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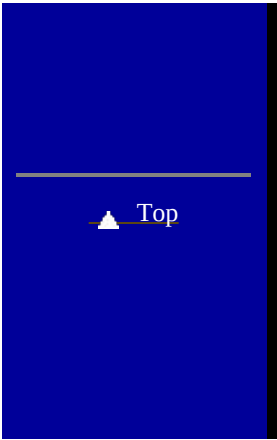
Historic Roads in the National Park System
Special History Study
October 1995

Historic Roads in the National Park System Special History Study

by Laura E. Soullière

October 1995

United States Department of the Interior — National Park Service — Denver
Service Center

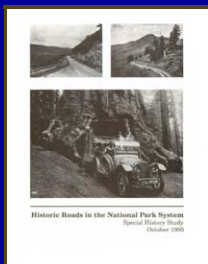


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USAF**

**FEBRUARY 22, 1912 - SEPTEMBER 20, 1994
"WHO TAUGHT US TO
LISTEN TO THE WILD"**

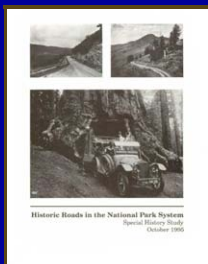
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PREFACE

I knew parks were different when I was a child on those long road trips. My father was a career military officer, and for most of my youth we were stationed on the east coast. On weekends and those not-frequent-enough vacations he and my mother loaded all five of us rowdy children into the air force blue Chevy station wagon and whisked us off to Manassas, Shenandoah, Blue Ridge, Great Smoky Mountains, Harpers Ferry, Antietam, and many other national park areas. Even then I could perceive something special about national parks. The scenery changed even though it was just a couple of miles down the road from the outside world. The air was cleaner, the mountains were wilder, and the water was crystal clear. The views were like no other place on earth. I was on top of the world. I pretended I was an early settler forging my way through the Smokies; I saw the Virginia piedmont through the eyes of Thomas Jefferson; I imagined I was a young rebel soldier looking down from my crow's nest in the mountains watching troop movements in the Shenandoah Valley below. We took photographs that documented our travels — with all of us kids sitting on a stone retaining wall at an overlook in Shenandoah, or lined up along a split-rail fence in the Blue Ridge, or looking down on the Potomac River from the hills above Harpers Ferry. Looking at these photographs years later I was not always able to pick out the exact locations where the pictures were taken, but I invariably knew the parks.

The scenic qualities of those areas I visited are indelible in my memory, as they are in the memories of millions of other people who have come to the national parks seeking solitude, recreation, and a sense of America. Much of the quality of the entire park experience is due to the thought that went into designing for and with the landscape. The park road is an integral part of that experience.

Park design includes numerous subtle and sometimes subconscious cues to the visitor. These features contribute to the sense of place of a national park. The park sign with the brown arrowhead and the rustic entrance station of log and stone begin the process. The comfort stations and the visitor centers often continue along with the same architectural theme. But the thread holding it all together is the road. This is the main artery of the park. It brings the lifeblood of visitors (for without them we would have no parks); it provides the access; it controls the access. When executed properly, the road reinforces the design theme and serves as a constant reminder to us that we are in a national park. The road carries us to some of the park's prime resources, and through a

variety of scenery that gives us a feeling for the territory that the park encompasses. The gentle, rounded slopes along its edges and the way the road lies so delicately on the land enhance the subtleties of the natural landscape. The road also carries us to the trailhead, the campground, the restaurant, or our bed for the-night. And finally the road leads us out of the park, and out of that special place that is part of our American heritage and a prime contributor to our national sense of self.

Park roads are more than examples of the subtle art of landscape architecture or accomplished feats of engineering. Through them we can extrapolate information about ourselves — what we have valued in our national parks, and what some of our priorities have been as a nation. Through them we can see national park history, and how our views of resource management and our perceptions of exactly what constitutes a resource have evolved. Humble park roads, then, are more than just methods of access into national parks. The ways in which we built them, the features they possess, and the ways we choose to alter them are indicative of the values of our society.

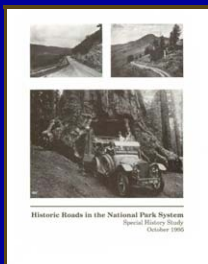
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INTRODUCTION

The development of road systems in national parks involved interrelated political and economic issues. Although based in the idealism of the Organic Act that established the National Park Service, park development relied on appropriations that were linked to visitation. During the late 'teens and 'twenties the National Park Service pushed for funding for the construction of park roads, urged the development of access roads to national parks, and supported the road network known as the National Park-to-Park Highway. When Robert B. Marshall was detailed temporarily from his position as chief geographer of the U.S. Geological Survey to the general superintendent of the national parks in 1916, he wrote of three functions of national parks: stimulating national patriotism; furthering knowledge and health; and diverting tourist travel to scenic areas of the United States. [1] Later annual reports of the director of the National Park Service and other documents for that time period showed clear motivation. Although many records chronicled the scenic and inspirational qualities of national parks, a recurrent theme throughout the literature involved increasing the economic strength of the nation through tourism, thereby providing a practical justification for parks. Allowing automobile access to national parks was the answer.

