations of $450,000 or more for major projects on several Forest Highway routes:[450]

- Clark Fork Highway (US-10 Alt.)
- Lewis and Clark Highway (ID-9, now US-12)
- Yellowstone Park Highway (US-191/20)
- Idaho City-Stanley (ID-21)
- Copeland-Porthill (ID-1)

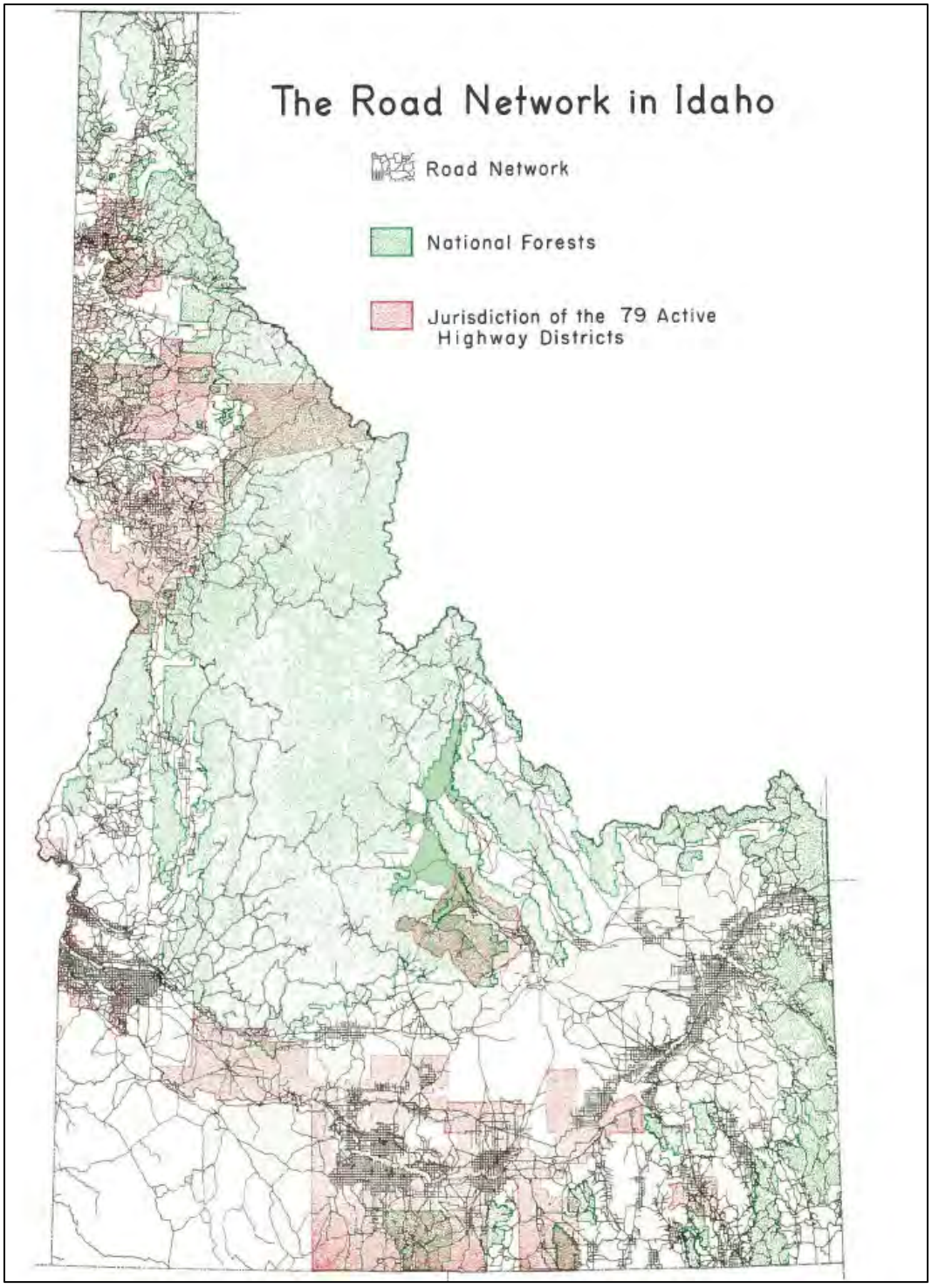


Figure 81. This map shows the large proportion—nearly 40 percent—of state land devoted to national forests as of 1957. Various Forest Highways were part of Idaho's state, federal aid primary, and federal aid secondary highway systems.[451]

The 1956 legislation also authorized Interstate Highway funding of approximately $25 billion nationwide through FY 1969.[452] Idaho's Interstate Highway work accelerated during FY 1958 as plans for the major highways "double[d] the yearly construction program."[453] State allocations for Interstate Highways jumped from $1.7 million in 1956 to more than $20 million in 1959.[454] Meanwhile, the highway department increased its workforce by 30 percent, which was significant but not enough to cover a 135-percent increase in contracts.[455] The department made up for this additional work with efficiencies such as technology (i.e., aerial photos and early computer calculating equipment, which are described in more detail below) and management training.[456]

Following guidelines set forth in the 1956 legislation, Interstate Highway funds were initially determined based on a formula that was based half on population, with the other half based on one-third area, one-third population, and one-third road mileage.[457] Due to Idaho's comparatively low Interstate Highway mileage, the state's federal Interstate Highway funding was relatively high in comparison to other states until the formula changed in 1960. Starting that year, apportionments were to be based on cost estimated to complete the state's portion of the Interstate Highway System, which limited Idaho's funding. By 1965 the state's Interstate apportionment had been reduced to $17.5 million, or just 0.58 percent of the national total.[458] Idaho's federal aid matching rate for Interstates was approximately 92 percent, which was higher than the standard 90 percent due to its large proportion of public lands.[459]

The 1956 legislation also helped to create federal design standards used at the state level and encouraged long-range studies and planning that affected Idaho's roads. National study topics included estimating the cost to complete the Interstate Highway System, naming the maximum size and weight limit for vehicles, evaluating best practice approaches to highway safety, and determining how to gain maximum tax revenue from highway users.[460] Idaho's highway department completed several studies following this federal guidance on topics including tax contributions and distribution, construction needs and costs, and traffic volume.[461]

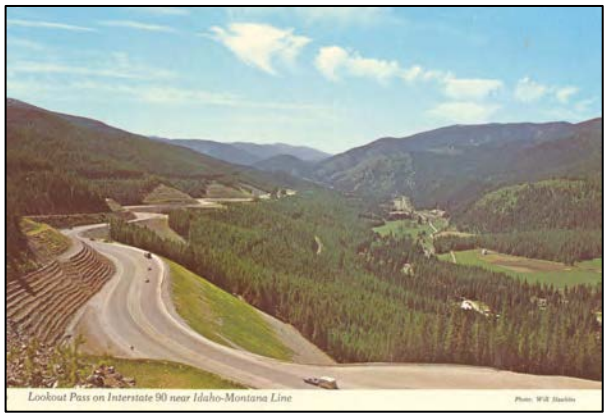
(b) FAHAs of 1958 and 1968

The FAHA of 1958, though not as extensive as the 1956 legislation, did bring additional funding to Idaho in the form of emergency construction funds for primary and secondary federal-aid highways. Of $400 million allotted to emergency construction nationwide, almost $4 million went to Idaho. In part, this funded loans to help the state, counties, and local areas raise required matching funds for road projects. Loans could later be repaid through deductions from future federal-aid highway allocations. With loans factored in, the federal government matched costs for these emergency projects at a rate of over 90 percent, which was close to that of Interstate construction. The 1958 act directed upwards of $35 million each year to Forest Highways nationwide, with Idaho continuing to receive 10 percent. It also allocated $7 million nationally in funding for highways on public lands, an increase over the 1956 FAHA. The state senate's Roads Subcommittee requested that Idaho's portion of this funding continue to go to the Lewis and Clark Highway (formerly ID-9, now US-12) through the Nez Perce-Clearwater National Forests in the Idaho panhandle (see Figure 82).[462]

The state's major era of Interstate Highway construction lasted from 1961 to 1974. During these years, between 50 and 75 percent of construction dollars went to Interstate Highways.[463] Ultimately, Idaho would

have four designated Interstate routes totaling more than 600 miles. These routes are I-80N (now I-84), I-15W (now I-86), I-15, and I-90 (see Figures 83 and 84). The FAHA of 1968 authorized additional aid to complete the Interstate Highway System, purchase right-of-way, and support efforts toward beautification, safety, and environmental protection. It was one of several pieces of 1960s federal legislation, discussed below, that had significant impacts in Idaho.

Figure 82. This segment of the Lewis and Clark Highway (now US-12), located near Old Man Creek west of Kooskia and pictured c.1965, was improved with federal public lands funding.[464]



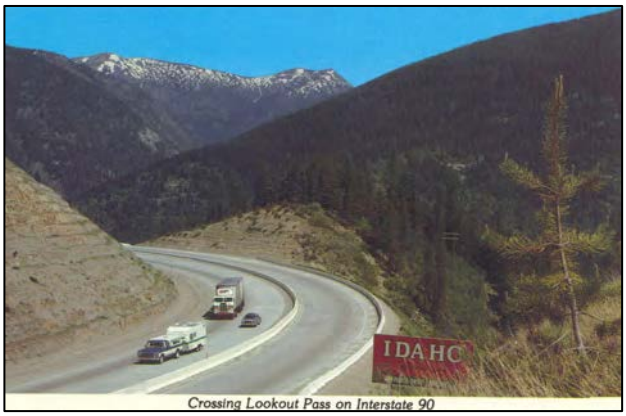


Figure 83 and Figure 84. These c.1965 postcard photos show I-90 in the northern panhandle near the state line with Montana, an area called Lookout Pass.[465]

(c) Beautification, safety, and environmental legislation

The Highway Beautification Act of 1965 limited junkyards and advertising alongside Interstate and primary federal-aid highways and provided funding for development of scenic landscaping, waysides, rest areas, and signage including historic highway markers, reimbursing costs at rates of up to 75 percent. States that did not comply risked losing up to 20 percent of federal aid for road construction. By this point Idaho had already set goals to construct rest areas on the federal-aid primary and secondary road systems, approximately one every 15 miles in flatter areas and one every five miles in the mountains.[466] When the federal act was passed, Idaho followed the new guidelines; in 1966 the state legislature authorized the State Highway Board to attain, improve, and maintain areas adjacent to the State Highway System and in 1967 the State Highway Board officially adopted regulations in line with the national legislation.[467] By 1969 the highway department had constructed 25 major rest stops with bathrooms, picnic areas, and landscaping; eight were located along Interstate Highways and the rest on the state's primary highways.[468] Also beginning in 1969 the highway department inventoried thousands of billboards to determine which ones did not meet federal standards and required that they be removed from the roadside by July 1, 1970.[469]

Figure 85. The newly built Beeches Corner rest area in Idaho Falls in 1967. The Highway Beautification Act encouraged construction of waysides such as this as well as major rest stops.[470]

Historic Highway Markers

Idaho's Historic Highway Markers program began in 1956 and became part of roadside beautification efforts throughout the state. Prior to 1956, various historical markers had been installed by private individuals and organizations; this new program allowed for standard signage and regular maintenance of existing signs.[471] As a collaborative effort between the highway department, state Department of Commerce and Development, and Idaho State Historical Society, the panels promoted tourism. The Historical Society developed the initial content for the signs and the highway department then fabricated the 4-foot by 8-foot panels in its central sign shop in Boise.

The initial 32 signs were located mostly on U.S. Highways including US-9, US-10, US-20, US-26, US-30, US-91, US-93, US-95, and US-191. Others were placed on ID-11 (Canal Gulch), ID-21 (The Oregon Trail), and

ID-33 (Pierre's Hole). Topics ranged from state geography (Lava Hot Springs, Mount Borah) to early trails (The California Trail, Hudspeth's Cutoff) to the history of Native Americans, white settlement, mineral extraction, and military outposts in Idaho.[472]

Merle Wells, iconic Idaho historian and the head of the State Historic Preservation Office beginning in 1969, spearheaded the historic marker project by verifying and standardizing the content. He wrote the text for more than two-thirds of the approximately 300 historic signs that appear today on Idaho's roadside. Today the historic marker program is one of the most comprehensive in the United States.[473]

Figure 86. Highway marker fabrication in Boise's central sign shop.[474]

Figure 87. Historic marker for Lava Hot Springs in Bannock County.[475]

The Federal Highway Safety Act of 1966 required states to have a safety program to oversee drivers' education, statewide accident and traffic studies, certain safety-oriented roadway features (e.g., markings, lighting, and traffic control), and auto inspections. Idaho had already adopted many of these measures but nevertheless continued to emphasize safety. The Idaho Traffic Safety Commission completed several projects, some funded through the National Highway Traffic Safety Administration, throughout the early 1970s. For example, in 1970-1972 the commission tested skid resistance along the entire State Highway System to better understand what factor it played in accidents and how to prevent skidding through better materials and design.[476]

Nationwide environmental regulations also had a significant impact on highway development in Idaho during this era. Public concern for the environment, including preservation of indigenous species and habitats and historic buildings, led the federal government to pass legislation to protect natural and cultural resources. As with beautification and safety planning, Idaho was somewhat ahead of the game, having already adopted measures to prevent the disturbance or "inadvertent destruction" of important archaeological and paleontological sites during highway construction. By 1962 the highway department was considering these factors in the construction planning process and while choosing materials and borrow deposits.[477] A 1963 report entitled *Reconnaissance & Salvage of Archaeological Sites on Idaho Highways*, written by the state's newly appointed Highway Archaeologist, detailed research on more than 550 miles of right-of-way. The report also described several "salvage operations" the highway department had undertaken and, for some projects, realignments it planned in order to avoid these resources.[478] In addition to accounting for archaeological sites, other factors that the highway department began to consider during road planning included potential impacts to historic sites, parks, wetlands, endangered species, and more.

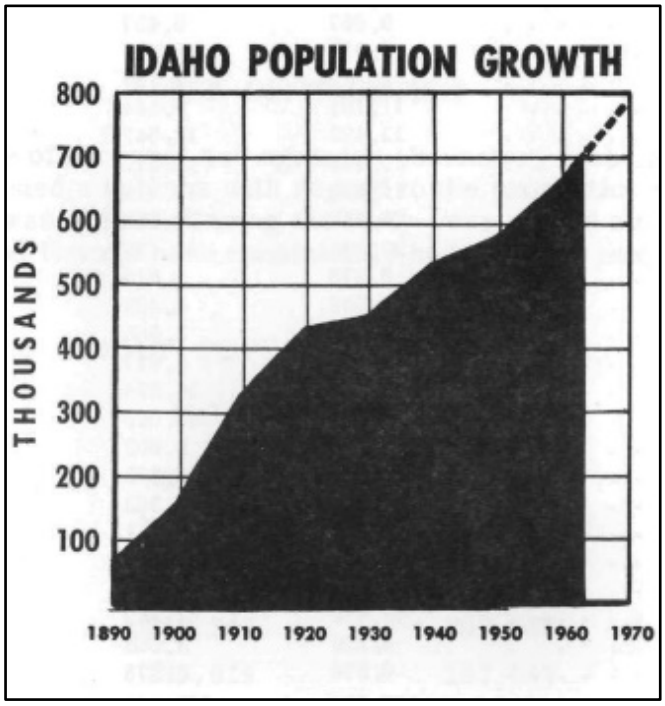
The NHPA of 1966 included provisions for historic structures affected by federally funded projects to be documented following the standards of the Secretary of the Interior. Section 106 review meant that potential impacts to these historic structures would need to be considered as well.[479] Another influential act was NEPA in 1969, which required review of federally funded projects to determine the impact of the project on the environment.[480] Additionally, the federal Department of Transportation (DOT) Act of 1966 included a Section 4(f) provision that limited government transportation agencies' ability to acquire and use land from parks and recreational areas, wildlife refuges, or historic sites.[481]

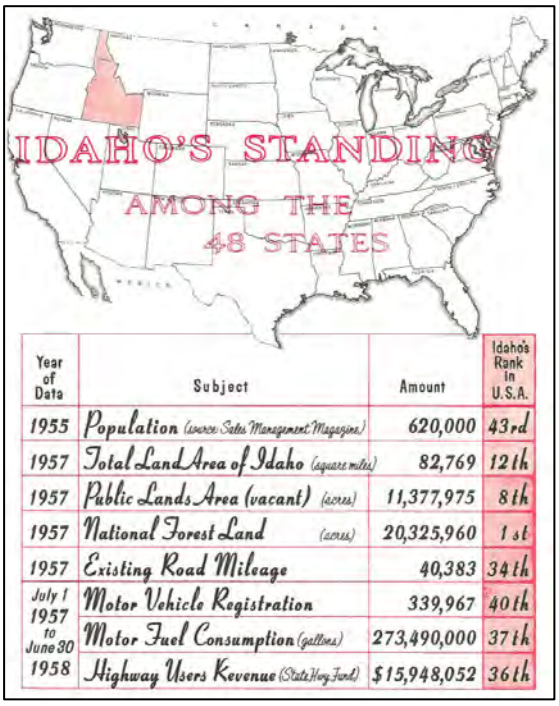
NHPA, NEPA, and Section 4(f) regulations affected road development in Idaho as the impacts of construction activities on the surrounding environment became important elements of highway department planning. The legislation added complexity to road planning and development as increased study and coordination with environmental regulators became necessary. As a result of these policies, project planning became more intricate and time consuming, involving greater numbers of stakeholders who wanted to participate in decision-making, and highway project costs increased. Idaho's highway department added a new Environmental Planning Section in 1973 to help coordinate this increasingly complex environmental review process.[482]

This era, which was characterized by increased federal funding, legislation, and regulations, marked an important milestone for Idaho. Policy and funding within the state highway department were more influential than ever before.

B. Policy, funding, and administration

By the late 1950s, Idaho had a population of more than 620,000 (see Figures 88 and 89). Each year the highway department earned close to $16 million in revenue from gas taxes and registration fees. While these numbers were average-to-low in comparison to other states, they represented significant growth for Idaho.[483] Travel throughout the state had risen from 0.25 billion vehicle miles in 1920 to 3.2 billion in 1959. Motor vehicle registrations increased from 50,000 to 345,000 in the same time, and the number of people per registered vehicle dropped from 8.6 to 1.8.[484] This transportation-related growth coincided with unprecedented economic development across the state.





Year of Data	Subject	Amount	Idaho's Rank in U.S.A.
1955	Population (source: Sales Management Magazine)	620,000	43rd
1957	Total Land Area of Idaho (square miles)	82,769	12th
1957	Public Lands Area (vacant) (acres)	11,377,975	8th
1957	National Forest Land (acres)	20,325,960	1st
1957	Existing Road Mileage	40,383	34th
July 1 1957 to June 30 1958	Motor Vehicle Registration	339,967	40th
	Motor Fuel Consumption (gallons)	273,490,000	37th
	Highway Users Revenue (State Hwy. Fund)	$15,948,052	36th

Figure 88 and Figure 89. These charts show Idaho's population growth through this era, as well as how it compared to other states in measures including population, road mileage, vehicle registrations, and highway revenue.[485]

(1) Economic development in Idaho

Governor Robert E. Smylie held office from 1955 to 1967. He strongly encouraged roadbuilding and improved the State Highway network in order to support Idaho's growing economy. As he described in 1960 as part of a dedication speech for a newly reconstructed segment of US-95:

> The economy of any state is greatly dependent on its highway network. This is particularly true in Idaho since our population is scattered over such a large area. Thus, modern highways linking our communities are vitally important. They are a sound and durable investment in the growth of our state.[486]

Governor Smylie's tenure marked a time of significant growth for Idaho's industrial and manufacturing sectors, as well as the tourism industry. He supported the creation of the Department of Commerce and Development, which oversaw this economic growth.[487] As he advocated in his US-95 speech, wide-reaching road construction and improvements came hand-in-hand with economic development.

Figure 90. With improving transportation networks, economic hubs within Idaho and throughout the western United States became more easily accessible. This chart shows how Idaho in effect "shrunk" due to decreased travel times that resulted from highway improvements.[488]

In the early 1960s, the state's major industries were lumber, mining, agriculture, and tourism.[489] Manufacturing and industry were steadily growing as mechanization decreased labor needs. Between 1955 and 1959, the number of people employed in manufacturing statewide grew from 25,200 to 30,300,

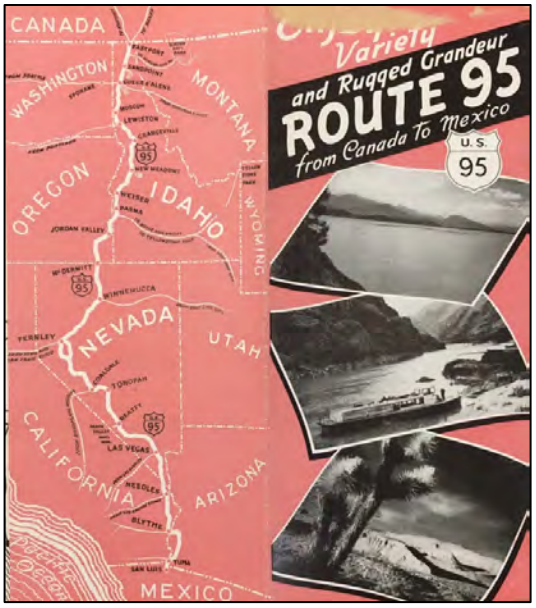
and the value it added to the state went from $198 million to an estimated $247 million.[490] The state's civilian labor force increased by 11,000 between 1957 and 1962, largely in the sectors of manufacturing and government.[491] Personal income was up by 46.4 percent, which was even higher than the 42.8 percent rise nationwide.[492] Bolstered by growing industry and manufacturing, long-distance trucking throughout the state also increased. Truck registrations went up 400 percent between 1940 and 1963, and by the early 1960s truck usage was increasing at a rate 70 percent above the national average.[493]

By 1963 the Idaho Department of Commerce and Development expected several regions linked to industry and manufacturing to grow significantly in the coming years, which guided planned highway development. They included:[494]

- Boise-Nampa-Caldwell (manufacturing, distribution, services, and government)
- Idaho Falls-Pocatello (heavy industry, atomic energy with the National Reactor Testing Station, and the space industry)
- Lewiston (industry, transportation, distribution, and education) – the state emphasized that the Lewis and Clark Highway and terminal port facilities "will assure Lewiston of substantial growth in this decade"
- Twin Falls-Burley-Rupert (food processing, industry)
- Coeur d'Alene (manufacturing and services)
- Mountain Home (irrigation and government with the Strategic Air Command Air Force Base)

(2) Travel and Tourism

Tourism was another economic factor that directly encouraged highway development. The Department of Commerce and Development promoted Idaho tourism through national advertising in *National Geographic, Redbook*, and *The Saturday Evening Post* and on billboards in California, Oregon, Washington, Utah, and Canada. Between 1955 and 1961, the state distributed 2.5 million pieces of promotional material under the publicity motto, "The Place to Go is Idaho." Each tourist brochure was mailed with a highway map. These efforts paid off. By 1961 more than 4 million tourists spent over $125 million traveling throughout Idaho.[495] Between 1948 and 1963, tourist establishments in the state increased by 500 percent.[496] Meanwhile, Governor Smylie and the highway department worked to grow and improve Idaho's road system to support the growing manufacturing, industrial, and tourist economy.