At the same time that these efforts were underway, the number of automobiles in the United States increased dramatically — from 8,000 in 1900 to 23 million in 1930. [2] This prompted a major change in how parks operated. Initially most visitors had arrived at parks via train. The railroads made most of their park-related money from the sale of passenger tickets, and they made very little if any from concessions operations, with which they were connected within park boundaries. Thus, their greatest profits came from outside the parks. Following the dramatic increase in autotourism by the 1930s, as environmental historian Alfred Runte pointed out, the profit-taking from visitors' pockets shifted from outside park boundaries to inside the boundaries as visitors spent money on hotel accommodations, meals, and souvenirs. [3]

Coincident with the early physical development of national parks was the evolution of a design ethic that emphasized an organic approach to architecture and landscape. This evolution, the roots of which lay in the 19th century work of horticulturist Andrew Jackson Downing and Landscape Architect Frederick Law Olmsted, stressed design in harmony with nature. Following this ethic, nature was the most important element of design, and all design decisions subordinated the

built environment to the natural environmental. National Park Service (NPS) designers during the 1920s tended to perceive roads and buildings as necessary evils, and they incorporated a variety of means in their designs to achieve harmony with the surrounding environment. The use of onsite, natural materials, sensitive siting that responded to nature, and curvilinear road alignments that hugged the topography were characteristic of this type of rustic design. Because this ethic permeated all aspects of park design, national parks began to develop a distinctive, identifiable look and feeling.

The creation of a formal partnership between the National Park Service and the Bureau of Public Roads in 1926 clarified an ongoing alliance. Since 1914 the two agencies had been working hand-in-hand to construct new roads and rehabilitate existing roads in national parks. The interbureau agreement signed by the two agencies in 1926 specified that the Bureau of Public Roads was responsible for surveying, engineering, and overseeing construction of park roads while the Park Service maintained absolute control over the aesthetic and management issues of road design and construction. The roads constructed through this working arrangement included some of the best examples of road engineering and the most scenic roads in the United States.

Thus the Park Service in conjunction with the Bureau of Public Roads built park roads, and the states, often in concert with the Bureau of Public Roads built access and connecting roads. A problem, however, arose. Park roads were so well-designed that the experience of driving a park road became an integral part of the park experience. Sometimes the road became a destination in itself. Driving park roads evolved into one of the recreational experiences that visitors relished in parks. Few visitors went to Sequoia/Kings Canyon by automobile without driving the General's Highway, or to Glacier without driving over Going-to-the-Sun Road, or to Rocky Mountain National Park without driving Trail Ridge Road. Sometimes specific features on the park road also became signatures of the park experience. The carved entrance sign of the profile of the Cherokee leader Sequoyah along the road at the entrance to Sequoia National Park was one of those identifiable marks. The rustic log entrance station at the northeast entrance to Yellowstone was another. Distinctive landscapes or specific vistas developed into indelible images that became part of the collective scenic and cultural heritage of the nation. The view of the mountains and the river from the Snake River overlook at Grand Teton National Park was one of these. All of these elements were part of the park experience that visitors mentally collected and took home with them.

The application of the rustic aesthetic to road design enhanced the park experience so much that more and more visitors came pouring in. The well-designed roads made access easy and something else to write home about. They introduced the American public to the wonders of nature. Yet as early as the 1930s a few faint voices complained of the impacts of road construction on national parks and the number of automobiles and people that the new roads encouraged. Despite these early warnings, NPS administrations continued to foster park development to stimulate tourism for one principal reason — congressional appropriations for parks were directly correlated with

park visitation figures.

Visitation steadily increased in national parks through the 1930s, and more automobiles passed over park roads. A depressed domestic economy during and after World War II and the Korean War reduced funding for park maintenance, so the roads fell into disrepair. Compounding that situation was the rugged terrain over which some park roads passed. Despite the best engineering available at the time, the forces of nature sometimes overtook the forces of development. Portions of roads collapsed or slumped due solely to the natural conditions under which they were constructed. An influx of funding for road projects during Mission 66 — a 10-year development program to upgrade park facilities for the 50th anniversary of the agency — altered the manner in which the National Park Service constructed roads. Rather than emphasizing the aesthetics of nature in the design, the matter of greatest concern most often became one of engineering the road to accommodate greater numbers of larger vehicles at higher speeds. Also, highway safety standards changed tremendously, and most old park roads did not meet those requirements.

During the 1960s a change in the tenor of the perception and management of the country's natural resources occurred. The passage of the Wilderness Act was a sign of the times. Consistent with the thinking of environmentalists such as Rachel Carson and Aldo Leopold, understanding the fragility the world's natural resources became a higher priority to land-managing agencies. Appropriate treatment of resources was an issue of high visibility, and a stronger emphasis on environmental concerns spilled over into park road design. When the first official *Park Road Standards* was printed in 1967, the authors noted that park roads were different than other highways, and because of their locations in highly sensitive ecosystems road width and numbers should be kept to a minimum and treated with the utmost care. The standards also commented on the subtle aesthetics of park roads, their graceful curvilinear alignment, and their gently rounded slopes. The standards put greater emphasis on the natural environment in which the roads were constructed than the National Park Service had previously. Although the aesthetics of park roads remained a strong concern, they often slipped in the priorities of road design.

In the past two decades the evolution of priorities in road design issues continued. During the 1970s and early 1980s, for instance, safety tended to be of paramount importance in design, and all other issues became subordinate to that. The significance of park road design in engineering, architecture, and as part of the cultural landscape emerged during the 1980s. In the past decade controversy often arose on park road projects when issues concerning modifications for the sake of highway safety conflicted with preservation of scenic, cultural, and historical values. In addition, a lack of consistency in dealing with road projects appeared between Federal Highway Administration and National Park Service offices. Part of the problem was the lack of understanding about what features constituted a historic road, why those features were significant, and how they should be managed. Although most managers, designers, and cultural resource specialists could understand the significance of specific architectonic features on a road

such as a bridge or tunnel, the other components that contributed to the road's sense of place — the character-defining features in the road prism, in the gradient, or in the vistas — often remained elusive. Also, the importance of the road in its broader context — to the overall pattern of the cultural landscape of the park and region, and its contributions to the history and development of the area — sometimes passed unrecognized. In recent years this situation has improved dramatically as more park roads have been evaluated and included in the National Register of Historic Places, and as the Historic American Engineering Record continues its research and documentation work throughout the national park system.

This study was funded to answer some of the questions about the historic development of park roads and their aesthetics nationwide, to provide information on context, and to provide guidance in understanding what features constitute a historic road. Part I of the document includes a narrative history of the development of park roads through Mission 66. Part II includes information on the significant features that make up historic roads. Part III includes appendixes and a bibliography. In the appendixes are examples of some of those features as they developed into accepted design standards during the 1920s through 1941. Mentioned throughout the document are some of the sustainable practices that were used in road development and construction to ameliorate impact on the landscape and resources of national parks.

Managing historic park roads is a complex task. Recently NPS Landscape Architect Charles Birnbaum summarized five essential points for dealing with historic landscapes, of which historic park roads are an essential element. These included (1) establishing a historical context, (2) adopting a comprehensive preservation planning process, (3) acknowledging that rehabilitation would probably be the most practical treatment, (4) networking with allied professionals, and (5) understanding the dynamic qualities of landscapes. All of these apply to the proper management of historic park roads. Yet the impacts that construction and rehabilitation have on historic park roads extend beyond matters of cultural resource management, beyond safety, and beyond aesthetics. Roads will continue to provide access to parks. For most visitors driving the park road is the entire park experience, and that park experience can have a profound effect on people. Environmentalist Aldo Leopold wrote in *A Sand County Almanac*:

It is the expansion of transport without a corresponding growth of perception that threatens us with qualitative bankruptcy of the recreational process. Recreational development is a job not of building roads into lovely country, but of building receptivity into the still unlovely human mind.

The care with which most park roads were constructed did both.

Facing our national parks today are a number of issues that may threaten the very existence of the parks and the resources within their boundaries. In addition to looking at parks for the scenic, inspirational,

natural, and historical qualities, we now must consider the global impact of every undertaking we execute in and around the fragile, limited resources of the earth, including the relatively pristine ones within our artificial NPS boundaries. The political reality is such that national parks will always accommodate visitors. Our agency and our parks were authorized through legislation, and it would be foolhardy of us to believe that they could not be deauthorized in the same way. In the future the importance of parks may lie increasingly in their environmental significance as recharge zones, and as teaching tools for improving our understanding of the earth. But the parks should also remain places for some types of recreation, as well as places for solitude. We must allow access, but how much and of what type are the questions that must be answered, asked again, and answered again as the population of the earth increases.

Thus understanding the management issues connected with historic roads in parks requires a broad vision: studying the history of the area and the importance of the road to the area's development; delineating the physical features that make a park road a significant work of engineering or landscape architecture; accommodating those features in rehabilitation work; and most importantly, comprehending the ramifications of the chosen course of action on the future of that park.

This study would not have been possible without the help of several key people with that broad vision — in particular, John Reynolds, Denis Galvin, and Leslie Starr Hart. Others who made significant contributions were James Stewart, Harlan Unrau, Howard Wagner, Terry Goodrich, Mo Miller, Dana Leavitt, Pat Sacks, Ethan Carr, Linda McClelland, Ken Raithel, Robin Gregory, Bob Page, Marcy Culpin, Mark Hartsoe, Eric Deloney, Richard Quin, Todd Croteau, Beth Savage, and Eliot Foulds. A great number of people from various parks and offices of the National Park Service and from the Federal Highway Administration assisted with this document. Thanks to all of you.

The opinions expressed in this document are solely those of the author. Any errors, too, are the author's.

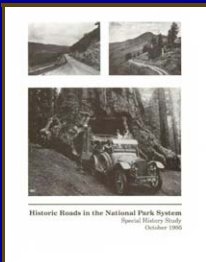
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PART I: HISTORY

THE DEVELOPMENT OF PARK ROADS

AUTOMOBILES: YEA OR NAY

While interest in autotourism grew throughout the United States. in the early 20th century, the official stance of the Department of the Interior was that no automobiles would be allowed in the national parks. That started to change in 1907. Hot Springs Reservation was the first federal reservation — set aside in 1832 for its natural resources. [34] During the 1890s the reservation underwent considerable landscape development and improvement under the auspices of the War Department. Part of that development included the construction of carriage roads that wound up the mountainsides to overlooks and an observation tower.

In 1907 W. Scott Smith, the superintendent of Hot Springs Reservation, wrote to the secretary of the interior and recommended keeping automobiles off the mountain roads of the federal reservation "in the interest of the protection of human life." He stated that the only automobile company in Hot Springs had ceased doing business there, that only three automobiles existed in Hot Springs, and that only one of them had enough horsepower to ascend the mountain roads. He also argued that allowing automobiles on mountain roads would spoil the spa experience by depriving many visitors of taking carriage or horseback rides on the mountain roads. [35] A handwritten note on that piece of correspondence stated "7/11 Letter to Superintendent, denying." That small, pencilled note from 1907 eventually changed the way in which most visitors experienced national parks. Hot Springs was the first federally protected area to officially allow automobiles.