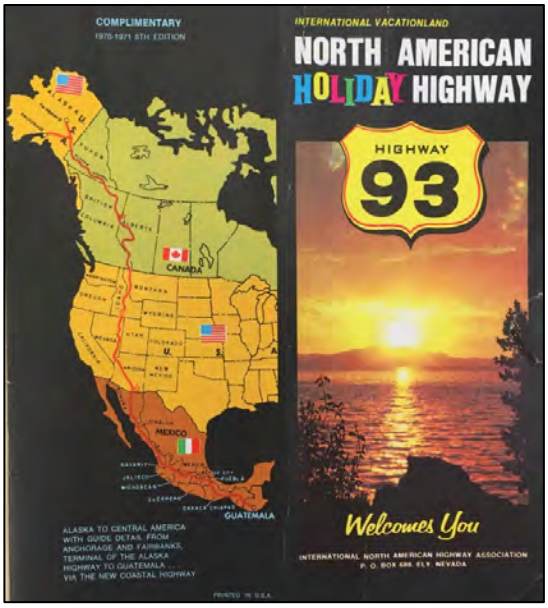


Figure 91 and Figure 92. Two of Idaho's major north-south routes, US-95 (undated) and US-93 (1970), drew tourists through the state.[497]

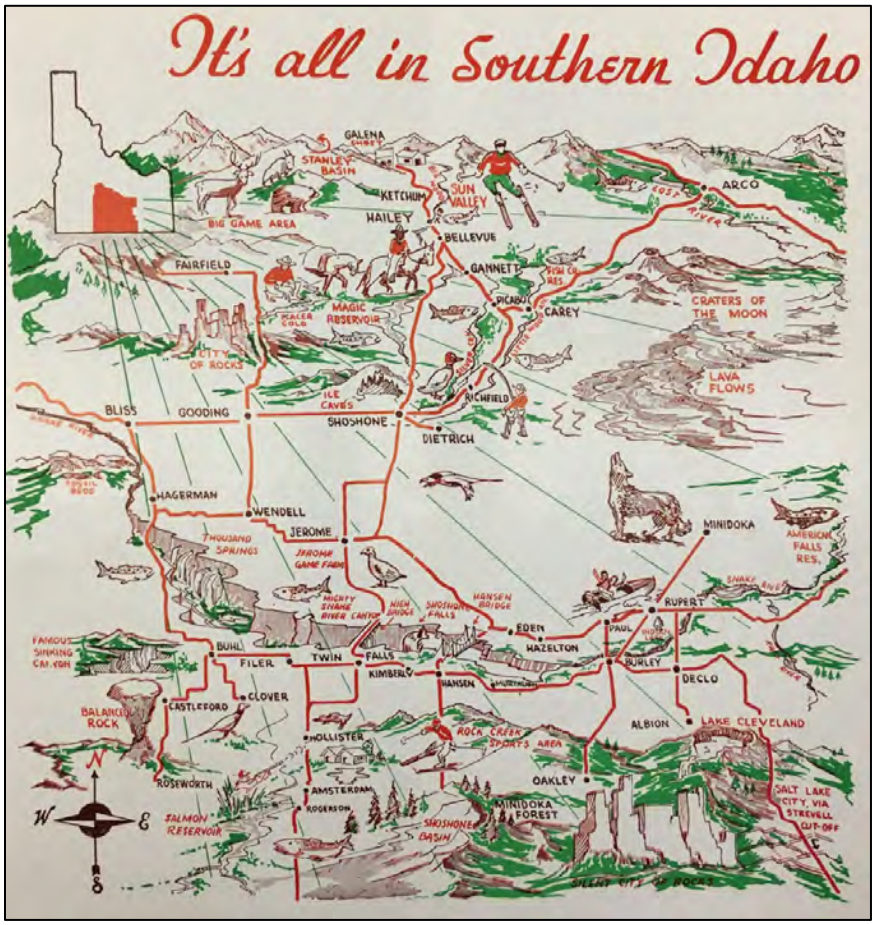


Figure 93. This tourist map shows how the State Highway System connected sites in southern Idaho.[498]

Figure 94. This tourist map shows how US-93 and US-30 connected major cities across southern Idaho.[499]

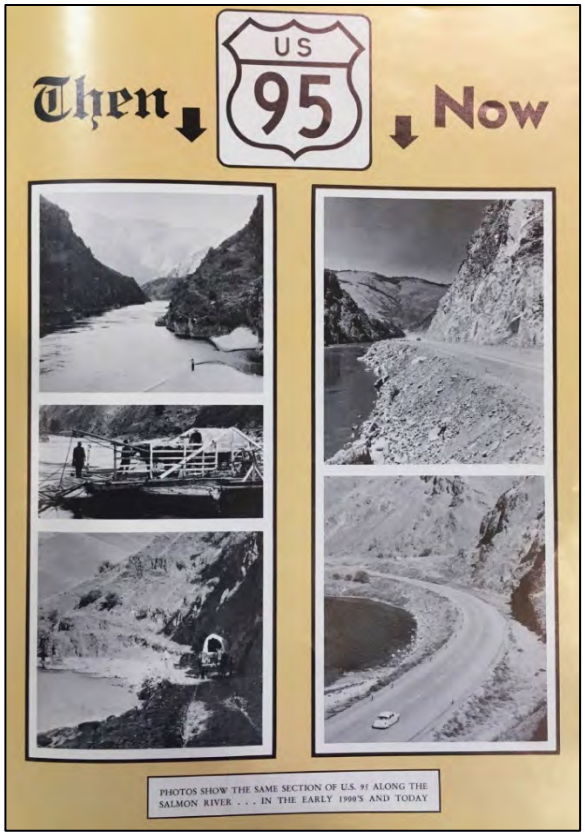


Figure 95 and Figure 96. Improvements to US-95, Idaho's major north-south highway, helped connect economic hubs in all regions of the state. At left, Governor Smylie is pictured at the ribbon cutting for reconstruction of a section of the highway in 1960. At right, the cover of Idaho Highway Magazine, shows US-95 "then" and "now."[500]

(3) Department organization and long-term planning

Throughout the late 1950s and 1960s, with the direction and encouragement of Governor Smylie, the highway department underwent a period of intense long-range planning for road construction and improvements. By this time, the highway department was split into two main sections: Engineering and Operations. Each had an associated Assistant State Highway Engineer and, together with the Chief Right of Way Agent, reported to the State Highway Engineer who then answered to the State Highway Board.[501]

Several new and existing divisions of the highway department took on different aspects of long-range highway planning during this era. The Highway Planning Survey, which operated in cooperation with the BPR and with 75 percent of its costs covered by the federal government, aggregated research and statistics on the highway system. The Planning Section ran a number of preliminary and long-range studies. These included studies on urban roadways (the Idaho Falls Urban Transportation Study), Forest Highways (the Moyie River Crossing and Lewis and Clark Highway), and Interstate Highways (the Magic Valley and Boise Valley reports).[502] For the first time in the highway department's history, outside consulting engineering firms completed some of these initial surveys and plans.

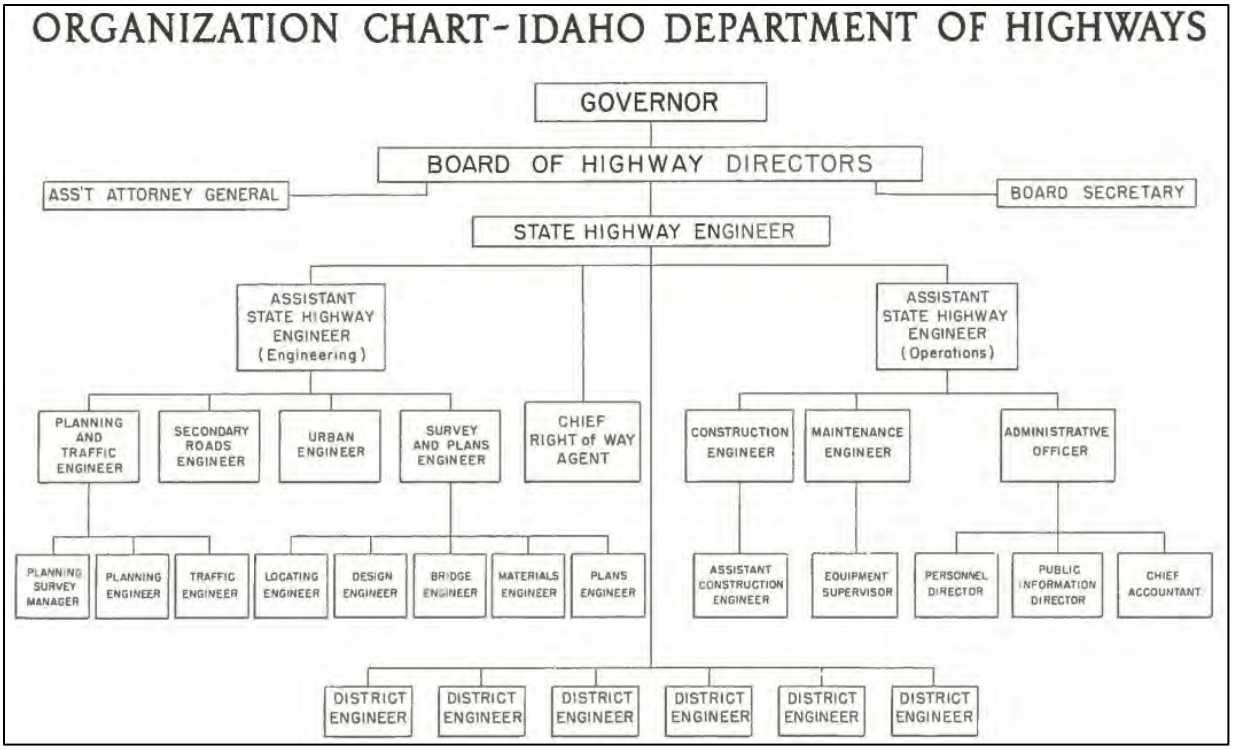


Figure 97. The highway department organizational structure as of 1958.[503]

When it came time to scope locations and acquire right-of-way for new highways, the highway department employed more specialists in various departments. The Location Department scoped placement for the State Highway System and, later, Interstate Highways. That division completed a field survey manual in 1955 and, by the late 1950s was employing cutting-edge aerial survey methods that made location planning "economical and rapid."[504] Right-of-way acquisition was another major effort that ramped up as interstate planning began.[505] The department created a Right-of-Way division by 1958 and then trained realtors and appraisers to work there as the division grew. It was a complex job for which the division coordinated and negotiated with utility companies, railroads due to intersecting right-of-way, and farmers since highway construction had the potential to dramatically affect agriculture and irrigation. As is the case today, right-of-way acquisition could also be controversial. Over the course of just 12 months in 1957 and 1958 property owners filed 28 legal cases against the highway department for acquisition of right-of-way and appealed four cases related to highway construction all the way to the state Supreme Court.[506] These were necessary growing pains associated with the ever-expanding highway system.

Figure 98. With Interstate Highway planning at its peak in 1960, surveyors worked through the winter.[507]

Figure 99. New technology helped the highway department meet increasing survey needs. The tellurometer, shown here, measured distances electronically and saved the highway department months of survey time.[508]

Highway planning principles

The highway department developed standard planning principles as they scouted locations for interstate routes; these informed the state's larger construction program. They included the following guidelines:[509]

- Highways should connect major population centers in the most direct way possible, with termini in larger cities.
- Highways should be located through the state's most heavily populated rural areas.
- Highways should be located through areas of high vehicle ownership and large traffic volume
- Highways should support the transportation needs of important industries (for example, areas of high crop production, manufacturing, and war industries).
- Highways should support the military and national defense.
- Highway planning should consider the topography of the land.

Figure 100. Highway engineers from Idaho and other western states, in addition to the BPR and U.S. Forest Service, attend highway survey training in the mid-1950s.[510]

Public involvement became an important part of the highway planning process in the mid-1950s, when the state passed a public hearing statute. Proposed routes for the Interstate Highway System as well as major primary, secondary, and urban roads were subject to public hearings. At these meetings representatives from the highway department presented several possible alignments and/or strategies for highway construction and/or improvements (see Figure 101). They then solicited questions from the public and took testimony from local citizens. As a result of these hearings and the multitude of highway construction projects during this era, the highway department faced increasing public scrutiny.[511] The State Highway Board solicited input from citizen groups; for example, one Saturday in 1959 they had back-to-back meetings with local delegations from Boise commenting on improvements to US-30 and Twin Falls County asking them to change the proposed location for I-84 to south of the Snake River.[512] Additionally, a number of location hearings were held during this era in conjunction with construction on Idaho's major north-south highway, US-95.[513]

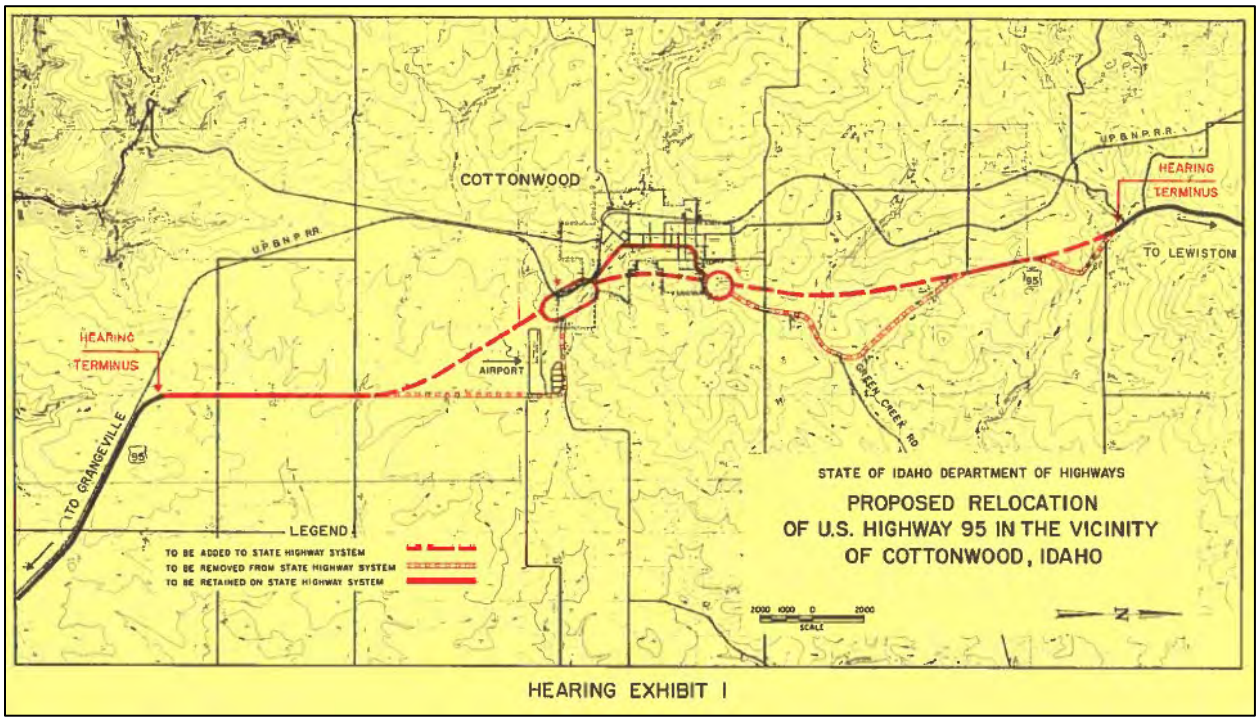


Figure 101. An example of a figure presented at a public involvement meeting on US-95 in 1970.[514]

Other highway department improvements during this era included a new $1.7 million Boise headquarters completed in 1961 (see Figure 102). The 96,000-square-foot building, which was shared by the Motor Vehicles Division and State Police for the Department of Law Enforcement, was designed by architects Hummel, Hummel & Jones and Wayland & Cline of Boise and constructed by R.E. Rice Construction Company of Boise. This building brought together various divisions that had, over the years, become scattered between different offices in Boise. The new, centralized office encouraged improvements in communication, which were increasingly important given the volume of new work the highway department was taking on.[515] As the highway department grew, it added a new position in 1969, the Deputy State Highway Engineer, to help coordinate district activities as well as engineering and operations within the

Boise headquarters.[516] Additionally, the highway department's radio system continued to help communication efforts between the headquarters, district offices, and road crews.[517]

Figure 102. The new highway department building, begun in 1959 and completed in 1961, heralded a new era of communication and coordination.[518]

(4) Road funding

As of the mid-to-late 1950s, department revenue for the State Highway Fund came from a combination of highway users, federal aid, and a mixture of counties and highway districts, cash on hand, and other sources. Of these, approximately two-thirds of revenue came from highway users, one-third from federal aid, and a nominal three percent from other sources. Expenditures, which consistently totaled more than $30 million per year, mostly went toward State Highway construction (approximately 60 percent) and maintenance (approximately 20 percent), with the remaining 20 percent going toward local road construction, administration, appropriations to other state departments, and land, building, and equipment costs.[519] The main funding source for highway construction was federal aid, which provided more than half of the dollars needed, while state funds provided over 40 percent and local government monies totaled less than five percent.[520] As the era progressed and the Interstate Highway System began to develop, the proportion of state funding in comparison to federal funding would decrease.

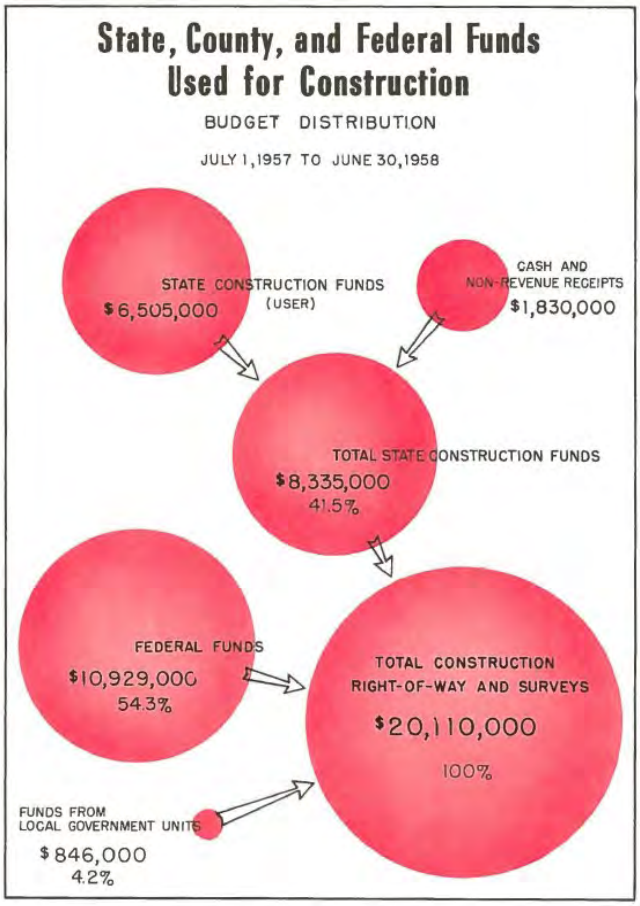


Figure 103. Graphic showing funding sources for road construction in FY 1958.[521]

The State Highway Fund continued to generate revenue from the gas tax, motor vehicle license fees, and truck weight fees in addition to other relatively nominal taxes and permits. In 1967, the state legislature convened a special session due in part to the increasing need for highway funds. As a result, the legislature increased the state gas tax from $.06 to $.07 per gallon and also increased license fees from a flat $5 per vehicle to a sliding scale costing from $7.50 to $17.50. This increased department revenue substantially.[522]

By the early 1970s, highway construction funds were made up of 19 percent from the state construction fund, 79 percent federal aid, and just two percent from local government units. The higher federal aid proportion, despite increasing department revenue, was due to massive increases in Interstate funding as estimates of the cost to complete the Interstate Highway System skyrocketed. By FY 1972 the total amount spent on highway construction, including survey and right-of-way acquisition, was $47.9 million. Of state funding available to the highway department, 46 percent went to highway construction, just over 40 percent to maintenance, 8 percent to administration, and the small remainder to land, buildings, and equipment.[523]

Making up almost 80 percent of highway construction funds by the early 1970s, federal aid overshadowed state funding due to the exorbitant cost of constructing the Interstate system. Federal aid apportionments to Idaho had remained relatively steady throughout the early 1960s, hovering around $25 million total. After the FAHA of 1968, federal aid climbed to over $40 million before dropping back down around $30 million in

FY 1972 and FY 1973. The funds were broken up between Interstate Highway work (which consistently represented the majority of funds), followed by primary, secondary, and urban highways, in that order. For example, in FY 1973 federal apportionments totaled $19.6 million for Interstates, $6.3 million for federal aid primary routes, $4.5 million for federal-aid secondary routes, and just $70,000 for federal-aid urban roads.[524]

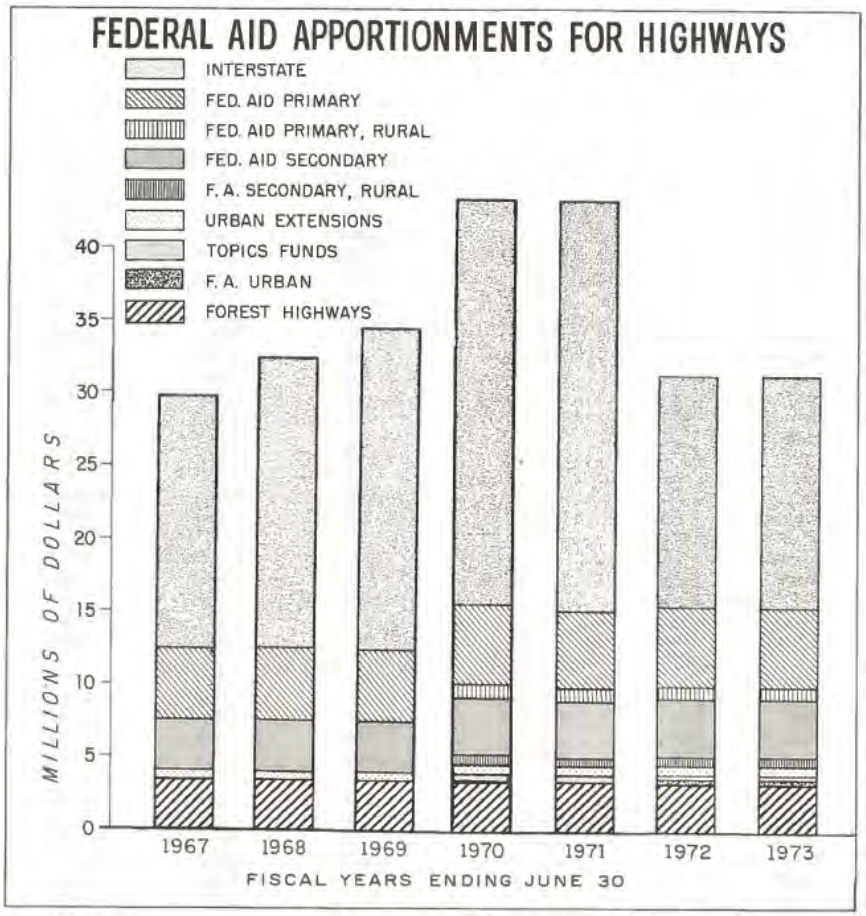


Figure 104. Federal aid apportionments for various highway types in Idaho.[525]

By approximately 1970, the highway department described statewide highway transportation as such:

> An expanding and always improving highway system gives almost any site you select access to heavy-duty high speed roadways. Today, Interstates 80N, 90 and 15 and thousands of miles of U.S. and state roads offer fast routes into every community. And we are continuously building new, and renewing existing highways at a cost of some $50 million annually to make the best of car, bus and truck transportation.[526]

Indeed, the ever-expanding and improving road system necessitated evolving administration and funding structures throughout the major planning and construction years of the late 1950s, 1960s, and early 1970s. The Interstate-building era was characterized by a growing economy under Governor Smylie as well as an expanding highway department with an eye on long-range planning and increasing funding. Each of these factors supported the unprecedented highway construction

that was taking place. Standardization and new technology drove road design and building as Idaho's highway network continued to grow and improve.

C. Construction and engineering

(1) Construction

Idaho's Interstate Highway-building era saw the most highway construction ever completed in the state. By 1957 the State Highway Board authorized the State Highway Engineer to let construction contracts so projects would not be delayed until monthly board meetings. In 1956 and the first half of 1957, the highway department let 111 construction bids and approved construction costs exceeding $20 million.[527] By FY 1972 the contracts let totaled $40.3 million.[528] The Interstate Highway System in Idaho went from being 11 percent complete with 67 miles in 1960 to being nearly 87 percent complete with 527 total miles in 1974.[529]

At the same time, the number of vehicle miles traveled statewide also grew steadily.[530] The State Highway System bore larger vehicles and freight loads than ever before, which accelerated wear and tear and brought new importance to maintenance throughout the system. In the midst of rapid construction and unprecedented usage, the highway department promoted new processes, technology, and materials to complete construction faster and more sustainably than ever before.

Figure 105. I-90 near the 4th of July Canyon in 1958. Note the former road visible on the left side of the photo.[531]

Major components of any new construction project included design, engineering, and preparation of plans and specifications. The highway department emphasized standardization and brought attention to the technical details of highway projects. It also hired a design representative for each district office, which further encouraged communication and coordination during the construction process.[532] Given the state's

increasing traffic speeds and volume, the highway department advocated for "…more expert treatment of intersectional design, truck lanes, separations, interchanges, and channelizations." By the late 1950s, the highway department used three major types of interchanges: trumpet, cloverleaf, and diamond.[533] Seeing that much future work would focus on municipalities (as opposed to rural projects), the highway department anticipated "detailed analyses of intersections, medians, curb and gutter design, storm sewer problems, and relocation of utilities." In the late 1950s, the highway department completed the state's first route analysis on US-30 through Twin Falls, evaluating traffic volume, construction costs, and the state of current facilities and ultimately recommending that the highway department utilize a one-way couplet road configuration.[534]

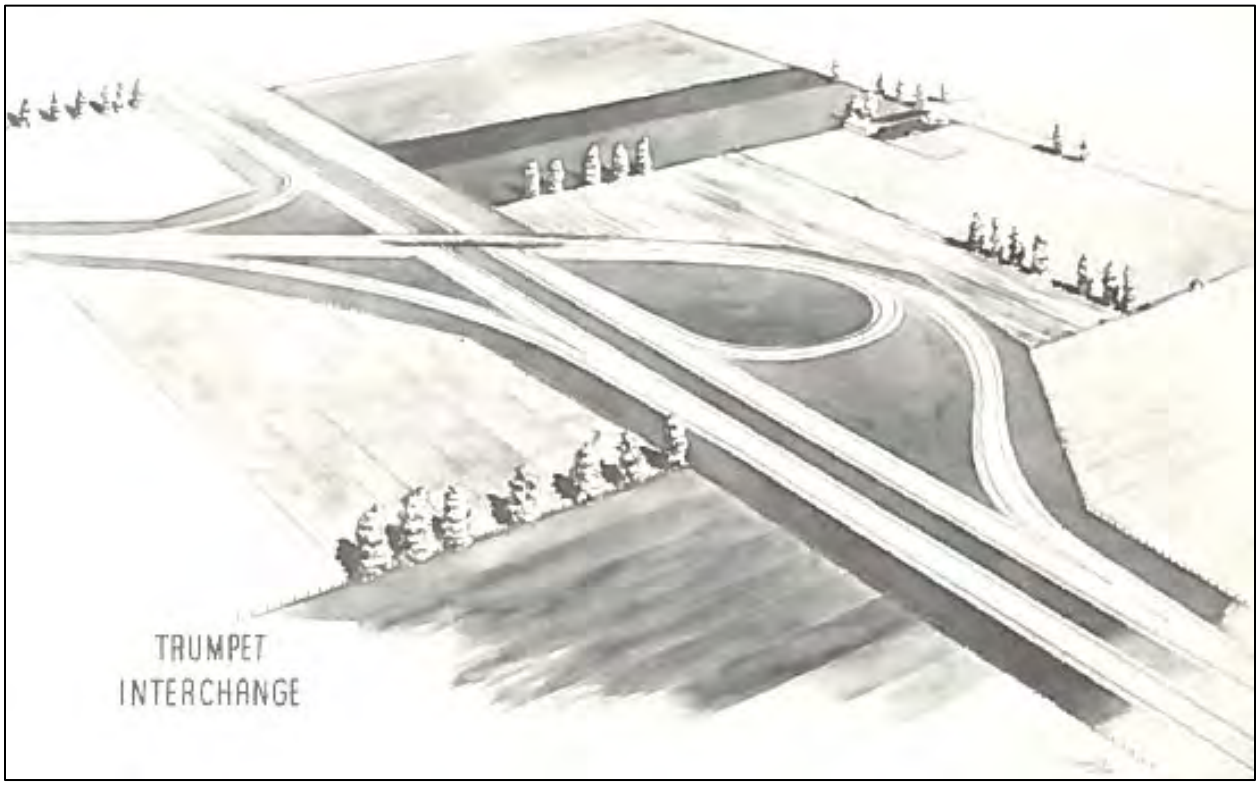


Figure 106. This drawing from the late 1950s shows the trumpet interchange, which was one of three standard interchange types the highway department used that also included the cloverleaf and the diamond.[535]

The highway department began to create alternate designs for each project that allowed them to select the most economical option for construction.[536] To this end, in 1957 the Design Section purchased and began to use a UNIVAC 120 computer (see Figure 108).[537] This made Idaho's highway department one of 40 nationwide using the machines to process data and plan roads.[538] The machine could do 360,000 addition and subtraction computations per hour, and by 1958 it was saving the highway department significant time and money; computations that previously cost about $150 per mile when done by hand now cost a third of that.[539] This simplified the creation and analysis of alternative designs.