In 1908 the chairman of a group called the California Promotion Committee officially requested that automobiles be allowed in the national parks. In response to that request the first assistant secretary replied that automobiles were only allowed in Mount Rainier National Park, and that their use was limited by a series of regulations. The assistant secretary continued: "It has been the invariable rule of the Department to prohibit the use of automobiles in the other National Parks." [36] The exceptions at Hot Springs and Mount Rainier, however, had opened the floodgates.

Despite that official ruling, the public pressure for providing automobile access to the national parks was building. Less than a year later the secretary of the interior requested the opinion of the superintendent of

Yellowstone on the advisability of allowing automobiles into Yellowstone. The park's superintendent, Maj. Harry Benson, had 13 years of park duty under his belt, and he adamantly counseled against it. He replied: "The character of the roads, the nature of the country, and conditions of the transportation in this park render the use of automobiles not only inadvisable and dangerous, but to my mind it would be practically criminal to permit their use." He based his reasoning on the potential conflicts between horses and automobiles. The transportation companies in the park at the time used between 1500 and 1800 head of horses for their stages during the tourist season, and he did not believe it was possible to get the animals accustomed to seeing automobiles. He was concerned that up to one-third of the stagecoaches pulled by four-up teams might be overturned when the animals were spooked by an automobile. Benson also cited that the two army superintendents who commanded Yellowstone before he did — Col. Pitcher and Lt. Gen. Young — both recommended that automobiles be prohibited from entering the park. [37]

The push for automobiles in the national parks continued, however. A motoring club in Montana wrote to the secretary of the interior recommending the construction of a road to the boundary of Glacier National Park at Belton. Because private donations were being used — the road was being constructed with money out of the pockets of the club members — the letter requested that automobiles be allowed to enter the park. Also autoists wrote that "it would be a great thing if one [a road] was constructed inside the Park around the Lake and in time extended over the mountain pass so people could get in from the East." [38] Then the secretary began hearing from senators who had been contacted by their constituents, and additional pressure was on. Sen. Henry L. Myers contacted the secretary and requested his support of road development and automobile access for Glacier National Park after he received a letter from Fred Whiteside, a constituent from Kalispell, Montana. Whiteside wrote:

There is a small matter I would like to have you look into when you get to Washington. The government is planing [sic] to expend considerable money in the building of a wagon road in the Glacier National Park, which is in this county, and I believe the regulations covering the park will be formulated by the Secretary of the Interior very soon. We are very anxious to have the regulation so framed that automobiles may be used on the roads in the Park. In the Yellowstone Park nothing but horses are allowed, but we believe we have now reached the stage of civilization where it will be better to use automobiles even if the horses are to be left out. [39]

Whiteside got his wish, and the regulations for allowing automobiles into Glacier National Park were drafted the following year, based on those for Mount Rainier.

The Department of the Interior was extremely interested in attracting more people to national parks, and increasing visitation was one of the chief topics at a conference on national parks held in Yellowstone in

1911. Representatives from the railroads argued that train ticket prices were cheap enough to foster tourism in the parks, so they saw no additional need for the railroads to provide additional aid. In their view, the biggest obstacle to increased visitation was limited automobile access in national parks."

AUTOMOBILE CLUBS

The influence that automobile clubs had on access to national parks was exceedingly strong. The American Automobile Association tried early on to have Yellowstone opened to automobiles, but without success. Following the appointment of a new secretary of the interior, Franklin Lane, things started to change. Lane had his assistant, Stephen T. Mather, look into the possibility of allowing vehicles into the park, and Mather set up an unofficial committee to discuss the issue. On the committee were Mather, Robert Marshall (chief geographer of the U.S. Geological Survey and superintendent of National Parks prior to 1916), Colonel Brett of the U.S. Army in Yellowstone, and A.G. Batchelder who was the chairman of the executive board of the American Automobile Association. The committee developed a road-use schedule which "governed self-propelled vehicles and muscle-drawn wagons, which practically kept the two forms of travel completely apart." The AAA also pushed for the construction of connecting highways between national parks through federal aid. Batchelder wrote that "many of these road travelers will include the other national parks in a road itinerary which would be impossible of duplication in any other country in the world. Surely the day has arrived when the American will truly begin to get acquainted with his own country." [\[41\]](#)

Even though a few other national parks were open to the motoring public, the opening of Yellowstone to automobiles in 1915 signaled the beginning of a new era. The automobile clubs believed they had won a terrific victory over the conservative officials of the Department of the Interior, and that most people who were heading to or from the West Coast changed their itineraries to include Yellowstone National Park. One article noted that the "equine motors" in Yellowstone would have to be given a chance to get accustomed to the "invasion of these strange monsters from the outer world." But, the article went on to say, the time when all traffic in Yellowstone would be motorized was coming fast. [\[42\]](#) That prediction proved to be correct. [\[43\]](#)

In addition to the automobile clubs and their influence on providing better access to the parks' scenic wonders of America, other factors also had an effect on tourism. One of these was the Panama-Pacific International Exposition in San Francisco in 1915, which became a prime reason that more people were becoming adventuresome in their motorcars and exploring their nation. Correspondence of the period, however, indicated that the political base of the automobile clubs was the principal factor that opened the parks to automobiles.

AUTOMOBILE REGULATIONS

Allowing vehicles into national parks required restrictions. Road conditions could vary tremendously in just a short period of time depending on weather. The conflicts between horse-drawn vehicles and automobiles on the same narrow roads pointed to a need for regulation. Despite the problems that existed in with allowing automobiles into national parks, the department had become more flexible by 1910-11. The office of the secretary of the interior drew up regulations governing the admission of automobiles to Crater Lake, Mount Rainier, General Grant, and Glacier National Parks. The secretary's office first wrote the regulations following a boilerplate approach in which the general rules were similar, but they contained slight variations that tailored the regulations to the individual parks.

Each set of regulations began by citing the park's enabling legislation and stating that the superintendent needed to provide written permission for entry into the park. Often automobiles were permitted on roads only during certain hours — about three hours in the morning and three in the afternoon — to minimize potential conflicts between automobiles and stages. Yellowstone's regulations, for instance, included a very tight schedule for road use. All of the early driving regulations required automobiles to pull over to the outside of the roadway regardless of direction of travel when teams passed. Also, when teams approached automobiles were required to stop until the team passed or until the teamster determined it was safe for his team to proceed. The speed limit on park roads was 6 miles per hour except on straight stretches where no teams were in sight. In those areas drivers were allowed to increase their speed to no greater than 15 miles per hour. Because the roads were so narrow and often winding, the regulations dictated that drivers had to honk their horns at every turn so that teams would know that automobiles were approaching. [\[44\]](#)

What started as a trickle of vehicles admitted to national parks grew to a steady stream. The Department of the Interior first admitted automobiles to Hot Springs in 1907 and Mount Rainier in 1908, followed by General Grant in 1910, Crater Lake in 1911, Glacier in 1912, Yosemite and Sequoia in 1913, and Mesa Verde in 1914. By 1916 the department allowed them on a limited basis in Rocky Mountain, Platt, Wind Cave, Sullys Hill, and Casa Grande. Yellowstone National Park's concessioner phased out the horse-drawn stages and replaced them entirely with automobiles during the 1917 season, only two years after automobiles were allowed into the park. [\[45\]](#)





Fig. 1. The army completed construction on this section of road near Nisqually Glacier in 1908. In this 1912 photograph, the rugged condition of the road was evident. Maj. Hiram Chittenden, who had been in charge of road construction in Yellowstone, supervised construction of this road. Horse-drawn carriages, bicycles, private automobiles, and concessioner touring cars were allowed access. (*National Archives, Record Group 79*)

SEE AMERICA FIRST

In 1914 Europe was at war, and in August of that year John Wilson, president of the American Automobile Association, walked down the gangway of a luxury liner as it returned home from a trip abroad. His fellow passengers on the ship were people fleeing the war zone. As he stepped off the ship, Wilson wryly stated: "It is my guess that in 1915 many Americans who annually motor abroad will become much better acquainted with their country." [46] He was right.

He believed that if Americans stayed home for the projected duration of the European troubles — a "year or so" he predicted — that they could view the scenic wonders of their own country. Also, he noted that the natural marvels of the United States compared very favorably with those of Europe. He realized that access to Yellowstone, Yosemite, and the Grand Canyon was difficult, but he openly stated that more use by motorists would increase the demand for greater federal involvement in road construction and improvement. Even more important, however, Wilson noted the importance of roads in the war in Europe, and he believed that road development here would strengthen the nation. [47]

EARLY INTERBUREAU COOPERATION

As early as 1905 the Office of Public Roads was assisting the U.S. Forest Service in the development of roads in national forests. In 1912 the two

bureaus worked out a formal agreement to handle roadwork. Since 10% of forest revenues were allocated for roadwork, the Office of Public Roads had a good working budget for Forest Service lands. [48]

The Office of Public Roads also began doing some work in and around national parks. In 1910 a private organization called the Crater Lake Highway Commission was working on promoting access to and around Crater Lake National Park. They requested a road expert out of the Office of Public Roads to supervise construction of an approach road through Crater Lake National Forest to Crater Lake National Park. Also, they requested that the OPR employee plan a system of roads and trails for the park. This access road was financed through private subscriptions and county funds instead of through the 10% Forest Service fund. [49]

This process of using private funding to assist in the development of national parks was a fairly common practice, and the use of donations for road construction was only one way in which monies were spent. In the early years of the National Park Service, Stephen Mather and Horace Albright cultivated powerful and often philanthropic support groups that included congressmen and senators, presidents, and businessmen and used them to benefit the agency. When Congress refused to approve an appropriation for the acquisition and reconstruction of the Tioga Road that crossed the Sierra in Yosemite National Park, Mather believed so much in its acquisition that he dug into his own pockets and also loosened the purse strings of his cohorts to finance it. [50]

Work in forest and park areas increased quickly, especially with the combination of federal and private funds. In 1914 Logan Waller Page, the director of the Office of Public Roads, sent an engineer and a survey party to Yosemite to begin work there. So much work existed that Page established a separate Division of National Park and Forest Roads within the Office of Public Roads to handle the projects, and he placed T. Warren Allen at the head of the new division. [51] That same year Assistant Secretary of the Interior Adolph Miller wrote to the superintendent at Mount Rainier that he had established a tentative plan of cooperation between the Department of Agriculture and the Department of the Interior for the construction and maintenance of roads in national parks. That tentative plan grew into the first cooperative agreement between the Office of Public Roads and the Department of the Interior. Also the assistant secretary stated that Mr. Allen was on his way to visit Mount Rainier with an idea of eventually placing a survey party there to work on park roads and trails. [52] These projects laid the groundwork for the decades of cooperation between the two bureaus.

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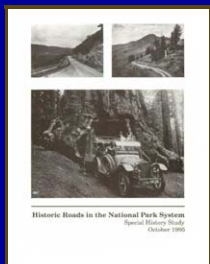
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Historic Roads in the National Park System



PART I: HISTORY

TEAMWORK/COOPERATIVE EFFORTS

EARLY PARK ROAD DEVELOPMENT

The road systems in each of the national parks developed differently. Many were started before the establishment of the National Park Service in 1916. Some were old mining roads that were suitable enough to be upgraded into wagon and motor roads. The army built others for patrolling purposes, and then at the request of the Department of the Interior and through congressional appropriations, expanded some of them into touring roads. Other park roads were built by states, counties, or private enterprises. As more parks were added, some of them came with existing road systems, and others came with no roads at all.