Figure 107. Photo of a new interchange at the junction of I-90 and US-95 in Wolf Lodge, c.1965.[540]

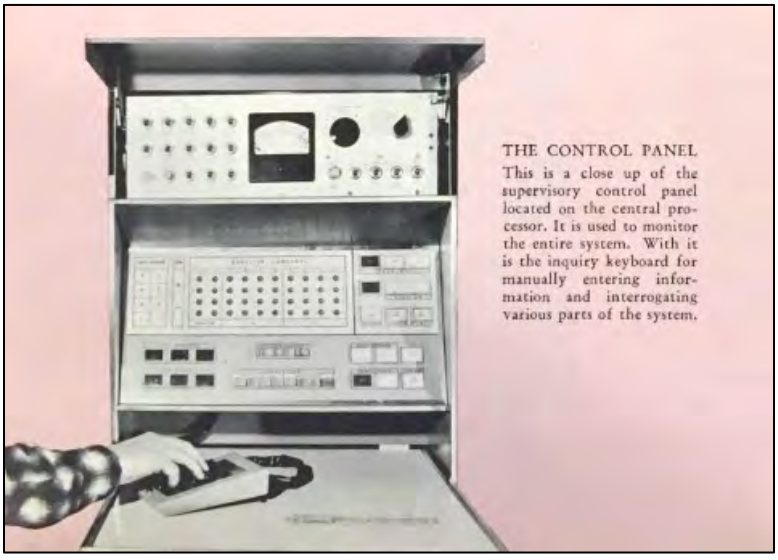


Figure 108. The department used a UNIVAC computer to process data and generate alternate designs.[541]

The highway department focused on preparing engineering estimates, plans, and specifications as projects got closer to the construction phase. They also advertised bids for contractors and reviewed cost estimates and bidding trends. Reproduction and photography groups used aerial photographs to understand highway

locations and conditions.[542] When it came time to build, responsibility shifted to the operations prong of the highway department and the Construction Division, which organized road building and bridge construction.

Figure 109. The Plans Section drafting room in the highway department's Boise office building, 1958.[543]

Highway construction persisted at unprecedented rates throughout the late 1950s and 1960s, although it was "seriously curtailed" in FY 1968 due to inflation at the national level. That same year, the highway department delayed planned construction of some primary and secondary highways because of unresolved right-of-way issues.[544] By 1969, the number of construction contracts advertised had increased again.[545] Because of the sheer volume of highway building in this era, only a handful of projects are highlighted here. Major construction projects on the State Highway System, similar to the immediate postwar years, included Idaho's main north-south and east-west routes, US-95 and US-30.[546] US-95 saw reconstruction or improvements to stretches in the areas of Bonners Ferry, Coeur d'Alene, Culdesac Canyon, Whitebird Hill, along the Little Salmon and Main Salmon Rivers, and Midvale, among others. US-30 was completely reconstructed from the Wyoming state line to Montpelier. Segments in the Hagerman Valley and the area of Twin Falls were also improved, among others.[547]

Other highway rebuilds included sections of US-20 north of Idaho Falls.[548] Major urban highway projects included improvements to US-191 in Pocatello (now I-15) as well as construction of the US-20/26/30 interchange in Boise, which streamlined traffic along the busiest portion of the State Highway System.[549] The Lewis and Clark Highway (US-12), a Forest Highway, was finally completed in 1961 as the culmination of many years of work and at the cost of approximately $14 million, representing a vitally important east-west route in the northern panhandle.[550] Governor Smylie declared "final victory" over the mountainous

terrain, saying "It is impossible to estimate the economic benefit to the state that will accrue with the completion of this road" and calling it "the fulfillment of a 40-year dream."[551] Approximately 5,000 people attended a dedication ceremony for the highway in August 1962.[552] While projects like these greatly improved the State Highway System, interstate construction was the largest undertaking of the era.

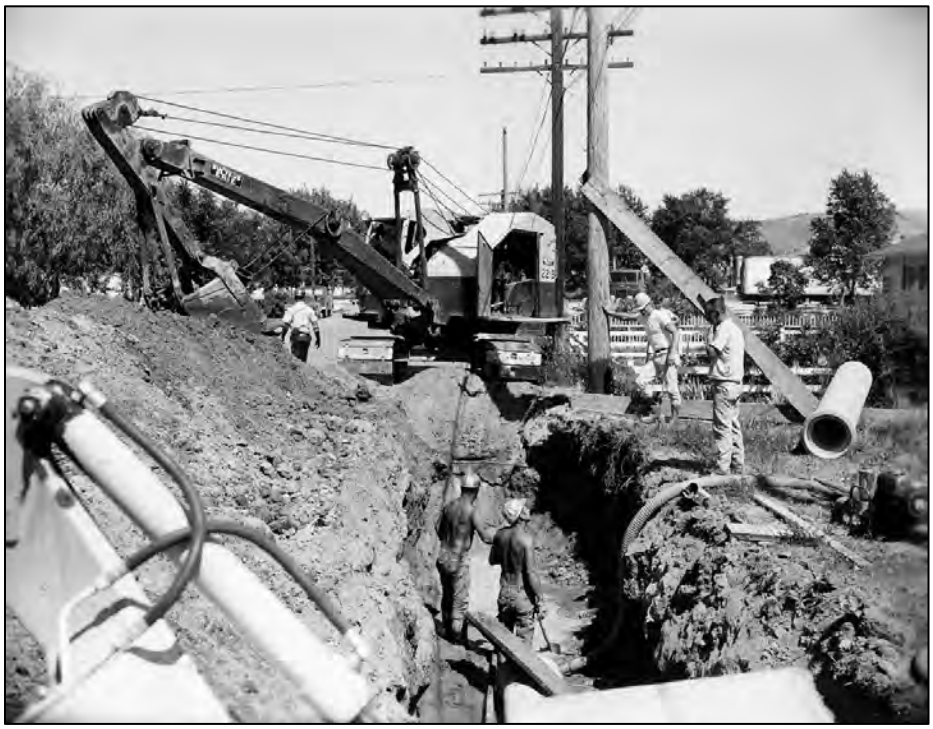


Figure 110. Road construction in Payette in 1966.[553]

Interstate highways and bridges represented a significant proportion of construction activity during this era. By 1957, the highway department had designated four initial routes totaling just over 600 miles.[554] It allocated early Interstate Highway funding to mostly rural, existing segments of highway that had grown inadequate for traffic and/or truck loads; the highway department was able to shorten travel time and reduce accidents and fatalities along these highways. This made early Interstate Highway projects popular with the general public, such as one improving old US-91 between Pocatello and Idaho Falls to become I-15.[555] Other Interstate routes were built new, such as I-80N (now I-84) through the Magic Valley.[556] In what was then a contentious decision, the federal BPR would not approve federal Interstate funding for a route going through Boise; I-84 was subsequently constructed as a bypass around the capital city.[557]

Standardization was a common theme in Interstate construction as Idaho followed national guidelines for road and bridge design. National standards developed by AASHO were applied in Idaho based on expected road use and traffic volume. For example, the highway department developed standard bridge designs to accommodate typical loads as defined in the FAHA of 1956.[558] By the late 1960s, some Interstate Highway segments required conversion from two to four lanes to accommodate the latest traffic standards.[559] Construction standards created to guide Interstate Highway design included the following:[560]

- Four-lane divided corridors with two traffic lanes in each direction. In general lanes were 12 feet wide, outside shoulders 10 feet wide, and inside shoulders 4 feet wide.

- Median strips were used to divide traffic to reduce headlight glare and provide separation between automobiles traveling in opposite directions.

- In general, the highway department acquired 300 feet of right-of-way to construct Interstate Highways, except in densely populated areas and farmland, where it took 200 feet.

- Controlled access with on- and off-ramps in all locations. In some cases, frontage or service roads were constructed alongside the Interstate routes. Railroad crossings and other road junctions were grade separated with overpasses or underpasses. Fencing was to be installed along the side of these highways.

Figure 111. Early Interstate Highways featured up-to-date design features. This 1959 photo shows the first four-lane Interstate interchange in Idaho along I-80N (now I-84).[561]

The Interstate Highway System in Idaho[562]

- **Route I-80N (now I-84)** – 274.8 miles: From the Oregon State Line near Ontario, Oregon, via the vicinities of Boise, Bliss, and Burley, to the Utah State Line
- **Route I-15W (now I-86)** – 62.0 miles: From a connection with I-80W, east of Burley, to a connection with Route I-15 near Pocatello
- **Route I-15** – 198.0 miles: From the Utah State Line south of Malad, via the vicinities of Malad, McCammon, Pocatello, Blackfoot and Idaho Falls, to the Montana State Line
- **Route I-90** – 76.0 miles: From the Washington State Line near Post Falls, via the vicinities of Post Falls, Coeur d'Alene, Kellogg, Wallace, and Mullan, to the Montana State Line

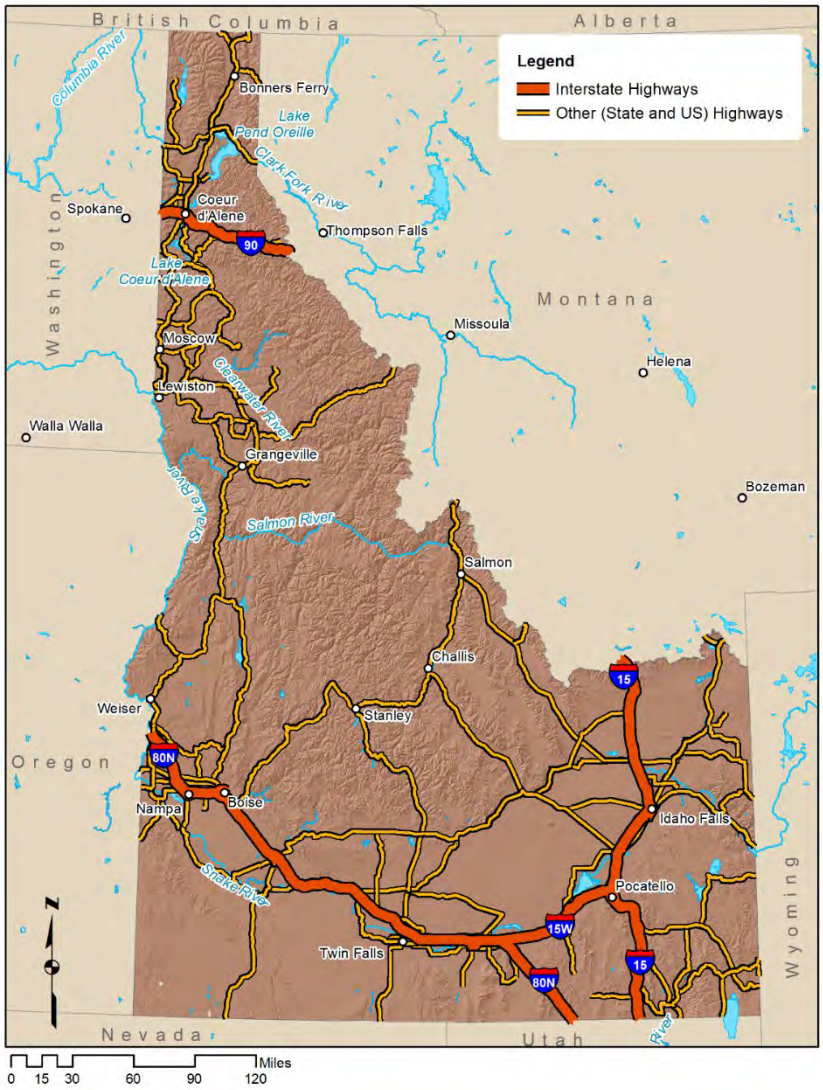


Figure 112. The Interstate Highway System through Idaho as of 1960. The mileage has not changed since this time but the highway numbering has.[563]

Figure 113. This 1961 display highlighted Idaho's interstate progress.[564]

(2) Maintenance

As always, maintenance was a major concern for the highway department, even as the highway department pursued significant new construction. Maintenance costs for the State Highway System doubled between 1961 and 1974.[565] The new standards of the Interstate Highway era including wider lanes, higher traffic speeds, better pavement markings, and additional signage all required additional materials and staff. By the late 1950s, maintenance costs neared $1,000 per mile each year.[566] This added up on a 5,000-mile State Highway System.

eight hours
OF
MAINTENANCE

Our photographer spent an eight-hour day with a maintenance man to acquire this series of photos and acquaint you with some of the routine work involved on a typical autumn day.

This month, IDAHO HIGHWAYS salutes the men who take daily care of over 4,700 miles of our most heavily traveled highways — the maintenance men. These are the men who venture forth in good or bad weather to keep our roads in the best possible condition and open for safe travel.

The spotlight of highway interest is usually focused on construction of new and improved highways. New construction projects, bypasses, locations, right-of-way acquisitions, and related subjects seem to be the most publicized and talked about highway subject matters. We often lose sight of our appreciation for "The Maintenance Man" and the multitude of tasks he must perform each day on and alongside our highways.

Your highway department has 280 full-time maintenance employees who are responsible for maintaining 4,700 miles of highways and about 70 miles of city streets and beltlines. Generally, these men are assigned to cover a specific section of highway (varying from 15 miles to 50 miles) each day.

Of this mileage, 3,000 miles are on primary highways and 1,700 miles are on the secondary system. The total expenditure for this work in 1958 was $5,780,000, or approximately $1,230 per mile.

Almost daily, maintenance men are faced with new and different maintenance problems. "What to do?" comes up every day, and only the experienced maintenance men can come up with the best answers.

Maintenance duties include such things as: upkeep of wearing surfaces, shoulders, ditches and structures; cutting weeds, trimming vegetation, removing debris from pavement; handling and disposing of litter, clearing snow and applying cinders and salt when needed; and maintaining roadside plantings, subway drainage, signing and lighting.

These activities prevent deterioration and add years to the life of highway facilities.

Figure 114. In the fall of 1959, Idaho Highway Magazine followed maintenance worker Orin Neth on a typical shift in which he picked up trash and debris, placed and replaced signs, and patched a segment of road. Neth was one of 280 full-time maintenance workers the highway department employed that year.[567]

Weather remained the highway department's most formidable foe. After routine repairs, the highway department's biggest maintenance expenses included weather-related activities such as seal coating, roadside drainage, and snow and ice removal.[568] Flooding and landslides remained common, especially in the spring when river channels were blocked with ice. Snow conditions were so unpredictable that by the mid-1950s the highway department was distributing a condition report twice daily, seven days a week from November through April.[569] In 1959 alone, the highway department used more than 270 tons of salt and 36,000 cubic yards of sanding material in addition to more than 300 maintenance trucks to address these conditions.[570] The state experienced severe flooding in 1962 and 1963 that washed out a number of State Highways and cut off US-95, Idaho's only north-south highway. These routes then needed additional attention and maintenance to fix the flooding damage.[571]

Figure 115. Unpredictable rain and snow represented huge maintenance expenses for the highway department.[572]

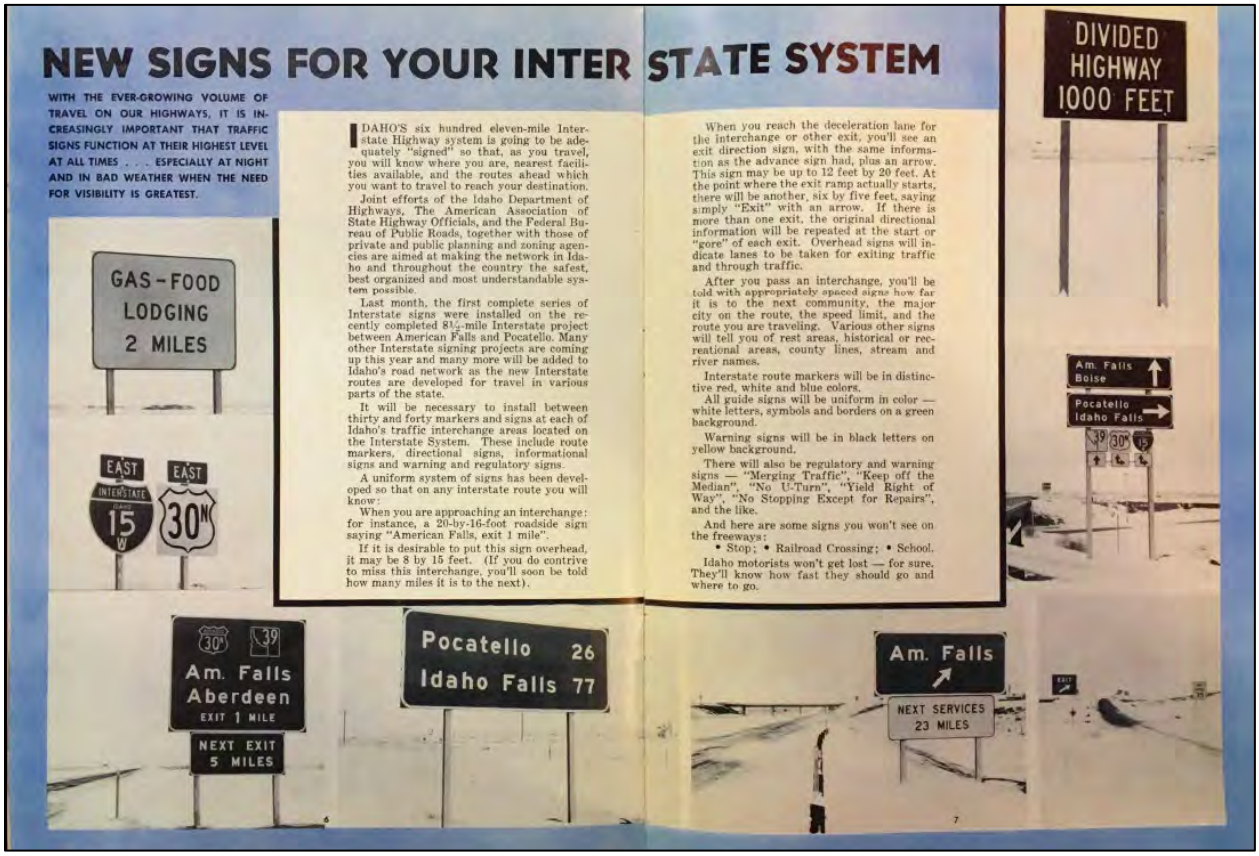
Figure 116. Flooding on US-12 near Kooskia in May 1964 washed out a portion of the highway and guardrail.[573]

Idaho's temperature extremes and precipitation caused frequent pavement damage.[574] In particular, asphalt "stripping" or water damage to pavement was a major problem across the state. The 1969 report "Evaluation of Stripping Problems" prepared by the national Asphalt Institute evaluated statewide road materials including mineral aggregates, pavement cores, asphalt cements, and paving mixtures made in labs. The report determined that Idaho paving materials should be of a better grade with a higher concentration of asphalt, which would give highways better stability and make them less permeable during frequent precipitation.[575] Additional research at the University of Idaho developed a tensile strength test for laboratory evaluation of pavement stripping.[576]

(3) Traffic and safety engineering

The highway department's traffic and safety engineers took on new responsibility during the Interstate-building era. They considered various accommodations for the additional vehicles on the road and higher speeds at which they were traveling; by the mid-1950s many of Idaho's major highways had a speed limit of 70 miles per hour. New design elements and precautions to address safety concerns included:

- Construction of one-way streets in Lewiston and Boise.
- Installation of radar detectors to gauge vehicle speeds. The first radar detectors in the state were located at Snake River Bridge in Lewiston and the intersection of US-20 and US-30 west of Boise.[577]
- Increased streetlighting. For example, the highway department constructed a massive new streetlighting installation in 1958 of more than 100 mercury vapor lights on US-30 through Pocatello.[578]
- Fixed-time traffic signals.
- Standardization of signage using guidelines from AASHO and the BPR (see Figure 117).[579] In the late 1950s, the highway department fabricated more than 10,000 new traffic signs for about $70,000. Labor for the signage was shared between the highway department's Central Sign Shop and inmates at the State Penitentiary.[580]
- Addition of striping paint to roads to better delineate traffic lanes. The department experimented with different types of center lines and patterns and tested durability throughout this era (see Figure 118).[581] By 1962, following guidance from the U.S. Department of Commerce, the state used yellow and white as standard markings with white generally used for lane lines, turn markings, and word and symbol markings, and yellow for double center lines, no passing lines, and in other situations to indicate a "warning" area.[582]
- Generating specialized accident reports for certain high-activity locations.[583]
- Continuing safety competitions between the six highway districts.[584]



NEW SIGNS FOR YOUR INTER STATE SYSTEM

WITH THE EVER-GROWING VOLUME OF TRAVEL ON OUR HIGHWAYS, IT IS INCREASINGLY IMPORTANT THAT TRAFFIC SIGNS FUNCTION AT THEIR HIGHEST LEVEL AT ALL TIMES . . . ESPECIALLY AT NIGHT AND IN BAD WEATHER WHEN THE NEED FOR VISIBILITY IS GREATEST.

IDAHO'S six hundred eleven-mile Interstate Highway system is going to be adequately "signed" so that, as you travel, you will know where you are, nearest facilities available, and the routes ahead which you want to travel to reach your destination.

Joint efforts of the Idaho Department of Highways, The American Association of State Highway Officials, and the Federal Bureau of Public Roads, together with those of private and public planning and zoning agencies are aimed at making the network in Idaho and throughout the country the safest, best organized and most understandable system possible.

Last month, the first complete series of Interstate signs were installed on the recently completed 8½-mile Interstate project between American Falls and Pocatello. Many other Interstate signing projects are coming up this year and many more will be added to Idaho's road network as the new Interstate routes are developed for travel in various parts of the state.

It will be necessary to install between thirty and forty markers and signs at each of Idaho's traffic interchange areas located on the Interstate System. These include route markers, directional signs, informational signs and warning and regulatory signs.

A uniform system of signs has been developed so that on any interstate route you will know:

When you are approaching an interchange: for instance, a 20-by-16-foot roadside sign saying "American Falls, exit 1 mile".

If it is desirable to put this sign overhead, it may be 8 by 15 feet. (If you do contrive to miss this interchange, you'll soon be told how many miles it is to the next).

When you reach the deceleration lane for the interchange or other exit, you'll see an exit direction sign, with the same information as the advance sign had, plus an arrow. This sign may be up to 12 feet by 20 feet. At the point where the exit ramp actually starts, there will be another, six by five feet, saying simply "Exit" with an arrow. If there is more than one exit, the original directional information will be repeated at the start or "gore" of each exit. Overhead signs will indicate lanes to be taken for exiting traffic and through traffic.

After you pass an interchange, you'll be told with appropriately spaced signs how far it is to the next community, the major city on the route, the speed limit, and the route you are traveling. Various other signs will tell you of rest areas, historical or recreational areas, county lines, stream and river names.

Interstate route markers will be in distinctive red, white and blue colors.

All guide signs will be uniform in color — white letters, symbols and borders on a green background.

Warning signs will be in black letters on yellow background.

There will also be regulatory and warning signs — "Merging Traffic", "Keep off the Median", "No U-Turn", "Yield Right of Way", "No Stopping Except for Repairs", and the like.

And here are some signs you won't see on the freeways:

• Stop; • Railroad Crossing; • School.

Idaho motorists won't get lost — for sure. They'll know how fast they should go and where to go.