The saga of the start of road construction at Yellowstone National Park was an example of the evolution of park road development. Yellowstone, famous for its Grand Loop Road, received its first appropriation for road construction in the 1880s, and the responsibility for administering it rested with the Corps of Engineers. In 1883, Capt. D.C. Kingman was the first officer detailed as an engineer for road construction at the park. Most of the loop road's layout, however, came under the command of Gen. Hiram Chittenden, who came to Yellowstone at the end of the Spanish-American War. Between 1902 and 1905, Congress appropriated more than \$1 million to reconstruct roads in Yellowstone. Besides repairing the earlier roads, the army also constructed a new stage road for Canyon to Mammoth Hot Springs by way of Dunraven Pass and Tower Falls. This work completed the loop road around the park. [79] Stephen Mather led the auto tour that officially opened the Grand Loop Road. [80]

Roads constructed under the aegis of the army included the road over Mount Washburn, the Golden Gate viaduct (11 concrete arches built into the cliff wall of Golden Gate Canyon), the 120-foot steel and concrete arched Chittenden Bridge over the Yellowstone River at Yellowstone, and the entrance road into Mount Rainier from Nisqually (from 1903-1906). By 1910 that road went as far as Paradise. Chittenden believed in only constructing what was necessary to keep the park in its most natural state as possible. He argued that once a road was found necessary, however, that it would detract far less from the scenery if well-built rather than left in an incomplete or rough state. He concluded that "The true policy of government in dealing with this problem should therefore be to make the roads limited in extent as will meet actual necessities, but

to make such as are found necessary perfect examples of their class." [81]

Some of the problems encountered at Yellowstone were typical of challenges facing park road construction. During the 1915 National Park Conference, Major Fries, who was in charge of road construction at Yellowstone at the time stated that the army was building some "high-class roads" of broken stone with an oil finish. For cheaper roads, the army usually spent about \$100 per mile. In one stretch of that type of cheaper road, they had to construct 55 wooden bridges to span creeks. At Yellowstone, frequently 300 miles of roads were under repair or being constructed at one time. Because there was such a short working season — usually only three months — 400 to 500 men often were working at the same time. Roads built at Yellowstone in 1915 still required the use of horse-and-mule teams, and the teams required forage. His goals included constructing steel bridges with concrete decks and reducing all road grades to 6%. [82]

While Yellowstone's road construction problems tended to be more physically oriented, Mount Rainier also faced political scrutiny. In 1915 only 20 miles of road had been constructed within the park, and repairing and maintaining those roads proved an arduous task. The park road went up as far as Paradise Valley, and the state of Washington was building a road from North Yakima to the east side of the park. The original plan called for constructing roads to encircle the park. In that year the state was nearly ready to move forward with appropriations on approach roads to connect with the park roads at various locations, but the Department of the Interior was lagging behind and had not yet decided where the roads were to go within the boundary and where those connections should be made. The secretary of the Tacoma Chamber of Commerce verbalized the views of his organization: "We have in-mind a great highway crossing from Puget Sound to the southern border of the Mount Rainier National Park, down into the great fruit valleys, and it will be an inspiration that one will never forget, when, after a comfortable breakfast, he can get into an automobile and that the morning drive through those heights, always with this magnificent dome in sight, and have his dinner in the great fruit valleys of the Yakima. What an inspiration!" [83]

In 1916 the Rainier National Park Company operated an automobile service between Seattle, Tacoma, and destination points in the park. At that time the only road entering the park went from Nisqually to Paradise. Stephen Mater noted: "In an automobile one may travel from the cities of Tacoma and Seattle to Paradise Valley and return in one day and in a few hours of this period cover every foot of road in Mount Rainier National Park..." [84] The Park Service was surveying the Carbon River Valley from the town of Fairfax, with hopes of making accessible Spray and Moraine Parks. In conjunction with that effort the State of Washington was considering extending the state highway from Orting to the beginning of the new park highway, which would open up the north and west sides of the mountain. [85]

By the mid-1920s the Rainier National Park Advisory Board submitted fliers to Congress and the National Park Service pushing for additional

road development and inviting the federal government to make good on its promises. The state of Washington and the four counties surrounding the park had managed to construct the approach roads to four corners of the park, with some assistance from the forest service and federal aid funds. The company chided that Congress was unwilling to appropriate funding for road building inside the park until the connecting roads were complete, and the company demanded that congress now satisfy its part of the bargain. [86] This type of outside pressure often had a strong influence on the development of park roads.



Fig. 4. In Yellowstone, the army constructed the road over Dunraven Pass that connected Canyon and Mammoth Hot Springs between 1902 and 1905. This completed the loop around the park. Dunraven Peak rose above the road in the background. (*National Archives, Record Group 79*)



Fig. 5. At Yellowstone, the construction of the Spiral Bridge at "S" Hill over Sylvan

pass on the Cody Road followed traditions established in railroading in the West. When steep grades over passes were difficult, a loop over a bridge accomplished the change in grade. (*National Archives, Record Group 70, n.d.*)



Fig. 6. The construction of the Cody Road with its Spiral Bridge depicted the early emphasis in park road construction. Engineering was of primary importance, aesthetics were secondary. (*National Archives, Record Group 70, n.d.*)



Fig. 7. During the 1920s the road system at Crater Lake had no surface, and the pumice gravel caused maintenance problems, such as this pothole. This photograph was taken of the south entrance road. (*National Archives, Record Group 70*)

NEW EMPHASIS ON PARK ROADS

Following the creation of the National Park Service in 1916, the push for park development continued, and a big portion of the boosterism for providing access to national parks came from within the agency and the Department of the Interior. When the agency was progressing into its second decade its annual appropriations remained tied to visitation numbers. The NPS directorate had a vision that included saving the greatest natural resources and the most spectacular scenery of the country while accommodating the recreational and vacation needs of a civilization that possessed automobiles and a growing affluence. The days of the great train trips across the continent to visit the national parks were coming to an end. In their stead were families coming to parks seeking camping opportunities to spend their vacations on the edge of the wilderness. This provided a chance for the new agency to increase its constituency. The tremendous growth in the numbers of automobiles in this country had a major effect on park development. In 1900 there were only 8,000 automobiles in the United States. By 1930, 23 million of them swarmed the roads. [87]

While the Bureau of Public Roads had always pushed the idea of entire road systems rather than individual roads, road construction in and around national parks was only a very small percentage of the work that the agency did. Many of the annual reports submitted to the secretary of agriculture included mention of work in forest reserves but little or no mention of work in national parks. In the 1921 report, however, Bureau of Public Roads Chief Tom MacDonald noted that a growing demand for roads existed — farmers wanted roads from shipping points and agricultural centers to produce areas, and manufacturers wanted roads that facilitated the transportation of raw materials and commodities. In addition, he wrote that tourists were also interested in the development of smooth, hard-surfaced roads that connected cities and areas of natural interest because of the recreational opportunities they could provide. [88] He saw the ever-increasing demand of automobile access as an integral portion of pursuing leisure activities in scenic natural areas.

Echoing his sentiments and analyzing some of the idealistic reasons for this demand was Secretary of the Interior Hubert Work. In 1925 Work wrote with religious fervor about access to park areas and the need to meet the hundreds of thousands of visitors who were on their way:

The national parks are playing a prominent role in our national life. They are giving the people a glimpse of the simpler things of life and are increasing our appreciation and understanding of nature. They are providing education opportunities that otherwise would not exist. And finally they are bringing us closer to the scheme of creation and educating our children "through nature up to nature's god." [89]

His view of one of the national parks as having an inspirational purpose was similar to many others of the period including NPS Director Stephen Mather and his assistant Horace Albright. Even congressmen echoed that sentiment. Rep. Nicholas Sinnott of Oregon was a serious booster of national parks. Standing at the Lookout on Mount Washburn in Yellowstone one day, Sinnott quoted from Isaiah 49:11: "I will make all

my mountains a way, and my highways shall be exalted." Horace Albright, then superintendent of the park, was with Sinnott at the time, and he had the park staff paint a small sign with that quotation on it placed at the lookout. For years visitors had their photographs taken next to the sign. [90]

The roads program within national parks continued to grow, and Director Stephen T. Mather viewed road construction as key to park development.

It is not the plan to have the parks gridironed with roads, but in each it is desired to make a good sensible road system so that visitors may have a good chance to enjoy them. At the same time large sections of each park will be kept in a natural wilderness state without piercing feeder roads and will be accessible only by trails by the horseback rider and the hiker. All this has been carefully considered in laying out our road program. Particular attention also will be given to laying out the roads themselves so that they will disturb as little as possible the vegetation, forests, and rocky hillsides through which they are built. In this work the landscape engineering division cooperated closely with the civil engineering forces, and the latter also by separate instruction have been ordered to exercise the greatest care in the protection of the landscape in all road construction work. Especially fine work along this line has been accomplished in Yellowstone, Lafayette [Acadia], and Sequoia national Parks. [91]

The reasons for park development, however, were both idealistic and practical. On one hand the NPS director viewed the importance of parks from an economic perspective, and he stressed the development of parks to keep tourist dollars at home. Switzerland, he argued, lived almost entirely by selling its scenery, and other European countries pushed equally hard for American tourist dollars following the conclusion of World War I. Mather looked at other countries that were developing their own park systems, such as Canada, Australia, and Japan, from the standpoint of the competition they would be giving American national parks. [92]





Fig. 8. This photograph, taken at Yellowstone National Park, includes, from left to right, President Warren Harding, Secretary of the Interior Hubert Work, National Park Service Director Stephen Mather, and Yellowstone Superintendent Horace Albright. All four of these men pushed road development in national parks to introduce the American public to the scenic, recreational, scientific, and inspirational wonders of the park. (*National Archives, Record Group 70, Haynes Collection*)

ROAD NETWORKS

The NPS directorate in the 'teens and 'twenties had recognized the importance of tourism to the economy of the western states. Mather, for instance, supported the National Park-to-Park Highway Association, which promoted building a system that connected all of the western parks into one circuit. Roads over the Sierra at Tioga Pass in Yosemite and over Logan Pass in the Rockies of Glacier were in part constructed to take advantage of cross-country travel promoted by the National Park Service. In that way autotourists crossing the continent had additional encouragement to see the parks. [93]

The National Park Service joined the informal consortium that encouraged the construction of a network of roads that connected highways and national park roads. Assistant Director Horace Albright and Chief Civil Engineer George Goodwin worked closely with the Western Association of State Highway Officials. [94] At a meeting with that organization in Yellowstone in 1924, Horace Albright asked the highway officials to support road construction in national parks. Albright argued that because so many roads led to the national parks, the traffic entering the parks concentrated in them. Albright expressed interest in building park roads to carry even higher concentrations of traffic inside parks than the less dense concentrations carried on the state roads outside parks. He wanted the park roads constructed to carry these higher volumes of traffic and given enough attention so that the public could appreciate and enjoy them in a convenient manner. [95]

At the same meeting George Goodwin gave a talk about the problems he encountered with park roads. Goodwin complained that many of the

park roads of the period (1924) were not properly located, but they still had to be maintained to carry high volumes of traffic.