GAS - FOOD LODGING 2 MILES

EAST INTERSTATE 15 W

EAST 30N

Am. Falls Aberdeen EXIT 1 MILE

NEXT EXIT 5 MILES

Pocatello 26
Idaho Falls 77

Am. Falls

NEXT SERVICES 23 MILES

DIVIDED HIGHWAY 1000 FEET

Am. Falls Boise

Pocatello Idaho Falls

Figure 117. This 1960 Idaho Highway Magazine highlighted uniform signage on the Interstate system.[585]

Figure 118. Department workers placing striping paint to test its durability in the late 1950s.[586]

By the early 1970s, the national Traffic Operations Program to Increase Capacity and Safety (TOPICS) program, created as part of the FAHA of 1968, supported additional highway department safety efforts. The program designated certain municipal streets as part of the federal-aid highway system so they could receive federal funding.[587] As of 1971 Idaho had $1.5 million in federal and matching funds earmarked for TOPICS projects.[588] This aid covered simple undertakings such as pavement marking and the installation of traffic signals and signage as well as more complex traffic engineering with turning lanes, reversible lanes, and channelization.[589] Four 1972 projects (some on State Highways) reduced injury-causing accidents by 54 percent, and a one-way couplet in Nampa doubled traffic capacity while reducing accidents by 86 percent.[590] Safety efforts including the TOPICS program ensured that Idaho's growing highway network could accommodate ever-increasing traffic.

(4) Materials and research

Just as Interstate Highway construction drove standardization in road and bridge design and safety features, it also called for research and improved materials standards. A Research Division, which the highway department created in 1962, merged with the Materials Division by 1966. The Research Engineer in charge worked with AASHO, the Highway Research board, and other government agencies as well as the University of Idaho and Idaho State University to coordinate highway research across the state.[591] As part of this process the highway department evaluated materials at many stages in the highway-building process, both out in the field and in laboratory environments.

The highway department hired and posted geologists and materials technicians in the six highway districts to consider soil conditions and gravel quarries for borrow pits, among other factors, when planning the location and materials for new highways.[592] In 1960, department geologists discovered major gravel deposits in a remote area of south-central Idaho in the Snake River Canyon (see Figure 119). Until then they had struggled to find quality materials in the Magic Valley area, which encompassed Cassia, Jerome, Gooding, and Twin Falls Counties. In the meantime, a number of major highway projects were planned throughout the region, including I-84. The gravel deposit of more than a million cubic yards saved the highway department more than $1 million as it would no longer have to draw from borrow pits that were between 30 and 40 miles away in order to complete highway construction.[593]

While some highway department staff evaluated materials in the field, others worked in laboratories. As of the mid-1950s, the highway department maintained its major labs in Boise and Moscow, as well as smaller labs in each highway district. Prominent topics of study included base stabilization and aggregate degradation, the latter of which the highway department investigated through a research partnership with Phillips Petroleum that took on various surfacing experiments. One of these, for example, tested uses of waterproof road oil to prevent degradation, a technique that showed initial promise.[594] As of 1958, the highway department was using an automated freeze-thaw machine to test concrete and aggregate durability.[595] The Boise Central Laboratory constructed a new facility near the highway department headquarters in 1971, which doubled its work space and allowed for even more materials testing.[596]

Figure 119. Department geologists discovered a large gravel deposit in south-central Idaho in 1960.[597]

Pavement design remained a major focus of the highway department's materials labs. It gained importance as the pavement along several newly constructed Interstate Highway stretches in southeastern Idaho showed accelerated wear and cracking. The department determined that this was due to a failure of the asphalt and stone components of the pavement to adhere to one another; another contributing factor may have been the decision not to apply a seal coat to these corridors.[598] Subsequent research efforts addressed causes of and preventions for pavement cracking. The highway department also built on earlier, WASHO Road Test-developed standards for flexible pavement design, many of which had been further tested and studied in the intervening years by the California Department of Highways.[599] A highway department-published 1964 "Evaluation of Flexible Pavement Design Methods" recommended revisions to standard design methods to account for subgrade soil quality, regional climate, and traffic projections for both regular and commercial vehicles.[600] All of these factors were used to determine thickness for various road layers including the gravel base course, cement treated base, and surface pavement.

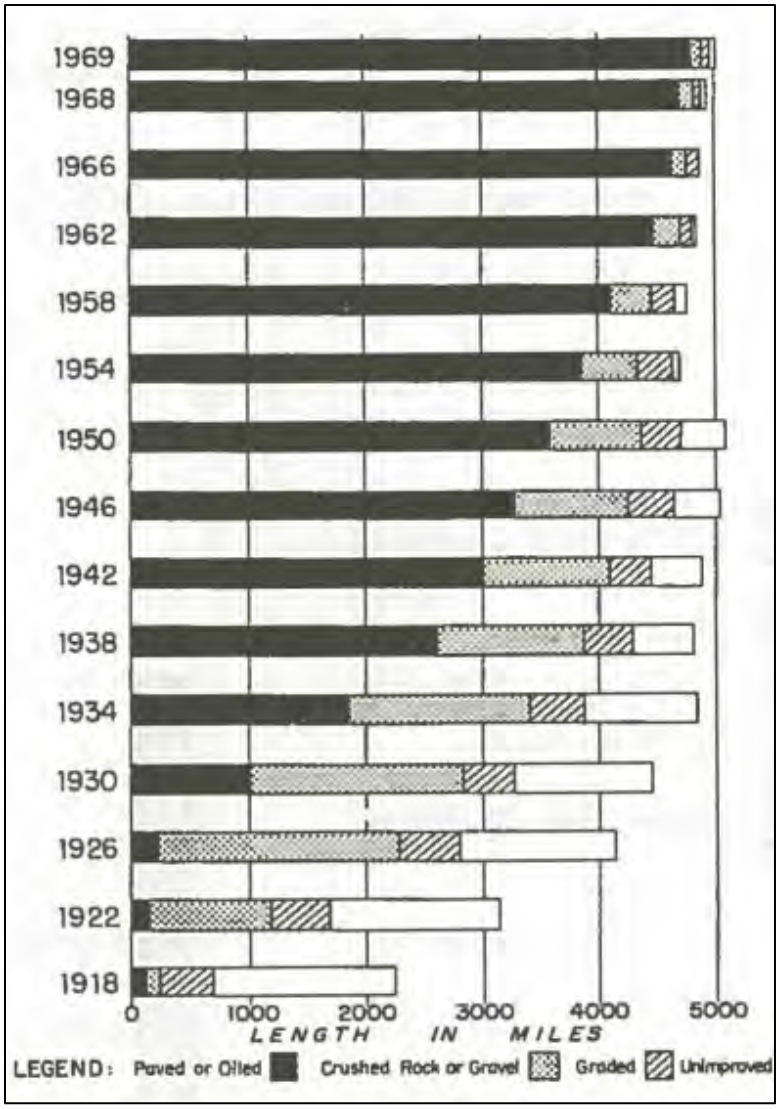


Figure 120. This chart shows the state of highway surfaces in Idaho; by the late 1960s the vast majority were paved or oiled.[601]

Figure 121. This 1961 photo from Idaho Highway Magazine shows Ida Yu, a lab technician, quality testing antifreeze in the Chemistry Section of the Boise laboratory.[602]

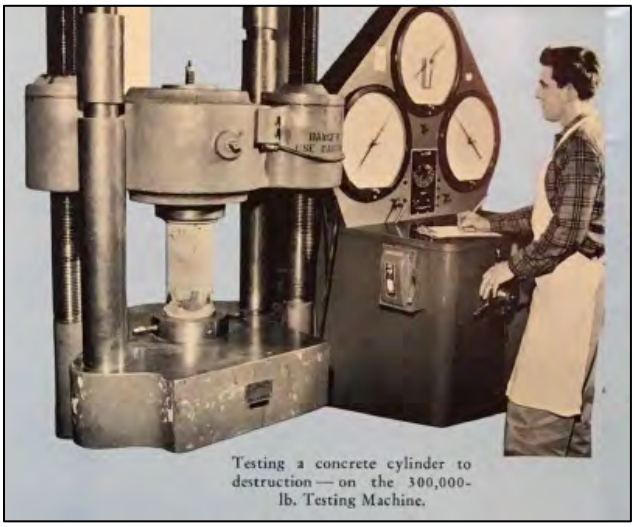


Figure 122. Additional materials testing in the highway department's laboratories in 1961.[603]

In part due to the success of the 1954 WASHO Road Test in Malad, Idaho, and in partnership with AASHO and the FHWA, the state of Idaho received a contract from the National Cooperative Highway Research Program to continue highway research on behalf of other states. Ultimately the University of Idaho received approximately $1 million in funding over 10 years for these research projects including one on pavement failure caused by asphalt that would not adhere to aggregates.[604] Additional highway department research reports produced during this era included:

- ***A Study of Pavement Serviceability with the Idaho Bumpometer*, 1963**
  In response to reports of "undesirable roughness" on asphalt pavements, the highway department designed a "bumpometer" device to measure highway roughness and recommended its use to the Construction Division.[605]

Figure 123. This photo shows a road test car that had a bumpometer installed.[606]

- ***Non-destructive Testing and Compaction Control of Asphaltic Pavement Construction*, 1969**
  In response to concerns about cracking on Idaho's plantmix pavement, this report studied testing methods for pavement design as well as the optimal type and sequence of compaction rolling on asphaltic pavements.[607]

- ***Pavement Roughness Testing with the PCA Roadmeter: Initial Report*, 1971**
  The department purchased a new, more advanced "roughometer" as an improvement on the earlier bumpometer. It used the machine, already employed by a number of other highway agencies, to measure roughness along US-20.[608]

These research projects furthered the highway department's goals to improve Idaho's roads and make a better travel experience for all highway users. In an era in which the state experienced unprecedented economic growth and diversification and the road system underwent massive planning, development, and standardization, the highway department worked to strengthen roads and connect people and businesses around the state. The next major era of highway department would see this process continue with increased emphasis on urban infrastructure and environmental regulations, as well as maintenance and safety.

SECTION 9.
THE ITD AND THE MODERN HIGHWAY SYSTEM (1974-PRESENT)

A. National trends

The FAHA of 1973, which was the largest ever federal-aid highway authorization topping $20 billion over three years, initiated several changes to the federal-aid highway program. In general, it put greater emphasis on urban infrastructure and public transportation than ever before. The legislation set aside funding for urban transportation planning and research and allowed aid from the Highway Trust Fund to be used for mass transit. It also gave states flexibility to transfer federal-aid funds for use between various highway systems—primary, secondary, rural, and urban—according to need. A new highway safety program encouraged roadwork above and beyond the previous standard, with more than $2 billion earmarked for safety improvements.[609]

In the mid-1970s, the FHWA described American highway design in three stages. The first had been "basic highway service to get the farmer out of the mud," followed by ""the era when Highway Departments began to widen highways, provide better curvature and better sight distance and allow for higher speeds," culminating in the Interstate Highway System. The third stage, which they were now beginning, addressed "the public's desire for a better total living environment and a more extensive range of optional transportation modes," as well as "demand for more citizen input into highway development." These trends led to federal requirements that environmental, economic, and social consequences of highway-building be considered equally with other factors.[610] Accordingly, in 1974 state highway departments developed action plans in partnership with the FHWA to plan for these factors.

FAHAs in the late 1970s and 1980s generally extended existing highway funding programs. The Surface Transportation Assistance Act of 1982 increased gas and other user taxes, growing the Highway Trust Fund by approximately $6.5 billion every year. Most of this funding went toward Interstate Highway System completion, which was still the highest federal priority project. The Surface Transportation and Uniform

Relocation Assistance Act of 1987 continued existing programs while streamlining some elements and, as in previous years, increasing states' flexibility to use funds for different road programs.[611]

In 1991, the U.S. Congress passed an important piece of federal legislation: the Intermodal Surface Transportation Efficiency Act (ISTEA). This was the first major highway legislation of the post-Interstate Highway era. It allocated approximately $155 billion from FY 1992 to FY 1997 and designated a National Highway System comprised of Interstate and primary highways, which focused federal funds on roads important to national defense and the economy. The act also allocated highway funds for various environmental enhancements, including wildlife mitigation, air quality, and roadside beautification.[612]

In 1998, Congress passed the Transportation Equity Act for the 21st Century (TEA-21). The last major federal highway act of the 1990s, it authorized aid through FY 2003. TEA-21 carried over many elements from ISTEA, including giving states flexibility in how they used funds, promoting environmental protection measures, and supporting the long-range highway planning process. It also initiated new safety programs to encourage seat belt usage and discourage drunk driving.[613] This act, like others of the late twentieth century, had long-lasting effects on Idaho.

TEA-21 authorized aid into the 2000s. Following that, the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), signed in 2005, authorized funding through 2009 and emphasized traffic safety and strategic roads planning. The American Recovery and Reinvestment Act (ARRA) of 2009, passed to stimulate the national economy after the Great Recession, included $28 billion to repair and construct new highways and bridges. A minor 2012 funding bill, the Moving Ahead for Progress in the 21st Century (MAP-21) Act, allocated funding for two years. It was followed by the major Fixing America's Surface Transportation (FAST) Act of 2015, which authorized $305 billion nationwide over five years for the Interstate Highway System and other important highways.[614]

(1) National trends in Idaho

Each of these federal highway acts had an impact on Idaho's roads, beginning with the FAHA of 1973, which increased federal aid to Idaho. The state received $49.3 million in 1975 and anticipated approximately $80 million for FY 1976.[615] In 1974, Idaho developed an action plan in partnership with the FHWA to better evaluate the environmental, economic, and social consequences of road building. Before the FHWA was established, Utah and southern Idaho had shared a BPR district office in Ogden, Utah.[616] By the mid-1970s, the FHWA's federal construction program in the western U.S. was administered from regional offices in Denver and Portland.[617] Today an FHWA Idaho Division has an office in Boise and a staff of approximately 15 people; they work closely with the highway department to develop road projects and promote safety and innovation.[618] The 1974 action plan relied on interagency cooperation, public input, and early consideration of possible impacts.[619] It encouraged involvement of citizen organizations, local officials, and state agencies for all transportation improvements, and passed a rigorous review process in cooperation with the FHWA.[620]

Idaho's action plan included several changes to the highway department's procedures and administration. For example, a central aspect of the new plan committed to holding public hearings and forums to present alternative highway designs and solicit public input, which was a significant change from the former process.

Major organizational changes included the creation of an Interdepartmental Committee, regional advisory committees, and environmental-focused staff members within the districts and at the Boise headquarters. The plan also instituted monitoring for maintenance and construction programs and brought in outside technical experts for special research that contributed to systems planning.[621]

The major federal funding acts of the 1990s, ISTEA and TEA-21, brought an influx of funding to Idaho.[622] They maintained the higher federal aid matching ratios for states, like Idaho, that had large areas of federal lands. For example, in 1994, Idaho's apportionment of the federal trust fund amounted to $116.5 million (although they were only allowed to spend $110.9 million of it, with the government using the rest to reduce national debt).[623] Idaho was also closely involved in the creation of the federal legislation; the state hosted ISTEA reauthorization hearings in 1997 and then teamed with other rural western states to lobby in Washington as TEA-21 was being developed.[624] Ultimately the act promised to provide $463 million to Idaho over previous funding levels, which represented a 62 percent increase and allowed the state to move forward with a number of new construction projects and initiatives.[625]

At the turn of the millennium, national legislation including SAFETEA-LU, MAP-21, and FAST continued to bring an influx of road funding to Idaho that the state then supplemented with its own state-raised revenue. In fiscal year (FY) 2000, the Idaho Transportation Department (ITD) spent $250 million on the construction of 217 projects statewide.[626] In 2005, the state legislature approved the use of Grant Anticipation Revenue Vehicle (GARVEE) bonds for highway construction that offset exorbitant inflation rates. GARVEE bonds promised future federal-aid funding to the states, which allowed for accelerated construction schedules with loan repayment distributed over a longer period of time.[627] The highway department used approximately $858 million in GARVEE bonds between 2005 and 2016 for road construction. As of June 30, 2015, the state fuel tax was raised from $0.25 per gallon, which it had been since 1997, to $0.32 per gallon. The department also increased vehicle registration fees for passenger cars by $21 per vehicle, using the surplus from these initiatives to augment the State Highway Account (60 percent) and provide distributions to highway districts, counties, and cities (40 percent). By FY 2017, the ITD spent approximately $392 million on construction and right-of-way for projects, a significant increase since the beginning of this era.[628]

B. Policy, funding, and administration

The late twentieth century was a time of growth and change for Idaho. Highway needs increased as populations swelled in some areas, including the northern panhandle and the southwest part of the state (see Figures 124 and 125). The cities of Sun Valley and American Falls, along with Madison County, saw some of the most significant growth.[629] In 1975, the Port of Lewiston opened in Nez Perce County, becoming Idaho's only seaport as inland barges carried goods 465 miles through the Columbia-Snake River network to the Pacific Ocean. This economic development, as always, affected highway planning.[630] As the highway department said in its 1988 annual report, "A sound highway system is the foundation of Idaho's economic development. Good highways are the lifeline for commerce and growth."[631] Accordingly, in the mid-1970s, the highway department reorganized and set new construction and funding goals.

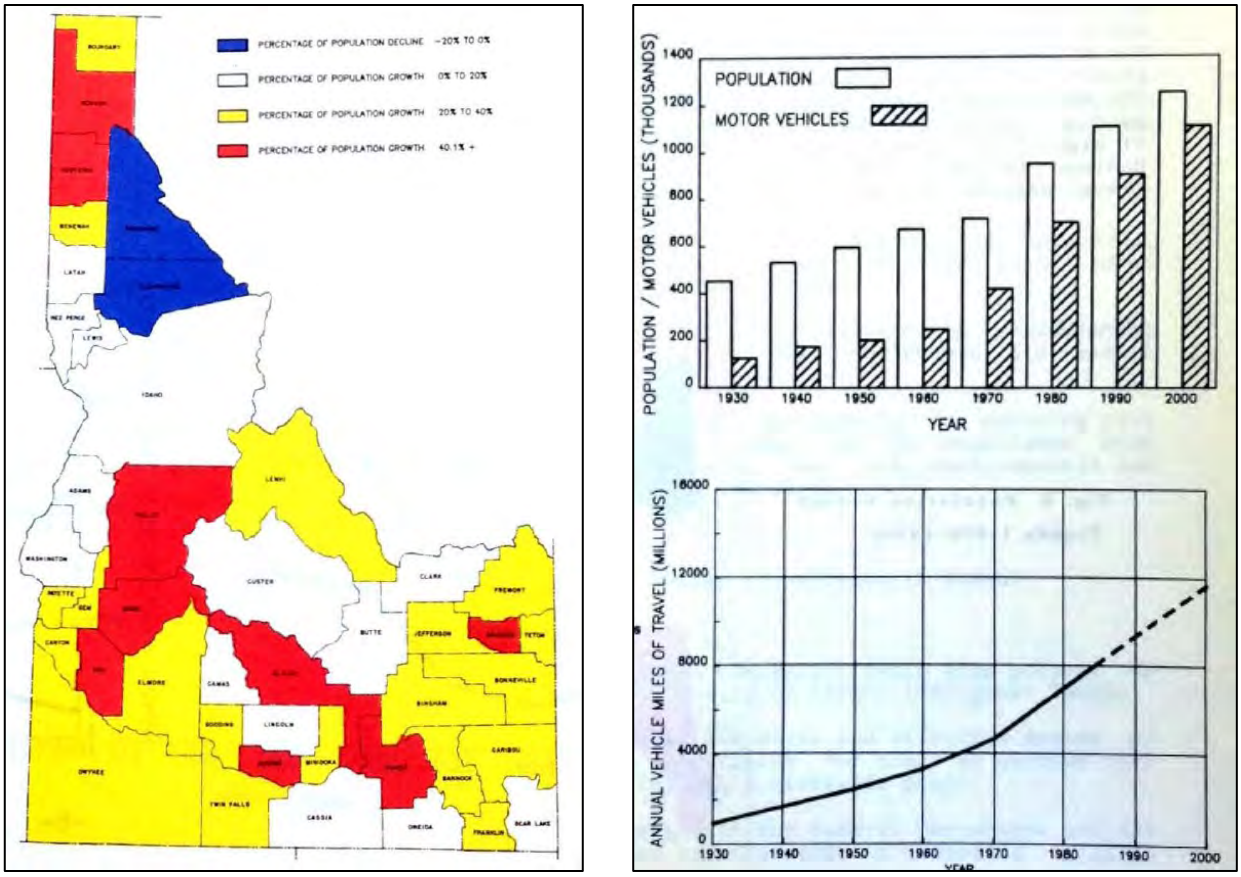


Figure 124 and Figure 125. Population and travel trends as of the mid-1980s, including future projections.[632]

(1) Department reorganization

In 1974, as part of a major reorganization of the entire state government, the Idaho State Legislature closed the Department of Highways and established the ITD. The ITD had two major branches: the Division of Aeronautics and Public Transportation and the Division of Highways.[633] These groups reported to the ITD director, who then answered to the newly formed Idaho Transportation Board, which replaced the State Highway Board (see Figure 126). The ITD's first annual report described the function of the highway department: "The Division of Highways has the duty and responsibility to locate, design, construct, reconstruct, alter, extend, repair and maintain State highways."[634] New goals for the highway department after reorganization included streamlining department processes, making improvements to primary and secondary highways as well as critical bridges, and doubling down on road maintenance.[635]

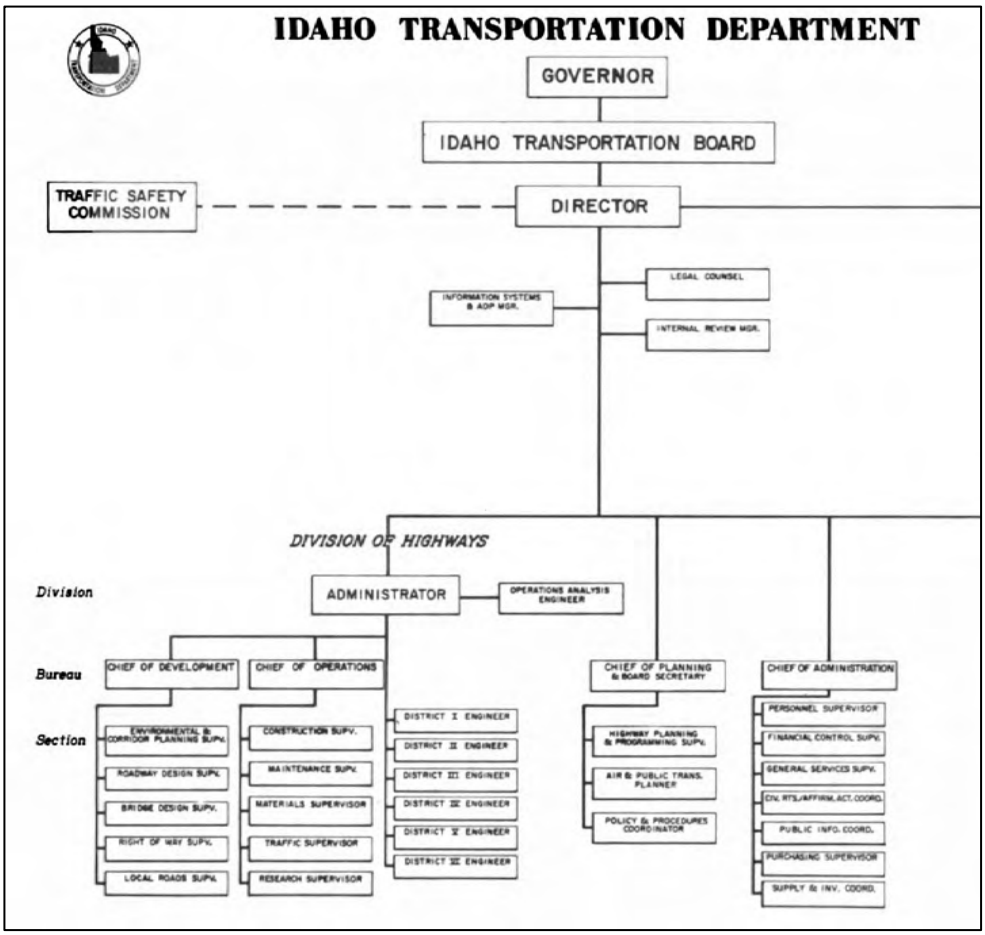


Figure 126. Organization chart from the ITD's first annual report in 1975 (cropped to remove Division of Aeronautics and Public Transportation as they are not covered in this context).[636]

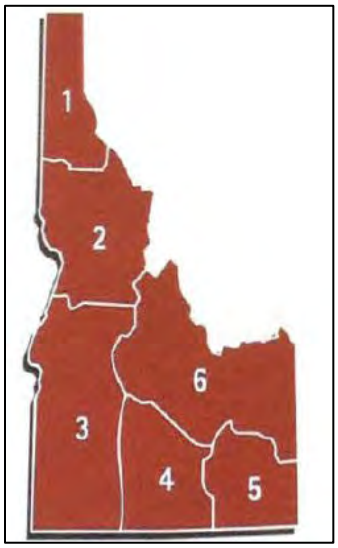


Figure 127. The six regional highway districts: District 1 – North, District 2 – North-Central, District 3 – Southwest, District 4 – South-Central, District 5 – Southeast, and District 6 – East Idaho. By this era the six districts had reached their current configuration.[637]

The structure of the highway department remained stable until the mid-1990s, when the ITD made efforts to reorganize once again in order to decentralize control and execute specific strategies and goals. The department had hired almost 100 new full-time staff between 1988 and 1994 to help coordinate distribution of ISTEA funds.[638] It then eliminated approximately 70 positions in 1996 and 1997 following efficiency recommendations from a special committee to the state legislature. As part of these late 1990s efforts toward efficiency, the highway department implemented an Integrated Financial Management System in 1998. This created a single database for financial and personnel records, which greatly simplified financial reporting and fiscal planning.[639] As it expanded and contracted, the highway department sought to be increasingly resourceful with its federal aid.

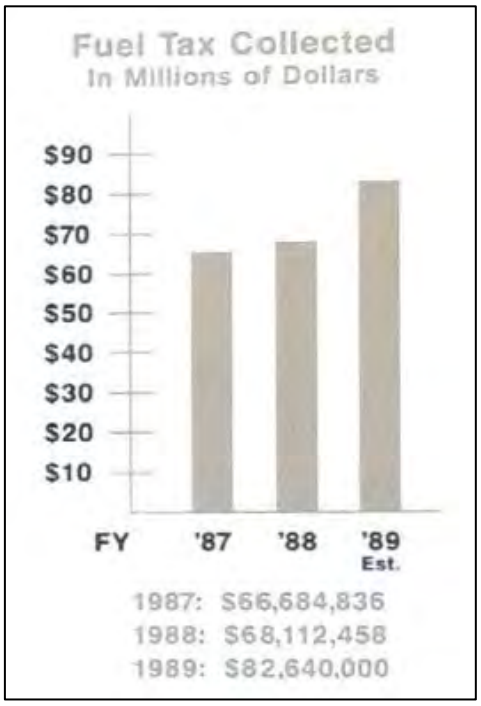
(2) Road funding

The highway department faced revenue challenges during the late twentieth century. For one, even though the dollar amounts of tax revenues were going up, the value of "constant dollars" when adjusted for inflation stayed steady or even went down.[640] The oil crisis that resulted from The Organization of Arab Petroleum Exporting Countries' (OAPEC's) 1973-1974 oil embargo caused gas tax revenue to plummet and asphalt prices to rise exponentially.[641] Around the same time, the FHWA impounded some of the highway funds that Congress had apportioned to various states. Through this process the federal government withheld approximately $23.2 million from Idaho; however, the highway department was ultimately still able to use impounded funds that had originally been intended for other states. This boosted new construction funding in 1975, when the FHWA released all remaining impounded monies.[642]

With revenue generally down and federal aid in flux, it was an uncertain time for Idaho's highway department. By the mid-1980s, there was no state-funded construction program at all. New construction was entirely paid for with federal monies and any available state funds went toward highway maintenance. Around this same time, the highway department established a Six Year Highway Development Program to plan long-term for road building. The program prioritized federal-aid highway funding and considered needs against available funds. The deficit between needs and funds available, estimated at approximately $166 million annually in 1985, pushed the state legislature to approve a series of motor fuel tax increases.[643]

Idaho's state legislature voted to raise the motor fuel tax several times throughout the late 1980s and 1990s. In 1988, the state approved a 3.5-cent motor fuels increase.[644] The legislature then increased user fees again in 1991 by 3 cents to 21 cents per gallon overall, which initiated a new state-funded highway program of $28 million to support 50 proposed projects in 1992 and 1993.[645] Despite these efforts, by 1994 the highway department was still $5 billion short of the $7.3 billion it estimated was needed to correct all of the highway system's issues.[646] Accordingly, by 1997, fuel taxes increased again by 4 cents and the highway department engaged in various partnerships to complete needed work. For example, the Idaho Technology Transfer Center, a research institution that focused on issues like traffic safety and road maintenance, transferred administration from the highway department to the University of Idaho. The department also initiated several novel private sector partnerships, including with Micron Technology Inc. to help fund an interchange on I-84 at Isaac's Canyon and Micron Electronics Inc. to subsidize an addition to the Franklin Boulevard bridge across I-84 in Nampa.[647] At this point the highway department was still very dependent on federal aid, which made up 50 percent of its budget in FY 1997.[648] Nevertheless, Idaho won acclaim

for its efficient spending in comparison to other states; in 1997 the Center for Interdisciplinary Transportation Study gave Idaho fifth place among U.S. states for efficiency in its transportation system. The author of the report praised the state for "putting more of its scarce transportation tax dollars on the road rather than into administration."[649]



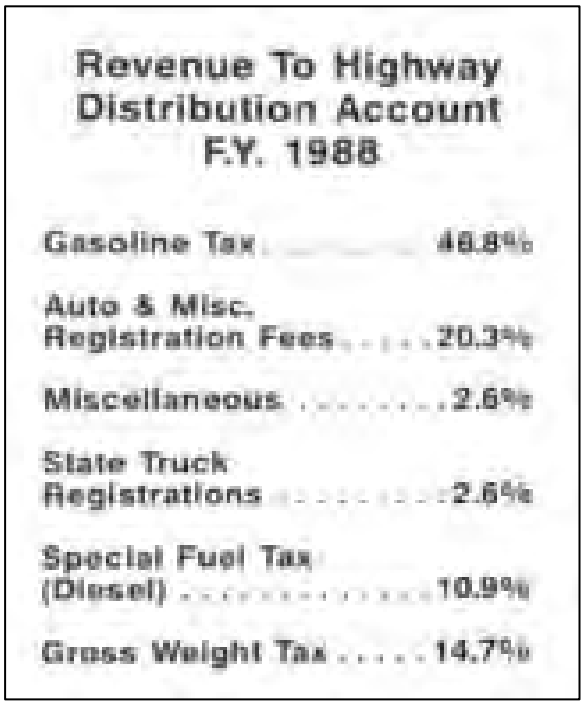


Figure 128 and Figure 129. Fuel tax and revenue statistics from the late 1980s.[650]

Figure 130. Dedication of Isaac's Canyon Interchange in 1997; this project represented the highway department's first private-public interstate construction partnership.[651]

During the 1970s and 1980s, the highway department and Idaho Transportation Board debated over the criteria they should use to add or delete road segments from the State Highway System. This process was controversial because it would create business loops and spurs that bypassed communities and had the potential to greatly affect local economies.[652] The board agreed on a set of six criteria in 1989, which included average daily traffic, vehicle miles of traffic, whether the route fulfilled statutory goals, whether it provided parallel or duplicate service, the need for continuity between State and Interstate Highways, and the importance to the State Highway grid statewide.[653] As of 1985, recognizing that they did not have adequate funds to improve all roads to full AASHTO standards, the highway department organized the highway system into three "Levels of Development": Design Standards, which would meet the highest federal design standards; Resurfacing, Restoration and Rehabilitation, the minimum standard where projects would still qualify for federal aid; and Maintain Structural Integrity and Operational Safety for the remainder of highways.[654] This guidance supplemented long-range planning throughout the highway system.

As in previous eras, long-range road studies were important elements of highway development. A 1977 Truck Weight Study, which used weigh stations devised in the earlier postwar era, found more than 500 vehicles over the course of approximately six weeks in violation of AASHTO recommendations. The study advocated that accurate data was necessary to calculate bridge and pavement loadings, tax rates, and maintenance needs, especially with so many vehicles above and beyond the posted guidelines.[655] Additionally, the Highway Users Federation completed a review of Idaho in April 1985, releasing several major findings: the state typically channeled funding to highly traveled routes, distributed projects evenly through the state, and had made significant improvements to the State Highway System between 1965 and 1985. Moreover, the system capacity was expanding to meet traffic projections. One concern was the possibility for severe pavement deterioration if the highway department did not focus on that maintenance moving forward.[656] A comprehensive road study completed in 1989 found $4.5 billion in maintenance and $2.8 billion in traffic and safety needs.[657] The department then developed a 30-year strategic plan in 1991.[658]

Scenic byways

The federal government created the national scenic byways program as part of ISTEA in December 1991, appropriating funding to states for scenic routes. The legislation promised grants for "planning, design, and development" and committed to funding 80 percent of program costs.[659] By the time the national legislation passed, Idaho had already designated more than 1,000 miles of scenic and historical roads. For example, in FY 1991 the state designated the 33 miles of ID-200 between US-95 and the Montana border in the northern panhandle as the Pend Oreille Scenic Byway.[660]

Today, Idaho maintains just under 2,500 miles of scenic byways. As of 2016, the state boasted 31 scenic byways with notable segments of more than 100 miles being:[661]

- Owyhee Uplands Back Country Byway: 101 miles
- Main Oregon Trail Back Country Byway: 102 miles
- Oregon Trail – Bear Lake Scenic Byway: 110 miles
- Payette River Scenic Byway: 112 miles

- Sawtooth Scenic Byway: 116 miles
- Pioneer Historic Byway: 127 miles
- Ponderosa Pine Scenic Byway: 131 miles
- Sacajawea Historic Byway: 132 miles
- Peaks to Craters Scenic Byway: 140 miles
- Salmon River Scenic Byway: 162 miles
- Northwest Passage Scenic Byway: 202 miles

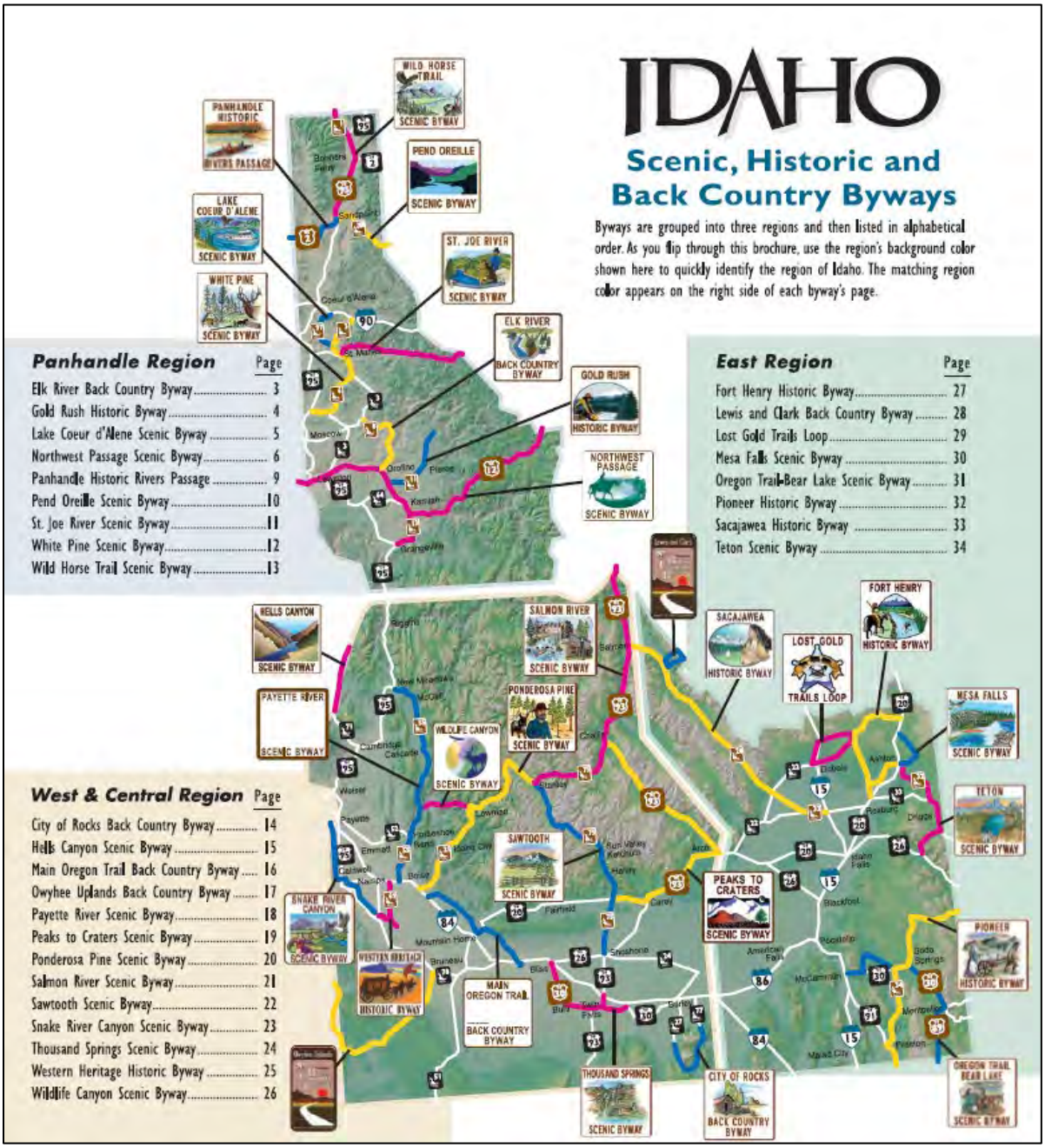


Figure 131. Idaho's Scenic Byway System, along with Historic and Back Country Byways.[662]

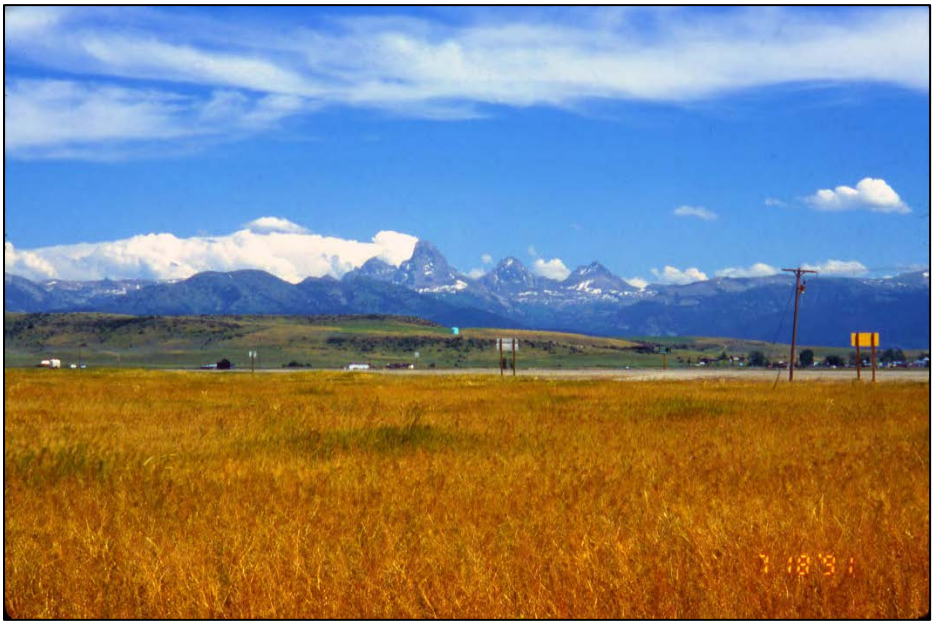


Figure 132. The Teton Scenic Byway, which follows ID-47 in eastern Idaho, at Mesa Falls in 1991.[663]

C. Construction and engineering

(1) Construction

New construction throughout the late twentieth century included Interstate and State Highway projects. While Interstate Highway construction tapered, it did continue through the early 1990s. Idaho had completed many of the more straightforward rural road segments earlier, so this era saw construction of more complex and expensive urban Interstate Highways with higher right-of-way costs and more structures needed.[664] By 1985 the highway department laid out several goals and objectives for new development. These included "select statewide, high-priority projects for improvement and use the balance of available funds to preserve the existing system," and "Focus major construction projects to complete transportation corridors having high economic and social impact on the state including US-95/ID-55 corridor, US-20 (Mountain Home to Ashton), US-30 (McCammon to Wyoming State Line) and US-12" (see Figure 133).[665] In 1989, ITD Director Kermit Kiebert described that it was the "beginning of the end of construction for Idaho's interstate system," highlighting the $22.8-million Wallace Viaduct and $16-million, 1700-foot, concrete Bennett Bay Bridge as among the state's largest-ever projects.[666]

Figure 133. A ribbon-cutting ceremony for ID-55 at Horseshoe Bend Hill in FY 1991 included State Treasurer Lydia Justice Edwards (left), Governor Cecil Andrus (center), and Senator Steve Symms (right).[667]

By this point the highway department had already focused a portion of its federal-aid primary funds amounting to approximately $9 million each year to US-95 and US-20 due to their economic significance as important north-south and east-west routes, respectively. In 1985, the US-95 Mica Hill project and a major segment of US-20 from North Sugar to St. Anthony were both completed.[668] In 1988, the highway department designated 50 percent of primary highway funds to desperately needed US-95 improvements, refocusing efforts on the thoroughfare.[669] Other major segments of US-95 that were rerouted and reconstructed during this era included Lewiston Hill and Elephant Butte, the latter being a highway segment that linked southwest Idaho to California and Nevada.[670]

By the late 1980s, the highway department's use of private contractors increased significantly. The 1988 annual report detailed delegation of "$92 million in construction work to private contractors, an increase of $12.5 million over the previous year…[which] resulted in the creation of 2,500 jobs in private industry."[671] By FY 1994, the highway department created 118 construction contracts totaling $148 million in private industry.[672] These growing numbers coincided with a higher overall construction rate. The funding influx from 1991's ISTEA legislation led to more than 50 planned improvement projects across the state in 1992 and 1993, and by the year 1999 the state saw a 59 percent increase in construction.[673]

The highway department has taken on several special initiatives in the recent past. Bridge replacement projects have become increasingly important. Of more than 1,750 bridges on the State Highway System in the early 2000s, half were built before 1964 and a handful could only carry restricted loads. The

department set targets for performance and planned bridge repairs and replacements across Idaho through the 2000s.[674] In related efforts, the highway department has taken on wildlife passage projects to mitigate environmental concerns along State Highways, including their effects on natural habitats. One example is a wildlife underpass along ID-21 in the Boise area, completed around 2010. As always, though, construction is only one part of the picture with maintenance another big focus for the highway department.

Figure 134. Wildlife using the ID-21 wildlife underpass in 2012. Photo from the Idaho Department of Fish & Game.[675]

(2) Maintenance

Maintenance remained a major consideration and expenditure for the highway department. As of 1975 approximately 60 percent of the State Highway user's revenues that went to the highway department covered its maintenance and operations costs. Moreover, by 1976 the highway department's maintenance costs had nearly tripled over the past 12 years.[676] The department addressed several maintenance issues during this era, including pavement quality, which remained a major concern.

By the mid-1980s, the highway department made it a goal to rehabilitate pavement along the entire State Highway System every 20 years, corresponding with expected service life. Seal coating was a focus of this effort and comprised more than a third of the highway department's maintenance budget in FY 1985 (see Figure 135).[677] The highway department hired private contractors to complete seal coating projects that amounted to 728 miles of two-lane highways in 1988.[678] By 1994, 38 percent of the pavement on the State Highway System was still deficient.[679] The state saw huge improvements by 1999, at which point only

about 20 percent of pavement was still considered deficient.[680] Pavement, though, was not the only maintenance challenge that Idaho faced.

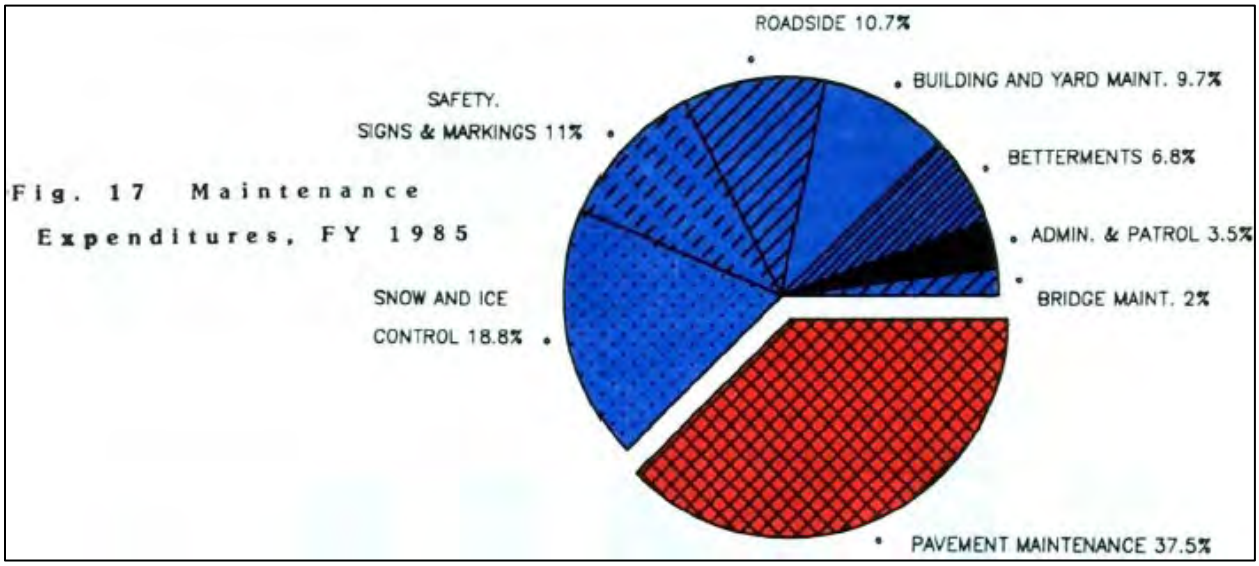


Figure 135. Pavement improvements represented more than a third of the overall maintenance budget in 1985.[681]

Additional maintenance projects included shoulder and roadside work, bridge repairs and replacements, and weather-related efforts. A "Value Engineering Study of Shoulder Maintenance" published in February 1977 was part of a larger FHWA report incorporating data from Arizona, Iowa, and West Virginia. It provided specific recommendations for reshaping the foreslope of the shoulder as part of standard maintenance procedures, as well as for better designing highway shoulders during the planning phase.[682] In the 1980s, an award-winning "Idaho is too great to litter" campaign further supported roadside maintenance.[683] By 1985 more than 100 of the state's critical bridges needed replacement, though the number was trending downward.[684] The highway department made its best efforts to maintain the bridges that were still in service; in FY 1994 department employees made repairs to 430 of 1,682 bridges on the State Highway System.[685] That same year they spent 842,290 hours maintaining, repairing, and plowing State Highways. Meanwhile disastrous flooding in 1996 and 1997 caused by record snowfall, ice, and rain washed out roads and bridges and caused almost $100 million in damage, which took the highway department many months to fully address (see Figure 136).[686]

Figure 136. Historic flooding took place across the state in 1996 and 1997. The banks of the Payette River along ID-55 were one of the areas affected.[687]

(3) Traffic and safety engineering

Safety remained a major focus for the highway department during this era, and a special Traffic Safety Commission was created as part of the mid-1970s reorganization. The commission received a federal grant in FY 1975 for research and development, as well as to administer the Idaho Alcohol Safety Action Project to reduce drunk driving.[688] Additionally, it helped enforce a federal 55 mile-per-hour speed limit, which was enacted as part of the Emergency Highway Energy Conservation Act of 1974 that developed due to the 1973 oil crisis (the federal speed limit would eventually be repealed in 1995).[689] In 1975, the highway department released a "Recommended Program for Improvement of Highway-Railroad Grade Crossings on the Idaho State Highway System" due to the severity of, on average, 13 annual accidents between trains and highway vehicles. This report gave priority ratings for signalized intersections and helped to prioritize grade crossing improvements.[690] By 1976 the ITD successfully reduced traffic fatalities by 13 percent.[691] This was a trend that continued throughout the 1980s and 1990s as Idaho made major strides to improve traffic safety (see Figure 137).

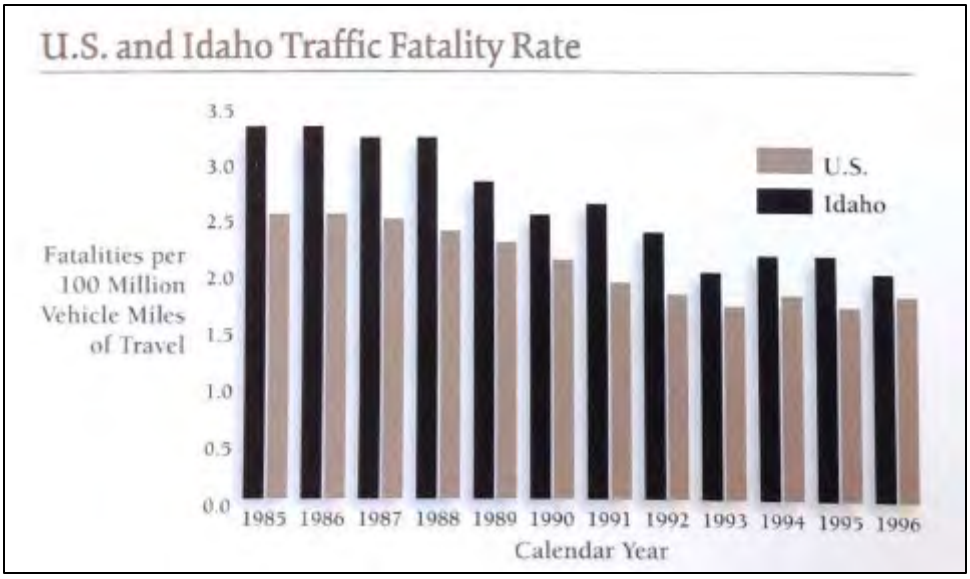


Figure 137. Idaho made major strides toward reducing traffic fatalities in the 1980s and 1990s.[692]

Additional safety goals throughout the 1980s and 1990s involved modern transportation standards and seat belt usage. By 1985 a major safety goal was increasing pavement width to meet modern standards (see Figure 138).[693] Other safety hazards frequently corrected in tandem with pavement widening projects included shoulder improvements, flattening or straightening curves, guardrail replacement, and adjusting sight distance.[694] In 1986, the state legislature enacted a seat belt usage law, which increased the rate that people used seat belts from 15 percent that year to 61 percent in 1994. That same year the Statewide Bicycle and Pedestrian Plan passed, which followed federal regulations and ensured that the highway department would account for non-motorized bicycle and pedestrian traffic when planning for roads.[695]

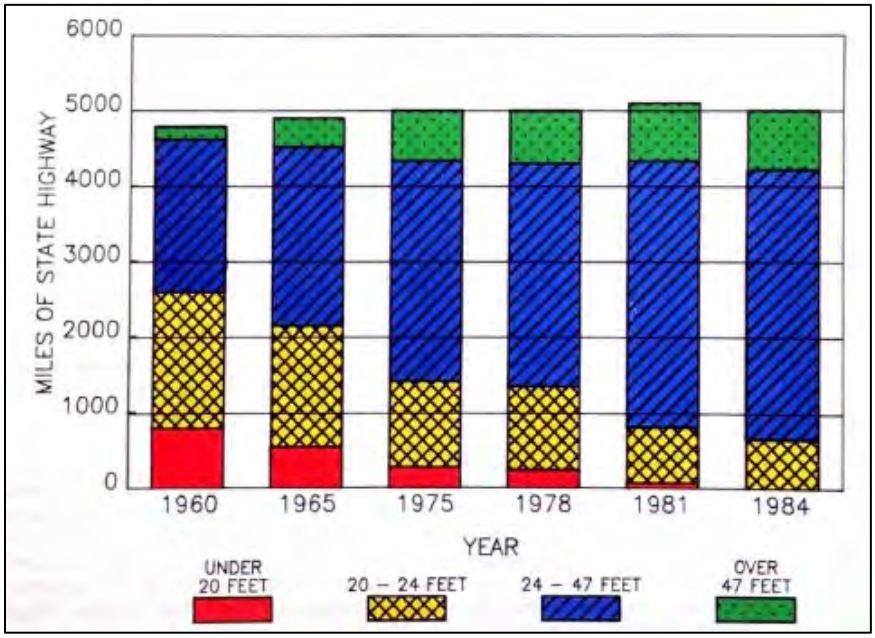


Figure 138. Increasing pavement width along the State Highway System was a safety goal for the highway department.[696]

(4) Materials and research

As efficiency and streamlining goals prevailed and state designs for roadways and bridges became more standardized, the highway department did not complete as much in-house research as they had in previous eras, looking to national research and state academic institutions for transportation advances. The 1991 federal ISTEA legislation named the University of Idaho in Moscow as the home of a new National Institute for Advanced Transportation Technology (NIATT), which conducts engineering research to solve transportation problems in Idaho, the Pacific Northwest, and the larger United States.[697] In 1996, the University of Idaho took over the Technology Transfer Center, which educated the public on a variety of issues relevant to highway use and design.[698] In regard to materials, beginning in the 1970s when asphalt prices went up during the oil crisis, the highway department sometimes used Portland cement pavement instead of asphalt to surface new roads. I-84 (formerly I-80N) between Mountain Home and Hammett was one stretch that used Portland Cement.[699] Overall, the highway department focused on maintenance and safety of the State Highway System rather than developing new designs or materials.

In the twenty-first century, the highway department has continued efforts to improve pavement conditions through preventative maintenance and reconstruction, alleviate traffic congestion in urban and rural areas, and promote traffic safety by increasing seatbelt usage and reducing aggressive driving.[700] On July 1, 2014, following a decision from the Idaho State Legislature, the highway department raised the speed limit on most rural Interstate Highways from 75 to 80 miles per hour. This particularly affected I-15, I-84, and I-86 and has streamlined travel along the state's major routes.[701]

The late twentieth and early twenty-first centuries have seen the creation of the modern-day ITD, completion of the Interstate Highway System in Idaho, and an influx of federal highway funding that came along with increasing environmental regulations and public involvement. The highway department has focused on maintaining and increasing safety along the 5,000 miles of the State Highway System, goals that continue to this day and into the future.

SECTION 10.
CHRONOLOGICAL DEVELOPMENT SUMMARY

The preceding context has followed the development of Idaho's State Highway System Idaho through time. Beginning with the *Influence of Idaho's Geography and Climate on Transportation*, which provided an overview of natural features that influenced the development of Idaho's transportation networks, it traced *Early Trails and Transportation,* which outlined trails established by Native American groups prior to European contact and routes mapped by the earliest Euro-Americans to travel through present-day Idaho, discussing the evolution of major emigrant routes and the expansion of pack trails, wagon roads, and stagecoach routes throughout the Territorial period. *The Progressive Era* described the Good Roads Movement and early attempts at state-sponsored roadbuilding, and the *Dawn of the State Highway System* covered the establishment of the State Highway Commission in 1913 and the influence of federal aid for roadbuilding from 1916 onward, including the designation of Idaho's original system of State Highways and subsequent expansion of both the highway system and the highway department through the onset of the Great Depression in 1929.

The Great Depression and the New Deal continued with a discussion of various federal relief programs including sources of federal funding and ways in which the highway department was able to take advantage of these opportunities to improve and expand the Idaho transportation network. *World War II and its Effects on Idaho's State Highway System* began with the onset of World War II and the restrictions imposed as the nation mobilized for wartime, providing an overview of Idaho's strategic highways during the war and major changes in federal funding and attitudes in the postwar period as highway use skyrocketed in the early 1950s. *The Interstate Highway Era* then covered construction of Idaho's Interstate routes and discussed the impact of federal funds, new construction standards, and increasing dependence of industry and tourism on the State Highway System. *The ITD and the Modern Highway System* discussed the shift in the mid-1970s as public policy and planning increasingly focused on quality of life, multi-modal use, and other more holistic approaches to transportation, covering Idaho's highways and ITD initiatives through the present time.

A. Timeline overview of milestones in Idaho transportation

Milestones in bold represent national events and the colors represent the section of this report in which the event is described.

Section 3	Pre-1805:	Native Americans used a variety of trails, including the Wise'isskit (Southern Nez Perce), Lolo, St. Regis-Borgia, and Pend d'Oreille Trails prior to European contact
	1805:	Shoshone guide Pikee Queen-ah leads Lewis and Clark expedition into present-day Idaho via the Lolo Trail
	1842:	First Oregon Trail wagon train brings more than 100 people across Idaho
	1861:	Mullan road completed from Walla Walla to Fort Benton, crossing northern Idaho
	1863:	**Idaho established as a territory**
	1881:	Territorial legislature passes first act to provide comprehensive authority for counties to designate, construct, mark, and maintain roads and highways
Section 4	**1890:**	**Idaho becomes 43rd state**
	1892:	**National League for Good Roads is organized**
	1893:	Early statewide road commission established by legislative act
	1905:	Legislature passes law enabling establishment of Good Roads districts
	1907:	First State Highway Commission created
	1908:	**Henry Ford introduces Model T**
Section 5	1913:	State Highway system established by legislative act
	1914:	Boise piano dealer Charles Sampson begins developing "Sampson Trails," marking roads in Idaho
	1916:	**Federal Aid Road Act**
	1917:	Lewiston Hill Highway completed
	1919:	Bureau of Highways established within Department of Public Works; expanded highway department lets $9 million in contracts, representing 88% of total work since 1913
	1921:	Federal Aid Highway Act passed; Idaho highway system reorganized into primary and secondary system
	1926:	U.S. Highway system created, including US-30, US-93, US-95, US-10, and US-2 through Idaho

Section 6	**1929:**	**Great Depression begins**
	1930:	Idaho's highways employ more workers and require more funding than any other state agency or program
	1933-1935:	**Numerous New Deal programs created to provide employment, including PWA, WPA, and CCC**
	1934:	Idaho adopts standard statewide system of directional and informational signage, include numbered highway markers
	1938:	More than half of Idaho's highway mileage has been paved or oiled
Section 7	**1941:**	**U.S. enters World War II**
	1944:	**Federal-Aid Highway Act (FAHA) expands federal-aid primary road system, provides new funding for construction of secondary roads, and officially designates interstate highways**
	1945:	**World War II ends**
	1950:	The State Department of Highways is established in Idaho as an entity separate from the Department of Public Works
	1951:	The Highway Administration Act of 1951 reorganizes and streamlines the newly independent highway department
	1955:	Governor Robert E. Smylie elected to office in Idaho; he served until 1967 and encouraged roadbuilding and improvement of the State Highway system to support the state's growing economy
Section 8	**1956:**	**FAHA and Highway Revenue Act make the first substantial appropriations for interstates; increases federal aid to states for primary, secondary, and urban highway construction; and brings design and safety standards to roads nationally**
	1956:	Idaho's Historic Highway Markers program begins, with the highway department eventually fabricating and installing hundreds of 4-by-8-foot panels that describe the history and geography of the state
	1962:	Idaho Highway Department creates a Research Division to help advance highway technology and materials throughout the state
	1965:	Passage of national Highway Beautification Act encourages new emphasis in Idaho on construction of rest areas, waysides, and scenic landscaping
	1969:	**The National Environmental Protection Act (NEPA) passes, requiring review of federally funded projects to determine the impact of the project on the environment**
	1973:	FAHA allocates funding for urban transportation planning and research; Idaho partners with FHWA to develop an action plan to evaluate the environmental, economic, and social consequences of road building

1991:	**Federal Intermodal Surface Transportation Efficiency Act (ISTEA) is passed, focusing federal funds on roads important to national defense and the economy; it also allocated highway funds for environmental enhancements such as wildlife mitigation and air quality and created the scenic byway system**
1998:	Congress passes the Transportation Equity Act for the 21st Century (TEA-21) which promises $463 million to Idaho over previous funding levels, a 62 percent increase that allows the highway department to move forward with a number of new initiatives
2005:	Idaho state legislature approves the use of Grant Anticipation Revenue Vehicle (GARVEE) bonds for highway construction that offset exorbitant inflation rates and allow for increased construction
2015:	**Fixing America's Surface Transportation (FAST) Act authorizes $305 billion nationwide over five years for the Interstate Highway System and other important highways**

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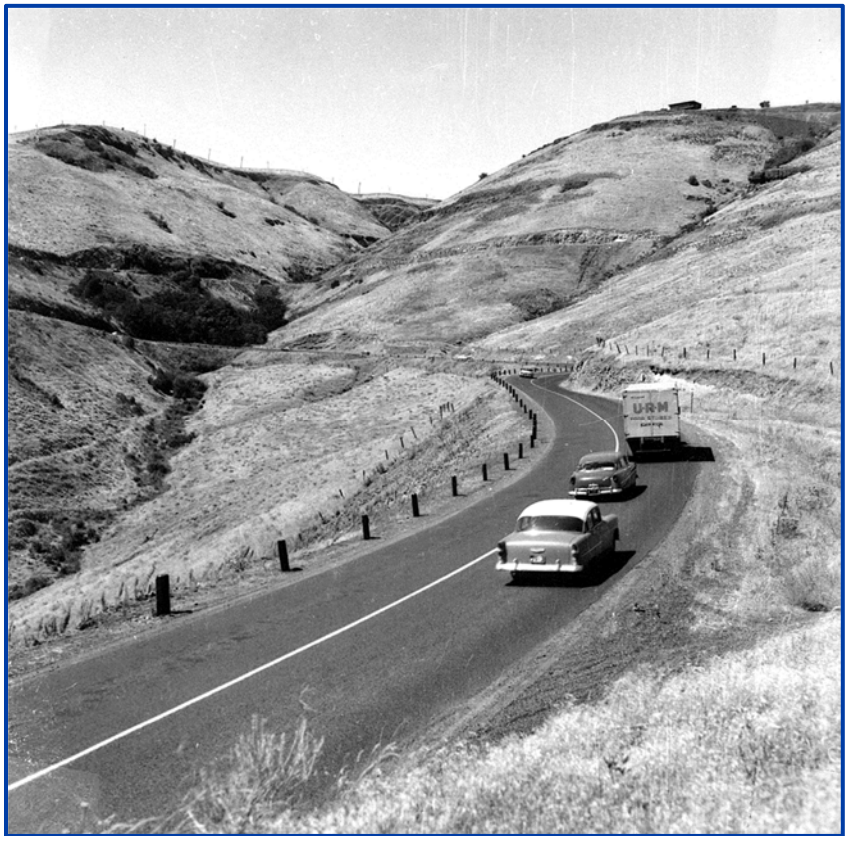
Historic Survey of Roads in Idaho's State Highway System

Volume 2: Application of the National Register of Historic Places Criteria for Evaluation



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mi	Miles (statute)	1.61		km
		AREA		
in^2	square inches	645.2	millimeters squared	cm^2
ft^2	square feet	0.0929	meters squared	m^2
yd^2	square yards	0.836	meters squared	m^2
mi^2	square miles	2.59	kilometers squared	km^2
ac	acres	0.4046	hectares	ha
		MASS (weight)		
oz	Ounces (avdp)	28.35	grams	g
lb	Pounds (avdp)	0.454	kilograms	kg
T	Short tons (2000 lb)	0.907	megagrams	mg
		VOLUME		
fl oz	fluid ounces (US)	29.57	milliliters	mL
gal	Gallons (liq)	3.785	liters	liters
ft^3	cubic feet	0.0283	meters cubed	m^3
yd^3	cubic yards	0.765	meters cubed	m^3
Note: Volumes greater than 1000 L shall be shown in m^3				
		TEMPERATURE (exact)		
°F	Fahrenheit temperature	5/9 (°F-32)	Celsius temperature	°C
		ILLUMINATION		
fc	Foot-candles	10.76	lux	lx
fl	foot-lamberts	3.426	candela/m^2	cd/cm^2
		FORCE and PRESSURE or STRESS		
lbf	pound-force	4.45	newtons	N
psi	pound-force per square inch	6.89	kilopascals	kPa

APPROXIMATE CONVERSIONS FROM SI UNITS

Symbol	When You Know	Multiply By	To Find	Symbol
		LENGTH		
mm	millimeters	0.039	inches	in
m	meters	3.28	feet	ft
m	meters	1.09	yards	yd
km	kilometers	0.621	Miles (statute)	mi
		AREA		
mm^2	millimeters squared	0.0016	square inches	in^2
m^2	meters squared	10.764	square feet	ft^2
km^2	kilometers squared	0.39	square miles	mi^2
ha	hectares (10,000 m^2)	2.471	acres	ac
		MASS (weight)		
g	grams	0.0353	Ounces (avdp)	oz
kg	kilograms	2.205	Pounds (avdp)	lb
mg	megagrams (1000 kg)	1.103	short tons	T
		VOLUME		
mL	milliliters	0.034	fluid ounces (US)	fl oz
liters	liters	0.264	Gallons (liq)	gal
m^3	meters cubed	35.315	cubic feet	ft^3
m^3	meters cubed	1.308	cubic yards	yd^3
		TEMPERATURE (exact)		
°C	Celsius temperature	9/5 °C+32	Fahrenheit temperature	°F
		ILLUMINATION		
lx	lux	0.0929	foot-candles	fc
cd/cm^2	candela/m^2	0.2919	foot-lamberts	fl
		FORCE and PRESSURE or STRESS		
N	newtons	0.225	pound-force	lbf
kPa	kilopascals	0.145	pound-force per square inch	psi

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Cover photo: 1960 photo of traffic moving up the mountain pass on U.S. Highway 95. Image from the Idaho State Archives.

EXECUTIVE SUMMARY

Volume 2: Application of the National Register of Historic Places Criteria for Evaluation (*Evaluation Criteria*) of the *Historic Survey of Roads in Idaho's State Highway System* is the second component in the Idaho Transportation Department's (ITD's) effort to evaluate roads currently within Idaho's State Highway System. The purpose of the *Evaluation Criteria* is to provide a consistent and step-by-step approach to evaluating the historic significance and assessing integrity of individual roads currently within the State Highway System or segments of roads within the State Highway System to complete National Register of Historic Places (National Register) determinations of eligibility.

The first component, *Volume 1: Historic Context* (*Historic Context*), provides an understanding of the physical development of Idaho's State Highway System and establishes historical contexts and related themes. This report links these historical contexts and themes to National Register areas of significance and the National Register Criteria for Evaluation to properly evaluate the historic significance and assess the integrity of individual highways or highway segments based on the standards of the National Register in a clear, concise, and replicable manner.

This report is arranged in five main sections that describe the methodology in which to apply the National Register Criteria for Evaluation to Idaho's State Highway System:

- *Section 1: Project Background* explains the ITD's purpose in undertaking this project and describes the purpose and applicability of the *Evaluation Criteria*. The section outlines the previous work on the project to complete the *Historic Context* and how this project helps comply with federal preservation regulations.

- Section 2: *Relationship to the Historic Context* describes the role of the *Historic Context* and how it should be used to apply this *Evaluation Criteria.* Reading and understanding the *Historic Context* is the first step when completing a National Register evaluation of a road currently within Idaho's State Highway System.

- *Section 3: Overview of Steps 1 through 3 of the Evaluation Criteria* provides

- *Section 4: Step 1: Evaluating Historical Significance of Roads in Idaho's State Highway System* considers the important themes identified in the *Historic Context* and relates them to National Register areas of significance under Criteria A, B, C, or D. It provides guidance to assist in further research for highway-specific contexts to evaluate if a road within the State Highway System possesses significance under one or more of the National Register criteria.

- *Section 5: Step 2: Assessing Historic Integrity of Roads in Idaho's State Highway System* provides guidance on establishing a clear understanding of why and when a road was historically important and what physical features are essential to convey significance and which aspects of historic integrity are most important to convey this significance. This section provides guidance in assessing whether changes result in a loss of integrity under the relevant National Register criteria.

- *Section 6: Step 3: Completing National Register Eligibility Recommendations* provides guidance on how to delineate a historic boundary for a National Register-eligible road in the State Highway System and the role of the ITD and Idaho State Historic Preservation Office (SHPO) to make National Register determinations of eligibility.

SECTION 1.
PROJECT BACKGROUND

The Idaho Transportation Department (ITD) is responsible for planning, building, and maintaining a statewide system of highways. The ITD carries out its mandates with funding from the state legislature and from federal grant-in-aid programs. As a state agency and recipient of federal funds, the ITD on behalf of the Federal Highway Administration (FHWA) must comply with Section 106 of the National Historic Preservation Act of 1966 (NHPA). One requirement of NHPA regulations is to consider possible effects of the ITD's activities on historic properties, which are defined by the National Park Service as buildings, sites, objects, structures, and districts that are eligible for listing or listed in the National Register of Historic Places (National Register). While bridges and buildings are well-known historic resources, over the last decade it has been understood that roads and highways also have historic significance. Highways, in their entirety, need to be considered during compliance with Section 106 of the NHPA and the FHWA and Idaho State Historic Preservation Office (SHPO) be offered an opportunity to comment on the findings. The ITD currently addresses small segments of highways on a project-by-project basis, an approach that is inefficient, outdated, and unsustainable.

The ITD received approval of the preparation of the multi-volume *Historic Survey of Roads in Idaho's State Highway System* as part of its ITD Research Program. *Volume 1: Historic Context* (*Historic Context*) was supported by the SHPO, FHWA, Local Highway Technical Assistance Council (LHTAC), and ITD. The purpose of the *Historic Survey of Roads in Idaho's State Highway System* is to provide a history of the ITD and its predecessor agencies, provide a history of the development of Idaho's State Highway System to serve as a basis for evaluating the historic significance, which is presented in the *Historic Context*. *Volume 2: Application of the National Register of Historic Places Criteria for Evaluation* (*Evaluation Criteria*) provides the process on how to evaluate a road currently within Idaho's State Highway System to determine whether it possesses significance and how to assess the integrity of individual highways or highway segments and complete National Register determinations of eligibility. Information gathered for the *Historic Context* may also be useful for interpretation of highways for public appreciation and to inform Idahoans of the crucial role that transportation has played in the growth and development of the state.

A. Purpose

The driving force behind this statewide historic highway context is the ITD and FHWA's need to comply with the NHPA. As a result, the focus of the Historic Context is on state highways under auspices of the ITD. The *Evaluation Criteria* provides the process in which to evaluate and document how highways may qualify as eligible for listing in the National Register. Results of the evaluation methodology developed using this historic context will facilitate ITD and FHWA compliance with federal requirements under Section 106 of the NHPA in *Volume 3: National Register Determinations of Eligibility*. The *Historic Survey of Roads in Idaho's State Highway System* is meant to primarily address roads currently within the State Highway System.[1]

The NHPA established a national policy for the consideration of historic properties in federal undertakings. A historic property is defined as any property listed in, or eligible for listing in, the National Register. The NHPA created the National Register, which is an official list of sites, districts, buildings, structures, and objects of national, regional, or local significance. To qualify for the National Register, a property generally must be 50 years old, be associated with a significant theme, and retain the characteristics that make it a good representative of properties associated with the past. The National Park Service within the U.S. Department of the Interior is charged with maintaining the National Register.

Historic highways may be afforded protection under the Section 106 regulations that were developed to implement the NHPA. Section 106 requires federal agencies and owners seeking federal assistance to review actions that may affect a property listed in, or eligible for, the National Register. The process includes identifying historic properties, assessing the effect of proposed actions on historic properties, and developing agreements that specify measures to deal with any adverse effects. To comply with Section 106, appropriate consultation among the federal agency, SHPO, Native American tribes, the public, and other interested parties (such as Certified Local Governments, historical societies and museums, and other individuals or organizations as appropriate) is required. The Advisory Council on Historic Preservation (ACHP), an independent federal agency in the executive branch, oversees the Section 106 review process.

To support the broader purpose of regulatory compliance for with regard to highways that are eligible for listing in the National Register, the agencies need to have clear information on which highways are historic properties and which are not. This report supports that purpose by developing a consistent process in which to apply the National Register Criteria for Evaluation to identify significant roads, evaluate integrity, and arrive at National Register determinations of eligibility.

B. Applicability

This *Evaluation Criteria* is applicable to roads within the State Highway System eligible to receive FHWA Federal-Aid Highway Program funds. Application of the *Evaluation Criteria* to roads not eligible for FHWA Federal-Aid Program funds, such as local or private roads, should be coordinated with the agency with jurisdiction and the SHPO. Idaho's Interstate Highway System falls under the Interstate Exemption adopted by the ACHP in 2005 in which all Interstate Highways are exempt from Section 106 review.

[1] The overall approach provided in the *Evaluation Criteria* may be used to complete National Register evaluations of roads under different classifications and under different jurisdictions if the appropriate historic contextual framework is established in which to assess historical significance.

SECTION 2.
RELATIONSHIP TO THE *HISTORIC CONTEXT*

The *Historic Context* is useful for interpretation of highways for public appreciation and to inform Idahoans of the crucial role transportation has played in the growth and development of the state. Individual sections provide national-level background on topics including the Good Roads Movement, federal funding, the Great Depression, World War II, and the development of modern highways, including the Interstate Highway System in the post-World War II (postwar) years. State-level transportation history trends and initiatives in Idaho are described within the context of these significant national developments and the history of roadbuilding and engineering is discussed, highlighting the establishment of a state agency to oversee construction and maintenance. For the purposes of this report, the contexts and themes identified in the *Historic Context* provide the basis for developing areas of significance and the application of a customized National Register Criteria for Evaluation for the state's highways based on the standards of the National Register.

The *Historic Context* provides the broad state-level historical context in which to evaluate whether Idaho's highways are associated with important events, themes, or patterns in transportation history or reflect engineering accomplishments under the relevant National Register areas of significance. The evaluation of significance for each highway will require further development of a road-specific research in which to understand how the highway relates to one of more important themes identified in the *Historic Context* under one of more areas of significance outlined in this *Evaluation Criteria*. Important themes of Idaho's highways relate to the following National Register areas of significance:[2]

- *Exploration/Settlement* – "the investigation of unknown regions; the establishment and earliest development of new settlements or communities."

- *Transportation* – "the process and technology of conveying passengers or materials."

[2] Descriptions and direct references of the National Register areas of significance adapted from U.S. Department of the Interior, National Park Service, *National Register Bulletin: How to Complete the National Register Registration Form* (1991), 40-41.

- *Agriculture* – "the process and technology of cultivating soil, producing crops and raising livestock and plants," focusing on road development specifically tied to agricultural activities.

- *Community Planning and Development* – "the design or development of the physical structure of communities," focusing on road development within and immediately adjacent to communities primarily at the local level of significance.

- *Entertainment/Recreation* – "the development and practice of leisure activities for refreshment, diversion, amusement or sport," focusing on tourist destinations and state and national parks.

- *Commerce – "the business of trading goods, services, and commodities."*

- *Conservation* – "the preservation, maintenance, and management of natural or manmade resources," focusing on the large areas of the state managed by the Forest Service and its effects on highway construction.

- *Industry* – "the technology and process of managing materials, labor, and equipment to produce goods and services," applicable to roads that were constructed to provide access to or in support of industries, such as timber, mineral, and oil extraction and commercial fishing.

- *Military* – "the system of defending the territory and sovereignty of a people," applicable to roads constructed to provide access to or in support of military facilities and activities.

- *Politics/Government* – "the enactment and administration of laws by which a nation, state, or other political jurisdiction is governed; activities related to political process."[3]

- *Engineering* – "the practical application of scientific principles to design, construct, and operate equipment, machinery, and structures to serve human needs."

The *Historic Context* provides the broad national and statewide contextual background and themes related to each of these areas of significance and is meant to be used with this *Evaluation Criteria*. Guidance on how to apply these areas of significance to individual highways is presented in sequential order in the following sections.

[3] Roads that have been U.S. postal routes should be considered under this area of significance and not Communications. The road itself did not transmit information; rather, it served to facilitate the "the technology and process of transmitting information." Further, since the U.S. Postal Service is a governmental body, U.S. postal routes would derive significance from the "the enactment and administration of laws in which a nation, State, or other political jurisdiction is governed" in the area of Politics/Government.

SECTION 3.
OVERVIEW OF STEPS 1 THROUGH 3 OF THE *EVALUATION CRITERIA*

This *Evaluation Criteria* provides a three-step consistent process for agencies and cultural resource practitioners to apply the National Register Criteria for Evaluation to facilitate Section 106 compliance for roads in Idaho's State Highway System. This *Evaluation Criteria* is informed by the following publications: *National Register Bulletin: How to Apply the National Register Criteria for Evaluation* (commonly referred to as Bulletin 15); *National Register Bulletin: How to Complete the National Register Registration Form* (commonly referred to as Bulletin 16A); and the *Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation*, including the Standards and Guidelines for Evaluation (36 CFR 61, 1983, as amended).

This *Evaluation Criteria* begins in Step 1, in which themes from the *Historic Context* are presented to assist in identifying the related National Register areas of significance, which then serve as guidance to identify the level of significance and period of significance. Roads found to possess significance are further evaluated in Step 2, which provides guidance to users of the *Evaluation Criteria* on how to identify essential physical features, the aspects of integrity that should be retained to convey significance, and how to assess historic integrity related to changes and alterations. The road's eligibility is then determined in Step 3.

SECTION 4.
STEP 1: EVALUATING HISTORICAL SIGNIFICANCE OF ROADS IN IDAHO'S STATE HIGHWAY SYSTEM

For a property to possess significance, National Register guidance requires that it "must represent a significant part of the history, architecture, archaeology, engineering, or culture of an area, and it must have the characteristics that make it a good representative of properties associated with that aspect of the past."[4] For the purposes of this project, this *Evaluation Criteria* will be applied to roads, together with its component parts described below, within Idaho's State Highway System to determine eligibility following the application of the National Register Criteria for Evaluation customized to address this property type. This *Evaluation Criteria* is specific to roads within the State Highway System under the jurisdiction of the ITD. For the purposes of this *Evaluation Criteria*, the terms "road" and "highway" are used interchangeably.

This section discusses the sequence of steps used in evaluating significance of a highway. It begins with an overview of the National Register's 50-year age guideline and then a discussion on the property type and how to evaluate as linear resources. Next, this section considers the important themes identified in the *Historic Context* and relates them to areas of significance under National Register *Criteria A*, *B*, *C*, or *D*. Last, this section provides guidance to assist in further research for highway-specific contexts to evaluate if a highway possesses significance under one or more of the National Register Criteria. Evaluating significance also includes identifying the level of significance (national, state, or local) and the period of significance to determine when the highway was historically important.

A. Age

A property must be at least 50 years in age to qualify for listing in the National Register or meet the threshold of *Criteria Consideration G* for properties achieving significance within the past 50 years if it is of exceptional importance. The 50-year age guideline of the National Register allows historical perspective in which to evaluate the significance of properties. This timeframe may be extended to 45 years for the *Evaluation*

[4] U.S. Department of the Interior, National Park Service, *National Register Bulletin: How to Apply the National Register Criteria for Evaluation* (1991), 7.

Criteria to consider roads that will reach the 50-year age guideline of the National Register during future project development and construction.

If an exact date of road construction is not documented in primary research, reasonable evidence is required from readily available sources justifying whether the road is or is not at least 45 years in age. In evaluating if a road is at least 45 years in age, consider if the road or any segment of the road was originally constructed for vehicular use within this time frame. The date of construction and period of significance will be determined for highways identified as having potential significance in subsequent steps in the *Evaluation Methodology*. Roads that do not meet the minimum threshold of at least 45 years in age and in which there is no indication of exceptional importance do not meet National Register standards and do not qualify for listing in the National Register.

B. National Register property type

Highways are defined and evaluated as linear structures under the National Register Criteria for Evaluation. Highways may also be contributing or noncontributing resources within a historic district unrelated to Transportation (e.g., part of a downtown commercial historic district); however, evaluation of historic districts is beyond the scope of this study and the identification of historic districts is not addressed in the *Evaluation Criteria*.

The entire length of a highway should generally be evaluated for significance through the completion of road-specific research and analysis by an individual that meets the Secretary of the Interior's Professional Qualification Standards in the areas of history and/or architectural history. This *Evaluation Criteria* addresses roads currently within the State Highway System. The analysis is based on their history, association, design, and function within Idaho's State Highway System, not on their function and earlier history prior to inclusion into the State Highway System. For roads that predate the State Highway System, it may be important to gain an understanding of the earlier history and function prior to their inclusion into the State Highway System. This will assist in understanding why or how a road was originally constructed and what it served to connect before its inclusion within the system. This understanding may inform its potential for significance. If the *Evaluation Criteria* is being used for compliance with Section 106 of the NHPA for a federal undertaking (Section 106 compliance), the consideration of significance will likely require looking beyond the area of potential effects to understand and evaluate the road's historical importance. Research may reveal that discrete segments of a highway have historical associations or engineering significance that other portions of highway do not have; this may include bypassed segments or segments related to an earlier road history. If so, these sections of the highway may be identified and addressed segmentally, while the overall highway may possess significance for other themes or may not possess significance. The result may be that the entire highway and/or individual segments of the highway are found to possess significance.

Once a highway or segment of a highway is determined to possess significance, it is assessed for integrity to determine if it is eligible or not eligible following the guidance in the Section 4.

C. Criteria for evaluation

The National Register employs four evaluation criteria: *A*, *B*, *C*, and *D*.

- *Criterion A: Events – Properties that are associated with events that have made a significant contribution to the broad patterns of our history.*
- *Criterion B: Persons – Properties that are associated with the lives of persons significant in our past.*
- *Criterion C: Design/Construction – Properties that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction.*
- *Criterion D: Information Potential – Properties that have yielded, or may be likely to yield, information important in prehistory or history*.

For an Idaho highway to qualify for the National Register, significance will most likely be demonstrated through application of *Criteria A* and *C*. *Criterion B* association with a significant person and *Criterion D* for ability to yield information are unlikely to apply to highways from themes identified in the *Historic Context*. *Criterion B* requires that a road best exemplify a person's contributions to history; mere association with a road, or its design or construction, or involvement in a statewide program, would not render a road significant under *Criterion B*, unless an individual highway best represents their important contribution to history. Roads named for an important individual in which the recognition is commemorative in nature also do not qualify under *Criterion B*. The works of road engineers, designers, and artisans are typically not represented under *Criterion B* and are recognized under *Criterion C*. *Criterion D* is most often applied to archaeological properties, and roads in this study are in vehicular use and were constructed as above-ground property types and are not addressed in the *Historic Context*. Therefore, discussions for *Criteria B* and *D* are not included in this *Evaluation Methodology*. However, this does not preclude a road from being significant under one of these criteria should compelling information prove otherwise, in which case the National Register Criteria for Evaluation should be used to complete the evaluation.

This *Evaluation Methodology* addresses highways. Information in the *Historic Context* about early trails, military roads and wagon roads predate the establishment of the State Highway System and is provided for contextual background purposes. Early trails, military roads, and wagon roads were generally constructed in eras preceding the first State Highway System that was designated in 1914 and are not addressed. It is expected that former trails and wagon roads subsumed by a highway will have experienced substantial changes and alterations or obliteration resulting in a loss of integrity from a period of significance prior to 1914, rendering its ability to convey association with the theme of Exploration/Settlement extremely rare.

D. Application of *Criterion A* to roads

Roads that have a direct and important association with single events, a pattern of events, repeated activities, or historic trends can possess significance under *Criterion A*. Transportation is the main area of

significance under this criterion because all roads were built to convey people and goods. Mere association with Transportation as a representative example of the State Highway System may not always be sufficient to convey a direct and important association under this National Register area of significance. In this *Evaluation Criteria*, roads deriving significance under *Criterion A* in the area of Transportation are usually supported by historic themes that convey how the road functioned, the connections it provided, or its historic use that serve to distinguish it from other roads of a similar type, design and era.[5] Guidance is provided below on events, programs or trends that may qualify as significant for singular importance under Transportation.

Often one or more supplemental areas of significance (e.g., Industry for access to mining for example) will better explain the historical purpose a road had in the conveyance of people and goods under Criterion A. The *Historic Context* identifies important historical themes that influenced the development of roads under *Criterion A* (e.g., agriculture, industry, etc.). A direct and important association with one or more supplemental areas of significance will possess significance under *Criterion A* for Transportation plus the supplemental area(s) of significance. Guidance is provided on supplemental areas of significance in which a highway can derive significance below.

The application of *Criterion A* to highways is summarized in Table 1.

[5] This approach does not preclude roads from solely deriving significance from a direct and important association in the area of Transportation; however, the statement of significance demonstrates the nature of the association with specific facts and should not be speculative in nature.

Table 1. Evaluating historical significance under *Criterion A*

All roads are associated with Transportation; to demonstrate significance in Transportation only, a highway needs to have been constructed as a result of a program, project, or theme that transcends the regular actions of the highway department's road building efforts **and/or** have a direct and important association with at least one other supplemental area of significance and meet the requirements.
Transportation Highways that only derive significance in the area of Transportation will typically be distinguishable from other roads of a similar type, design, and era – see Section E.1 below for additional guidance. **or** **Transportation (historically functioned as a road within the State Highway System)** **and** One or more supplemental areas of significance: • Agriculture – see Section 3.E.(2) for additional guidance • Community Planning and Development – see Section 3.E.(3) for additional guidance • Entertainment/Recreation – see Section 3.E.(4) for additional guidance • Conservation – see Section 3.E.(5) for additional guidance • Industry – see Section 3.E.(6) for additional guidance • Military – see Section 3.E.(7) for additional guidance • Politics/Government – see Section 3.E.(8) for additional guidance Requirements: • Association must be demonstrated as important in one or more areas of significance • Association must be direct and documented and not be speculative or incidental The section below provides supplemental areas of significance and guidance on identifying significance.

Under *Criterion A*, the connection a road historically provided is often of importance. When considering connectivity, current or past functional classification definitions of the FHWA or the ITD are not paramount; rather, the evaluation should consider how the road historically functioned to provide a connection of national, state, or local importance under one of more areas of significance during the period(s) of significance. Evaluations should explicitly discuss how or why its connection was important under the area(s) of significance and discuss the historic environment during the period(s) of significance.

E. Areas of significance under *Criterion A*

Areas of significance under *Criterion A* and guidance on identifying significance along with examples of single events, a pattern of events, repeated activities, or historic trends from the *Historic Context* are provided below. Note that examples of themes from the *Historic Context* are provided under each area of significance for illustrative purposes and this reference does not denote that an associated highway is

significant; the event, activity or trend must be demonstrated to be important and the highway must have a direct association through highway-specific research and evaluation. Each area of significance includes guidance on thresholds to establish a direct and important association.

(1) Transportation: Guidance on identifying significance

This area of significance focuses on major trends to improve Idaho's State Highway System. All roads have an association with Transportation because they were constructed to serve transportation needs and to convey people and goods. As a result, typically one or more supplemental areas of significance (e.g., agriculture, industry, etc.) will better explain the historical importance a road had in the conveyance of people and goods under *Criterion A*. A direct and important association with one or more supplemental areas of significance will confer significance for a highway under *Criterion A* as described above.

This approach does not preclude roads from solely deriving significance from a direct and important association in the area of Transportation. The statement of significance must demonstrate the nature of the association with specific facts that distinguish its role and history from other roads of a similar type, design, and era. Moreover, the statement of significance should not be speculative in nature. For example, a highway may possess significance under Transportation only where its construction was the direct result of an event, program, project, or trend that transcends the regular actions of the highway department's road building efforts, such as the initial group of highways designed in 1914 and early expansions through 1920 that represent the initial and formulative efforts of the highway department's mission to improve the state's vehicular transportation network. Other examples that may transcend the regular actions of the highway department may include a prominent project, such as the monumental ongoing effort of constructing a north/south connection, or associations with programs like the Strategic Highway Network.

(2) Exploration/Settlement: Guidance on identifying significance

This area of significance focuses on road development that led to the opening of previously inaccessible areas of the state and/or the establishment and earliest development of new settlements or communities, rather than on creating connections between multiple communities. Roads that individually played a crucial or singular role in the investigation and/or opening of previously inaccessible regions may have a direct association with an important local trend related to Exploration/Settlement. Generally, this *Evaluation Criteria* addresses the road's role, function, and use within the State Highway System; however, roads may have earlier histories, prior to their designation within the State Highway System, that need to be taken into account when considering their development and inclusion in the State Highway System. Possible examples may include early named highways, overland trails, and roads from the territorial period or the early years of the State Highway Commission. Such roads may have resulted from earlier singular routes or several routes that converged or traversed difficult terrain such as mountain passes.

(3) Agriculture: Guidance on identifying significance

This area of significance applies primarily to periods when highways focused on supporting the agricultural interests. For example, the Federal Aid Highway Act (FAHA) of 1944 provided new funding for construction of secondary roads (also known as feeder roads, which included farm-to-market roads). Highways that were constructed or substantially improved to serve as the main regional route providing direct access

between agricultural markets and areas of the state with important agricultural production may possess significance.

Roads that merely provided access to individual farms, or access to areas of typical agricultural production not deemed important in state history, or one of many roads linking an agricultural region to its market would not possess significance under this area of significance.

(4) Community Planning and Development: Guidance on identifying significance

This area of significance focuses on road development within and immediately adjacent to communities, rather than on creating connections between multiple communities. Roads that individually played a crucial or singular role in the development pattern within a community may have a direct association with an important local trend related to Community Planning and Development. Possible examples of the type of highways the *Historic Context* identified are discussed below.

Due to increasing traffic speeds and volume, the agency advocated for more expert treatment of intersectional design, truck lanes, separations, interchanges, and channelization, and seeing that much future work would focus on municipalities (as opposed to rural projects), the department anticipated detailed analyses of intersections, medians, curb and gutter design, storm sewer problems, and relocation of utilities. As a result, in the late 1950s the highway department completed the state's first route analysis and subsequent projects, which may have affected the physical development pattern within a community.

In the early 1970s the national Traffic Operations Program to Increase Capacity and Safety (TOPICS) program, created as part of the FAHA of 1968, supported additional highway department safety efforts. The program designated certain municipal streets as part of the federal-aid highway system so they could receive federal funding. This aid covered complex traffic engineering with turning lanes, reversible lanes, and channelization. As a result, in the early 1970s TOPICS projects by the highway department may have affected the physical development pattern within a community.

Roads that merely addressed population growth, improved traffic congestion, or provided more direct connections within a community are not an indistinguishable part of a larger overall development patterns of community development and would not possess significance under this area of significance.

To demonstrate significance under this area, documentation such as plans or government records should identify the specific role of the highway to improve the physical structure of a community and should distinguish its role as important to the community.

(5) Entertainment/Recreation: Guidance on identifying significance

This area relates to the large amount of federally or state-owned land managed for recreational purposes such as state and National Parks. This area of significance focuses on the construction, use, and/or improvement of highways for outdoor recreational activity, including tourism, access for hunting and fishing, camping, and related recreational activities.

For example, the context identifies many tourist destinations in the state and identifies the role of national and regional auto trail associations who sought improvements on the state's highways through partnering with local boosters in the communities along the route to promote tourism.

Highways associated with these and other related themes many have a direct association with an important statewide, regional, or local trend or program related to Entertainment/Recreation if its construction or improvement as a highway provided early or direct and singular public access to recreational activities.

Roads that provided one of several connections or points of access to recreational activities or whose primary purpose relates to another area of significance would not possess significance under this area of significance. Roads that merely provided connections or access for regularly scheduled maintenance, security, or monitoring activities associated with recreational areas would not demonstrate significance under this area of significance.

(6) Conservation: Guidance on identifying significance

This area relates to the large amount of federally or state-owned land in the state that are managed for natural resource conservation such as National Forest Service land and Wilderness Areas. This area of significance focuses on the construction, use, and/or improvement of highways for the management of the state's natural resources.

For example, the context provides details on the relationship between the highway department, Bureau of Public Roads (BPR), and the Forest Service for the funding and construction of the highways and Forest Highways. The context also discusses and identified highways that provide access to units of the National Park System.

Highways associated with these and other related themes may have a direct association with an important statewide, regional, or local trend or program related to Entertainment/Recreation if its construction or improvement as a highway provided early or direct and singular public access to an area deemed critical for the management of natural resources.

Roads that provided one of several connections or points of access to natural resource management areas or whose primary purpose relates to another area of significance would not possess significance under this area of significance. Roads that merely provided connections or access for regularly scheduled maintenance, security, or monitoring activities associated with conservation management areas would not demonstrate significance under this area of significance.

(7) Commerce and Industry: Guidance on identifying significance

This area of significance focuses on roads directly related to Idaho's businesses and industries, such as mining, long-distance trucking, and manufacturing. The context identifies numerous businesses and industries and highlights other state agencies such as Idaho Department of Commerce and Development, which guided planned highway development. A direct association with an important statewide, regional, or local trend or program related to Industry may be shown for roads that were constructed or improved to provide a primary connection to convey labor and/or goods and or materials to processing centers or

provided a critical link that led to an important phase of expansion of the operations of a business or an industry. Roads that provided access and connections to existing industrial activities for regularly scheduled maintenance, security, or delivery/shipments would not demonstrate significance under this area of significance.

(8) Military: Guidance on identifying significance

Early military activities in Idaho during the late 1800s resulted in the construction of numerous roads. For example, the War Department expended $230,000 to construct the Mullan Road to provide an alternative to the Oregon Trail. Portions of this military road, or others like it, may have subsequently been subsumed by a highway. For these early military roads, it is expected they will have experienced substantial improvements resulting in a loss of integrity from the period of significance that relates to their use as a military road, so that ability to convey association with the theme of Military would be extremely rare.

This area of significance may apply to Idaho's State Highway System, particularly leading up to, during, and after World War II, including the Cold War. Section 7, World War II and its Effects (1941-1955) of the *Historic Context* includes details on roads deemed critical for national defense, road building projects, and areas of the state with natural resources deemed critical for the war effort, along with other themes.

A direct association with an important statewide, regional, or local trend or program related to Military may be shown for roads if they were established or improved access to a mission critical military facility or facilitated specific activities or provided access to facilities or materials deemed critical for national defense.

Roads that provided routine access would not possess significance under this area of significance. Roads within the boundaries of military facilities should be evaluated as part of the larger installation.

(9) Politics/Government: Guidance on identifying significance

This area of significance applies to roads constructed as a direct result of an important government program that offered assistance for road funding and policy.

This area of significance may apply to Idaho's State Highway System, particularly during the 1930s. Section 6, The Great Depression and the New Deal (1930-1940) of the *Historic Context* includes details on federal work-relief programs and projects that affected roads. A highway may possess significance under *Criterion A*: *Government/Politics* for an association with Depression-era federal work-relief programs aimed to alleviate unemployment and improve transportation infrastructure. Enacted in the 1930s as part of New Deal legislation of the Roosevelt administration, these programs provided funding for road and bridge building and improvements that employed thousands of unemployed people in Idaho and represent an important trend in twentieth-century government programs. Numerous projects completed under New Deal funding or labor were completed in the state during the 1930s. To demonstrate significance, a direct association must be made by establishing the project received funding and/or labor from a Depression-era, federal work-relief program. Such evidence will typically be demonstrated by listing the Depression-era, federal work-relief program and project number or other relevant details so the association is supported by documentary evidence and is not speculative.

Idaho includes large areas of federal lands and Native American reservations. The BPR funded, designed, and oversaw construction on various types of roads on federal lands such as Forest Highways (Conservation), National Parks and Monument Roads (Entertainment/Recreation), National Military Reservation Roads (Military), and roads on Native American reservations. In many cases, these highways are expected to have a stronger association to other areas of significance listed in parenthesis. Other roads that may related to this area of significance include State Park Roads. For these roads, this area of significance is expected to only apply in rare cases where the road is in the State Highway System and in which the program and the road transcend the regular actions of government road building efforts. Idaho's highway markers program is a theme identified in the *Historic Context* that may be evaluated under this area of significance.

Roads associated with routine government programs would not possess significance under this area of significance. Individual roads constructed as a direct result of a historically important federal or state program that are distinctive within that program may have a direct association related to Politics/Government.

F. Application of *Criterion C* to roads

Criterion C applies to roads that reflect important design features and construction practices. Roads can convey advances in engineering through their application of design principles and methods of construction. Idaho's earliest roads were generally constructed of graded earth, and more complex designs, such as water bound macadam or concrete pavement, were highly uncommon in the 1910s. Earth surfacing remained common into the 1920s, although gravel was provided where possible. From the late 1920s onward, 'dustless' surfacing incorporated bituminous/asphaltic material applied to or mixed into a crushed rock or gravel surface. Over the course of the 1930s, the application of bituminous surfacing was a major focus, and by 1940 accounted for more than half the total State Highway System mileage. The road system was upgraded and standardized after World War II, at which time the use of state or federal standards became widespread.

The *Historic Context* provides topics and themes related to roadway engineering and construction at the end of each chapter. This information provides information related to construction techniques; advances in maintenance, traffic, and safety engineering; and advances in materials research that occurred in the state. It also lists projects that may demonstrate evidence of engineering and/or construction features. Examples referenced in the *Historic Context* do not denote that an associated highway is significant under this criterion. Establishing significance for engineering will require highway-specific research to review plans and other relevant documents to demonstrate how a variation, evolution, or transitions was important in the history of road building. Such evidence will typically be demonstrated by referencing the plan and/or other relevant details so that the association is supported by documentary evidence and is not speculative.

To possess significance under *Criterion C*, a road needs to reflect design features or construction practices that were the result of uncommon, early, or specific contributions or advances in the application of engineering principles. For roads in Idaho's State Highway System, these thresholds can be achieved if a road exemplifies one or more of the following requirements as outlined in the National Register Criteria for Evaluation under *Criterion C*:

- Embodies distinctive characteristics of a type, period, or method of construction.
- Represents a distinctive work of a master.
- Possesses high artistic value.

(1) Distinctive characteristics of a type, period, or method of construction

To identify roads that are significant for embodying the distinctive characteristics of a type, period, or method of construction, three considerations apply:

- Patterns of features common to a particular road type.
- Variation of road features.
- Evolutions and transitions in road design and construction.

All roads have the ability to display patterns of features common to their particular road type (such as design standards from the BPR and the highway department) and can therefore generally serve as representative examples of the application of road design standards under *Criterion C*. Under this Evaluation Criteria, mere representation of particular road design standards is alone not sufficient to convey significance. A road will possess significance only if it represents its type and exhibits important design and/or construction features such as variation of road features, evolution or transition in road design and construction to distinguish itself from other roads of the same type, or is a surviving example of a rare road type (see Table 2).

(2) Work of a master

This consideration takes into account evidence of a master's (engineer, designer, fabricator, or builder) important work. A road recognized for its significance as the work of an engineering master needs to be representative of a particular phase of the master's career. Since roads largely display standardized design and construction methods, the influence of the work of a master is not expected to be demonstrated in Idaho's State Highway System. No evidence was found through *Historic Context* development to suggest application of this area of significance.

(3) High artistic value

This consideration takes into account roads that were designed with an outstanding aesthetic treatment(s). Most roads are utilitarian, with little or no application of aesthetic treatments. In general, for a road to demonstrate aesthetic treatment it would have to follow an overall design aesthetic, likely applied by a landscape architect who integrated roadway siting with designed road-related features, such as walls or landscaping. The *Historic Context* suggests that aesthetic treatments were not frequently applied to Idaho's State Highway System, with the possible exception of roadside beautification programs and projects (completed under a Depression-era, federal work-relief program or the Highway Beautification Act of 1965), which may be evaluated under *Criteria A* and/or *C* depending on its significance.

Table 2. Evaluating historical significance under *Criterion C: Engineering*

Identifying two or more important engineering or distinctive design features

Most roads reflect patterns of features common to a particular road type under distinctive characteristics of a type, period, or method of construction (see Section 3.F.(1)). To possess significance a road must **also** reflect other important or distinctive design features and/or construction practices and meet the requirements under this criterion or be a surviving example of a rare road type.

Patterns of features common to a particular road type.

AND

One or more distinctive characteristics of a type, period, or method of construction, which may include:

- ***Variation of features***
  This consideration takes into account variations in the application of road design principles and construction practices, such as choices in the use and availability of materials and technology. This may be expressed as innovative or complex engineering solutions employed to address unusual or challenging site conditions. Examples may include such features as segments of road that involved extensive earth moving (cut and fill), blasting rock for the construction of tunnels to traverse mountainous areas, or constructing segments of roads with new types of bituminous surfacing. For a road to possess significance under *Criterion C*, the solutions need to address issues that transcend the normal challenges of road building within the state. Roads that exhibit typical or modest variations of standards in highway design and construction would not possess National Register significance. This consideration also takes into account examples of rare road-building technology or features.

- ***Evolutions and transitions***
  This consideration takes into account the initial application of advances that had a long-standing impact on the field of road engineering and were experimental in nature or served as an important departure from typical design principles or practices of the time. This may be expressed in an innovative use of materials, progression of design principles, or development of technologies or building practices that transcend typical standards in highway design of the time. Examples may include early road segments improved to all-weather standards or departures in typical road design to accommodate permafrost.

Requirements:

- Exhibits evidence of engineering design and/or construction features that serve to distinguish it from other roads of the same type and classification. Design or construction features must be demonstrated as important in road engineering or the road segment must be a surviving example of a rare road type.

To evaluate the significance of a highway, research and a specific historic context must be developed to understand how a road's engineering features relate in comparison to other roads and descriptions of the importance of the design or construction features in a statement of significance.

G. Criteria Considerations

In identifying areas of significance, National Register guidance provides for a variety of criteria considerations to cover types of properties that are not usually considered for National Register listing. *Criteria Consideration G: Properties That Have Achieved Significance Within The Past 50 Years,* may be applicable to roads when defining the period of significance (discussed below). *Criteria Consideration G* states that a property achieving significance within the past 50 years must be of exceptional importance to be considered National Register eligible. For the purpose of this *Evaluation Methodology*, *Criteria Consideration G* only needs to be addressed when applicable. For Section 106 compliance evaluation purposes, roads that will reach the 50-year threshold during the development and construction of a project do not need to meet *Criteria Consideration G*. Roads that achieved significance less than 50 years ago need to meet the requirements of *Criteria Consideration G*. Roads with a period of significance that is largely encompassed within the recent past (less than 50 years) have to demonstrate exceptional significance through the application of *Criteria Consideration G*. Roads with a period of significance that ends only a few years outside the 50-year period may not be required to have exceptional significance. For each area of significance, the appropriate period of significance should be identified based on the specific historic context and described in a statement of significance. Additional National Register criteria considerations are not expected to apply to roads.[6]

H. Defining level and period of significance

Assessing significance includes the identification of both the level and period of significance based on an understanding of the road's area(s) of significance. Information learned about the road while evaluating significance will assist in identifying the appropriate level and period of significance. Roads can derive significance from important historical associations or feats of engineering in national, state, or local history under *Criterion A* or *Criterion C*. For each area of significance, the appropriate level of significance (national, state, or local) should be identified based on the specific historic context and described in a statement of significance. For the purpose of this *Evaluation Methodology*, local significance is defined as relating to the significance of an individual community, county, or specific region within the state. Under *Criterion A*, the period of significance in the area of Transportation will be concurrent with the period identified for the supplemental area of significance.

The *National Register Bulletin: How to Complete the National Register Registration Form* states the period of significance is the "length of time when a property was associated with important events, activities, or person, or attained the characteristics which qualify it for National Register listing." The period of significance for a road may span many years to encompass its continued use and association with the area of significance under *Criterion A*. Under *Criterion C: Engineering*, the period of significance for roads may be relatively short, as it relates to the road's date of construction. A road with more than one area of significance may have varied (overlapping or discontiguous) periods of significance representing the time associated with the events or characteristics of significance.

Roads that are found to possess significance move onto Step 2. Roads that do not possess significance at the end of Step 1 do not meet the National Register Criteria for Evaluation and are not eligible for listing in the National Register unless additional or new information is learned that affects their ability to meet the *Evaluation Criteria* outlined in Step 1.

[6] *Criteria Consideration B* for moved properties and *Criteria Consideration E* for reconstructed properties are not expected to apply because these considerations would generally be referencing the construction of new segments of road that would not possess significance or retain historic integrity.

SECTION 5.
STEP 2: ASSESSING HISTORIC INTEGRITY OF ROADS IN IDAHO'S STATE HIGHWAY SYSTEM

To be eligible for the National Register, a road must not only possess significance, but also retain historic integrity. According to the National Register guidance, historic integrity is "the ability of a property to convey its significance."[7] This section provides guidance on establishing a clear understanding of why and when a road was historically important and what physical features are essential to convey significance and which aspects of historic integrity are most important to convey this significance. For this reason, the identification of essential physical features will take into account features present during the period of significance along the entire road (or segments of road) identified as significant.[8] Assessing integrity can be focused more narrowly on the segment of road or its entire length. In assessing historic integrity, a road or segment of road with significance needs to convey the essential physical features and be of a distance long enough to provide a sense of time and place and travel experience related to the period(s) of significance. Guidance is provided in assessing whether changes result in a loss of integrity under the relevant National Register Criteria.

A. Identifying essential physical features

Essential physical features are those features that were present during the period of significance and are required to understand a road's significance.[9] According to the National Register guidance, "the essential physical features are those features that define both *why* a property is significant (Applicable Criteria and Areas of Significance) and *when* it was significant (Periods of Significance)."[10]

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[7] U.S. Department of the Interior, National Park Service, *National Register Bulletin: How to Apply the National Register Criteria for Evaluation* (1991, rev), 44.

[8] The identification of essential physical features requires consideration beyond the APE when the road or road segment found to possess significance extends beyond the APE when using this *Evaluation Criteria* for Section 106 compliance.

[9] Physical features not present during a road's period of significance cannot be essential physical features.

[10] U.S. Department of the Interior, National Park Service, *National Register Bulletin: How to Apply the National Register Criteria for Evaluation* (1991, rev), 46.

A road is a linear structure that consists of a roadbed and roadbed-related features. Each road will derive significance from a unique set of factors and will require evaluation on a case-by-case basis to determine which individual roadbed and roadbed-related features are essential to understand the significance under *Criterion A* and/or *Criterion C*. Identification of essential physical features should consider those features present during the period of significance for the entire length of road or road segment with significance.

For roads with historical significance under *Criterion A*, the essential physical features will often demonstrate their historic function of providing an important connection between two or more destinations related to the road's significance. Essential physical features that convey a road's historic function will typically include the number of travel lanes, the embankment, and the overall alignment that define the road corridor. For roads with historic significance under *Criterion C*, the essential physical features will typically demonstrate the important road design or construction related to engineering significance. Essential physical features that most often exhibit distinctive engineering will typically be the road's physical components, including the embankment, surface material, and the grade and curvature of the alignment, in addition to any important roadbed-related features. Roadbed and roadbed-related features determined not to be necessary in understanding a road's significance should not be identified as essential physical features.

The definitions of roadbed and roadbed-related features listed below do not directly reference current or past technical engineering terms and are intended for use in the application of this *Evaluation Methodology* in assessing National Register eligibility to promote a common terminology and consistency among its users.[11]

Typically, the essential physical features of the roadbed of a highway will include features within the groups listed below. Each group includes related features that work together to comprise a physical feature that is essential for it to be recognizable and convey its historic character for its period of significance.

- *Surface* – identifiable components that work together to comprise the physical form and materials of the roadbed. The physical form includes the roadway width, number of travel lanes, shoulders and major features in the right-of-way essential in understanding its function and significance. Materials under this feature relates to the visible elements of travel surface and shoulders.

- *Embankment* – the raised foundation of materials built to support the roadway components consisting of a berm and slope.

- *Alignment* – the grade (vertical alignment) and curve (horizontal alignment) of the roadbed.

[11] Since technical engineering terms have evolved over time, the use of current technical engineering terms may not reflect the historical application of these terms on road design or standards. As a result, definitions of the roadbed and roadbed-related features are provided to assist in creating a common terminology among transportation engineers, cultural resource professionals, and other users for use in the application of the *Evaluation Methodology* in assessing National Register eligibility.

Roadbed-related features are integrated into or located immediately adjacent to the roadbed and may include:[12]

- Bridges, viaducts, and grade separations (overpasses or underpasses)
- Tunnels
- Retaining walls
- Intersections
- Interchanges
- Drainage features (culverts, gutters, drains, ditches, or dikes)
- Livestock and wildlife bridges and underpasses
- Specially engineered features
- Traffic signals, signage, or mile markers
- Lighting
- Safety barriers (such as guard rails, curbs)
- Parking areas (such as on street parking areas immediately adjacent to the travel lanes)
- Landscaping
- Fences
- Overlooks and turnouts (connected to road)
- Weigh stations (connected to road)
- Sidewalks and paths

With the exception of bridges and tunnels, roadbed-related structures were typically designed to function as part of the overall highway and lack sufficient size and scale to alone convey the historical significance. As such, they will typically be evaluated along with the roadbed segment and are not likely to be individually eligible for the National Register without an intact roadbed.

B. Aspects of integrity and assessing integrity

Historic integrity is comprised of seven aspects, which are outlined below and applied to segments of historic roads within the APE.[13]

- *Design* – The combination of elements that create the physical form and plan of a road from the period of significance. Among other things, a road's design encompasses its grade (vertical alignment) and curve (horizontal alignment).[14]

- *Materials* – The physical composition of the road from the period of significance.

[12] In some cases, road-related features may be individually significant for engineering in addition to contributing to the significance of a road.

[13] Adapted from U.S. Department of the Interior, National Park Service, *National Register Bulletin: How to Apply the National Register Criteria for Evaluation* (1991, rev), 44-45.

[14] The term design is defined here as an aspect of historic integrity and is not intended to be a technical engineering definition.

- *Workmanship* – Elements that reflect physical evidence of the labor and skill of artisans or master craft persons from the period of significance. Due to standardization and the widespread use of mechanization in road construction, this aspect of historic integrity is rarely expected to apply to Idaho's roads.

- *Location* – The spatial location of the road from the period of significance.

- *Setting* – The elements in the environment that comprise the character of the surroundings of the road during the period of significance. The physical features that comprise the setting may vary along the length of a road.

- *Feeling* – Results from the presence of elements that evoke and express the historic character of the road during the period of significance.

- *Association* – The direct link between the road and its historic significance, demonstrated by the presence of sufficiently intact features that can convey this relationship to an observer.

Assessing historic integrity requires linking the information known about the road's significance with its present appearance and assessing its ability to visually convey its significance. The assessment of historic integrity for roads deriving significance under *Criterion A* will differ from the assessment for integrity under *Criterion C,* because the themes a road represents will vary. If a property is significant under both *Criteria A* and *C,* integrity should be assessed separately to determine if the road retains the essential physical features that were identified under the associated area of significance under each criterion.

If the essential physical features of the road are present, the road segment being evaluated must also demonstrate most if not all of the aspects of integrity vital to conveying the road's significance and historic identity. According to National Register guidance, "It is not necessary for a property to retain all its historic physical features or characteristics. The property must retain, however, the essential physical features that enable it to convey its historic identity."[15] Road segments that do not exhibit the essential physical features of the overall road cannot convey significance and are not eligible. Guidance on the identification and consideration of the seven aspects of integrity related to *Criteria A* and *C* is provided in Sections 4.C and 4.D.

When considering integrity, alterations or changes to the road should be identified and determined if they occurred within the road's period(s) of significance as defined for the area of significance being assessed. The assessment needs to determine if the changes impact essential physical features and the degree the changes diminish the aspects of integrity. The size and scale of the change needs to be considered to determine if the change is severe enough to diminish particular aspects of integrity important to the significance. Alterations or changes made within the period of significance and outside the period of

[15] U.S. Department of the Interior, National Park Service, *National Register Bulletin: How to Apply the National Register Criteria for Evaluation* (1991, rev), 46.

significance should be considered. Not all alterations, including those to essential physical features, will diminish a road's historic integrity to the degree that it can no longer convey significance.

Bypassed or abandoned segments of highways due to realignments during the period of significance will not necessarily constitute a loss of integrity. The realignment and/or the bypassed alignment may possess significance if they retain their essential physical features from their period of significance and may retain those aspects of integrity that are important. Bypassed alignments of roads not currently within the State Highway System but that were formerly within the State Highway System may possess historical significance, but because the focus of the study is on roads currently within the State Highway System, these are not addressed under this *Evaluation Criteria*. In these cases, information on the previous alignment should be noted in the National Register determination of eligibility of the current alignment.

Generally, abandoned bypassed segments are given greater allowance for integrity of design due to the degradation associated with natural processes such as erosion, washouts, and encroaching vegetation, but must have sufficient length to convey a sense of connectivity from the period of significance. Sufficient length is demonstrated by having an uninterrupted view of the roadbed within the viewshed that serves to provide a sense of automobile travel from the period of significance and a sense of the original connection the road provided. Early alignments reflect lower travel speeds before efforts to flatten the grade and straighten the curves and may require less length, while later alignments constructed to accommodate higher travel speeds result in flatter grade (horizontal alignment and embankment) and straighter curves (vertical alignment and embankment) and may require more length to retain integrity by providing a sense of time and place and travel from the period.

In addition to assessing individual changes, the cumulative effect of multiple changes to a variety of road features, including essential physical features, may collectively diminish important aspects of historic integrity and hinder a road's ability to convey significance. If there is a loss of the essential physical features and a loss of integrity to the level that the historic identity can no longer be conveyed, then the road no longer retains integrity and is not eligible. Roads deriving significance from more than one area of significance may have separate periods of significance (overlapping or discontiguous) that need to be considered separately for integrity.

Typical alterations to a road that may result in changes to one or more essential physical features and impact historic integrity include:

- Widening of the existing roadbed outside the period of significance; examples may include the addition of travel lanes to the existing travel lanes, the addition or change in shoulders (widening or change of material), the addition of a median strip changing undivided travel lanes to divided travel lanes, and/or the physical widening, raising, or lowering of the embankment. The construction of a new roadbed adjacent or parallel to the existing roadbed outside the period of significance with no direct physical changes to the existing roadbed under evaluation needs to be assessed on a case-by-case basis based on the reason(s) why a roadbed derives significance and how this change impacts integrity. Further guidance is provided below.

- Realignment or straightening or changes to grade, curvature, or alignment and shortening to the existing roadbed outside the period of significance.

- New surface material (changes to road surface can range from an alteration in road surface type [e.g., gravel to hard pavement] or in-kind replacement due to reconditioning or replacement) to the existing roadbed outside the period of significance.

- Replacement, addition, or change of roadbed-related features such as bridges and culverts to the existing roadbed-related features outside the period of significance.

If a road segment retains essential physical features that enable it to convey its significance, then the road segment should be considered eligible. If the road does not retain essential physical features to the degree necessary to convey its historic significance, then the segment does not retain integrity and therefore is not eligible.

As noted above, the aspects of integrity needed to convey significance are expected to vary for *Criterion A* and *Criterion C* because the reason for significance will be different. Guidance for each criterion is provided below on the identification of the most important aspects of integrity and the consideration of alterations to assess integrity.

C. Assessing historic integrity – *Criterion A*

Criterion A relates to the significance of a road gained through its historical associations, which is often demonstrated by the connection it provided. As previously described, travel lanes, the embankment, and overall alignment are typically essential physical features of the roadbed needed to convey the important connection a road provides and its significance under *Criterion A*.

Under *Criterion A*, often the connection a road historically provided is of importance. When considering connectivity, current or past functional classification definitions of the FHWA or the ITD is not paramount. Rather, the evaluation should consider how it historically functioned to provide a national, state, or local important connection under one of more areas of significance during the period(s) of significance; whether this connection is still exists or can be conveyed by the road; and whether the road is of a distance long enough to provide a sense of time and place and travel experience related to its historic environment during the period(s) of significance.

Location, design, and association are typically the most important aspects of historic integrity in conveying a road's historical association. As a result, retention of these are typically required for a road to be eligible under *Criterion A*. The other aspects of integrity are also important under *Criterion A* and most should be retained to convey significance. Table 3 lists the relative importance of each aspect of integrity.

Table 3. Relevant aspects of historic integrity under *Criterion A*

Aspect of historic integrity	Importance under *Criterion A*
Design	Most important to convey significance – should be recognizable from the period of significance
Materials	Least important to convey significance – if present will assist in conveying significance
Workmanship	Least important to convey significance – if present will assist in conveying significance
Location	Most important to convey significance – should be recognizable from the period of significance
Setting	Important to convey significance – should be recognizable and be retained together with other aspects to convey significance
Feeling	Important to convey significance – should be recognizable and be retained together with other aspects to convey significance
Association	Most important to convey significance – should be recognizable from the period of significance

This guidance generally applies to roads with significance under *Criterion A*; however, the assessment of integrity needs to consider the particular area of significance and essential physical features for each road and will vary for each road depending on the type of changes. Alterations need to be assessed on a case-by-case and cumulative basis to determine the overall impact of these changes on the road's historic integrity and if they obscure or detract from the ability of the road to convey its historic identity. Table 4 provides guidance on the assessment of integrity for a road under *Criterion A*.

Table 4. Examples of existing alterations that may affect assessment of historic integrity under *Criterion A*

Examples of typical alterations (existing)	Assessment of historic integrity
Realignment of portions of the existing roadbed outside the period of significance	Realignment might have resulted in changes to essential physical features of the current roadbed, such as travel lanes, embankment and alignment, and roadbed-related features. Changes of sufficient scale might have resulted in a loss of one or more aspects of integrity, such as design, location, association, feeling, and setting. Realignment may also have resulted in bypassed segments that may retain essential physical features that were present during the period of significance. Such bypassed segments may retain aspects of integrity such as design, location, setting, feeling, and association. If the essential physical features and other road features were altered to the degree that they cannot convey significance, then the road may no longer retain aspects of historic integrity typically most important for roads significant under *Criterion A*. A note on integrity of association: The alignment from the period of significance indicates the specific place associated with the road's significance. If realignment has severed the important connection a road historically provided, then the current realigned roadbed may no longer retain integrity of association. However, bypassed segments of road may still retain integrity of association if they retain alignment and other sufficiently intact essential roadbed features from the period of significance. The construction of a new roadbed adjacent or parallel to the existing roadbed outside the period of significance is addressed below.

Examples of typical alterations (existing)	Assessment of historic integrity
Widening portions of the existing roadbed outside the period of significance	Widening of the existing roadbed might have resulted in changes to essential physical features, such as travel lanes, median strip, shoulder, embankment, and road surface. If the essential physical features and other road features were altered to the degree that they cannot convey significance, then the road may no longer retain aspects of historic integrity typically most important for roads significant under *Criterion A*, such as design, location, and association. Widening might not always result in a loss of integrity. For example, a small amount of widening (e.g., generally less than 20 percent of the original width) may not have had an impact on essential physical features such as travel lanes, embankment, or shoulder to the degree that the road can no longer convey its historic identity under *Criterion A*. As such, important aspects of historic integrity such as association, location, feeling, and design may be retained. In other cases, widening that impacts the essential physical feature of travel lanes by doubling the number of travel lanes might have occurred to a degree that the road can no longer convey its historic identity under *Criterion A* since important aspects of historic integrity could be diminished, such as design, feeling, and setting.
Resurfacing of the existing roadbed outside the period of significance	In-kind replacement of the road surface, such as replacing asphalt with asphalt, is a common change associated with this property type and will typically not result in a loss of integrity of most important aspects of integrity under *Criterion A*, such as design, location, and association. Resurfacing resulting in a new surface type (e.g., from gravel to asphalt) might have resulted in a change to the essential physical feature of road surface under *Criterion A*. This change may diminish integrity of design and materials. Materials is typically not an important aspect of integrity under *Criterion A*. Design is an important aspect, but since it is also conveyed through the essential physical features of embankment, alignment, and number of travel lanes, a change in road surface when taken alone does not generally result in a loss of integrity of design. An existing alteration to surface type will not cause an overall loss of integrity under *Criterion A* if other essential physical features are present to a degree that can demonstrate the importance of a road's historical association and connection through retention of aspects of integrity of design, association, location, and setting.
Replacement of culverts and bridges outside of the period of significance	Replacement of roadbed-related features alone is not typically expected to have diminished a road's ability to convey significance under *Criterion A*. The retention of other essential features of the road such as embankment, alignment, and the number of travel lanes will typically better demonstrate the importance of a road's historical association and connection under *Criterion A*. However, replacement of roadbed-related features, such as bridges and culverts, needs to be considered in addition to other changes to determine the overall impact of alterations on aspects of historic integrity most important under *Criterion A*, including design, materials, setting, and feeling.

Examples of typical alterations (existing)	Assessment of historic integrity
Construction of a new roadbed adjacent or parallel to the existing roadbed outside the period of significance	New construction of a separate adjacent or parallel roadbed that results in no physical changes to the existing roadbed may not diminish a road's ability to convey significance under *Criterion A*. The retention of essential features of surface, embankment, alignment, and roadbed-related features (if applicable) can continue to demonstrate the importance of a road's historical association and connection under *Criterion A* and may not diminish the integrity of location, design, materials, workmanship, and association. When evaluating roads in which setting and feeling are important aspects of integrity (such as parkways, roads constructed with aesthetic features, or roads with scenic vistas, for example), new construction needs to be considered in addition to other changes and alterations to determine the overall impact on the aspects of historic integrity most important under *Criterion A*.

D. Assessing historic integrity – *Criterion C*

Criterion C relates to the significance of a road gained through its important road engineering, which is demonstrated by its design and construction. As previously described, travel lanes, the embankment, curvature and grade of the alignment, and road surface are typically essential physical features of the roadbed needed to convey the important engineering and its significance under *Criterion C*.

Design, materials, and location are typically the most important aspects of historic integrity in conveying a road's historical association. As a result, retention of these are typically required for a road to be eligible under *Criterion C*. The other aspects of integrity are also important under *Criterion C* and most should be retained to convey significance. Table 5 lists the relative importance of each aspect of integrity.

Table 5. Relevant aspects of historic integrity under *Criterion C*

Aspect of historic integrity	Importance under *Criterion C*
Design	Most important to convey significance – should be recognizable from the period of significance
Materials	Most important to convey significance – should be recognizable from the period of significance
Workmanship	If applicable, may be important to convey significance – should be recognizable and be retained together with other aspects to convey significance
Location	Most important to convey significance – should be recognizable from the period of significance
Setting	Least important to convey significance – if present will assist in conveying significance
Feeling	Least important to convey significance – if present will assist in conveying significance
Association	Least important to convey significance – If present will assist in conveying significance.

This guidance generally applies to roads with significance under *Criterion C*; however, the assessment of integrity needs to consider the nature of the engineering significance and essential physical features for each road and will vary for each road depending on the type of changes. Alterations need to be assessed on a case-by-case basis to determine the overall impact of this change on the road's historic integrity and if it obscures or detracts from the ability of the road to convey its historic identity. Table 6 provides guidance on the assessment of integrity for a road under *Criterion C*.

Table 6. Examples of existing alterations that may affect assessment of historic integrity under *Criterion C*

Examples of typical alterations (existing)	Assessment of historic integrity
Realignment of portions of a roadbed outside the period of significance	Realignment might have resulted in changes to essential physical features of the current roadbed, such as the number of travel lanes, embankment, the curvature and grade of the alignment, and road surface, which are likely important for a road with engineering significance. Changes of sufficient scale might have resulted in a loss of one or more important aspects of integrity, such as design, location, and materials. Realignment may also have resulted in bypassed segments that may retain essential physical features that were present during the period of significance. Such bypassed segments may retain aspects of integrity such as design, location, and materials. If the changes result in the loss of essential physical features, and other elements of the roadbed and other road-related features were altered to the degree that they cannot convey significance, then the road may no longer retain aspects of historic integrity typically most important for roads significant under *Criterion C*. The construction of a new roadbed adjacent or parallel to the existing roadbed outside the period of significance is addressed below.
Widening portions of a roadbed outside the period of significance	Widening (increase in width or number of travel lanes to the existing roadbed under evaluation) might have resulted in a change to essential physical features, such as travel lanes, median strip, shoulder, embankment, and the road surface, which are likely important for a road with engineering significance. If the changes result in the loss of essential physical features of the roadbed and roadbed-related features were altered to the degree that they cannot convey significance, then the road may no longer retain aspects of historic integrity typically most important for roads significant under *Criterion C*, such as design, location, and materials.
Resurfacing of road outside the period of significance	In-kind replacement of the road surface, such as replacing asphalt with asphalt, is a common change associated with this property type. In-kind replacement might have diminished integrity of materials and design under *Criterion C* but taken alone does not generally result in a loss of these aspects of integrity. Resurfacing resulting in a new surface type (e.g., from gravel to asphalt) might have resulted in a change to the essential physical feature of road surface under *Criterion C*. This change will diminish important aspects of integrity of design and materials and may result in a loss of integrity.
Replacement of culverts and bridges outside of the period of significance	Replacement of roadbed-related features alone will typically not cause an overall loss of integrity and a road's ability to convey significance under *Criterion C* if they are not identified as essential physical features. Roadbed-related features can be important to convey the historic identity of a road and can contribute to its significance. The impact of previous replacement of roadbed-related features, such as bridges and culverts, needs to be considered in addition to other changes to determine the overall impact of alterations on aspects of historic integrity most important under *Criterion C*, including design, location, and materials.

Examples of typical alterations (existing)	Assessment of historic integrity
Construction of a new roadbed adjacent or parallel to the existing roadbed outside the period of significance	New construction of a separate adjacent or parallel roadbed that results in no physical changes to the existing roadbed may not diminish a road's ability to convey significance under *Criterion C.* The retention of essential features of surface, embankment, alignment, and roadbed-related features (if applicable) can continue to demonstrate the importance of a road's design and construction under *Criterion C* and may not diminish the integrity of location, design, materials, workmanship, and association. When evaluating roads in which setting and feeling are important aspects of integrity (such as parkways, roads constructed with aesthetic features, or roads with scenic vistas, for example), new construction needs to be considered in addition to other changes and alterations to determine the overall impact on the aspects of historic integrity most important under *Criterion C*.

Roads that retain integrity move onto to Step 3. Roads that do not retain integrity at the end of Step 2 do not meet the National Register Criteria for Evaluation and are not eligible for listing in the National Register unless additional or new information is learned that affects their ability to meet the *Evaluation Criteria* outlined in Steps 1 and 2.

SECTION 6.
STEP 3: COMPLETING NATIONAL REGISTER ELIGIBILITY RECOMMENDATIONS

Roads or segments of roads within Idaho's State Highway System that possess significance and retain integrity are eligible for listing in the National Register. To complete a National Register determination of eligibility, the historic boundary for each eligible road segment should be defined to account for the physical location and extent of the property. *National Register Bulletin: Defining Boundaries for National Register Properties* provides guidance on the identification of a boundary that is appropriate for the resource and its area of significance. Justification of a historic boundary for a road commonly includes a beginning and ending point (termini) and extends horizontally and vertically to include the essential physical features from the period of significance. Historic boundaries may not coincide with current right-of-way boundaries. Eligibility determinations should be submitted to SHPO for concurrence.