So much money had been invested in maintaining the roads that Goodwin believed that it was prohibitive to abandon the roads, especially when there was no funding to survey and lay out new roads to replace them. Also, Goodwin commented, line and grade were sometimes sacrificed in the old park roads so that natural features and scenic vistas could be incorporated along the road. Goodwin commented hopefully that the new appropriations granted to parks for road construction starting in 1924 would allow new roads to be constructed with the most up-to-date practices in highway construction while preserving the "scenic beauties as near as possible as nature created them."^[96] Goodwin had requested copies of the pamphlets "A System of National Highways" and "A National Highway System" from the American Automobile Association, copies of a speech by Senator Foss on roads in National Parks, report of the forester for 1922, and the Interior Department bill approved on January 23, 1923, and he based some of his findings on information presented in those documents. ^[97]

By February 1925, Goodwin had prepared some standard road sections that covered four classes of roadways, and he submitted them to the director for approval. Goodwin's standards included road surfaces of 20 feet, 16 feet, 10 feet, and 8 feet. Mather refused to approve the drawings, and sent them back to Goodwin with instructions to prepare instead "standard cross-sections similar to those approved by the Bureau of Public Roads for forest development roads covering 18-foot, 16-foot, 10-foot, and 8-foot roadways." Mather saw no need for a 20-foot road section unless the service widened a road at some time in the future. He also noted that the Bureau of Public Roads standards approved for forest highway and forest development resulted from a number of years of experience in road construction, and that the Park Service had no reason to adopt a higher standard. Contractors, he argued, were familiar with the standards. ^[98]

Goodwin overhauled his standard road sections following the standards and resubmitted them a week later. They were nearly identical to the standards adopted by the Bureau of Public Roads. Mather also wrote that although he approved the sections that Goodwin submitted, some variation would be allowed. Widening on curves, for instance, would be approved where conditions required, and a wider width of road might be allowed where conditions warranted and where there would be no disfigurement of the landscape. In the same letter, Mather approved paving the El Portal Road in Yosemite to a full 20-foot width and paving the valley floor roads there — approved as class I roads — to the full 18-foot width. The Middle Fork Road at Sequoia was approved as a class II road, but the director was allowing it to be constructed at less than standard width in some places based on the recommendations of the landscape engineer to prevent scarring the landscape. ^[99]

PARK ROAD FUNDING: 1924

Congress responded by approving \$2.5 million a year for three years

beginning in 1924, but funding for the first year was put off due to financial obligations that the country had to its soldiers following World War I. The service was ready to go forward with roads projects as soon as the money came. Mather stressed that motorists were contributing large amounts of money to the federal government through fees charged for park access, and the director believed that park users were "entitled to the utmost consideration and return in the way of good roads that the condition of the Federal Treasury warrants." [100] The director argued that while the amount coming into the federal coffers from automobile license fees came to \$1.8 million between 1917 and 1924, the amount spent on roads amounted to only \$1.4 million. The director pushed for additional federal aid for approach roads to national parks to accommodate the tourists. At the time 1,060.5 miles of roads existed in national parks, and Mather proposed reconstructing about one third of them through widening, reducing the grade, or improving the base so that when hard surfacing was possible, the base would be adequate to handle it, just as the Bureau of Public Roads suggested. [101] Also, the Park-to-Park Highway was in full swing.

The passage of the 1924 Roads and Trails Act started the formal fiscal commitment for construction, reconstruction, and improvement of roads, trails, and bridges in national parks. At the same time it provided appropriations to do so. Those amounted to \$6.5 million from 1924-1928, and \$2.5 million under the appropriations act of 1928. By October of 1927, 184.65 miles of roads were under construction and 89.38 miles had already been completed. Surveys were completed or authorized on another 1,000 miles of park roads. Adding further impetus to this was the Leavitt Approach Road Act of 1931 that authorized the National Park Service to spend money outside park boundaries on approach roads that led to the parks. [102]

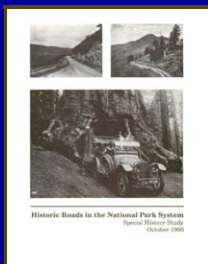
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PART I: HISTORY

EVOLUTION OF PARKWAYS

A DIFFERENT KIND OF ROAD

Parkways evolved in a very different manner than park roads, but as NPS Historian Jere Krakow has pointed out, the meaning of the term "parkway" has evolved considerably since it was coined. As a result there is some confusion about its meanings. This chapter explores some of those.

The idea of parkways grew out of 19th century efforts to create beautify cities by creating grand, landscaped boulevards for the purpose of recreational pleasure afforded by walking, riding, driving carriages, and the social interaction that went along with it. Characteristics of these roads included limited-rights-of-way, careful plantings and landscape articulation, exclusion of commercial vehicles, and limited access. Often these boulevards were the approach roads to city parks, or connecting roads between them. By the end of the 19th century the concept of parkway had evolved to include the concepts of the spiritual, restful character that these green strips of nature created in the urban landscape, and the conservation of nature was key to parkway development. The use of the curvilinear roads that flowed along with the topography to expose nature to best advantage was a concept introduced in the work of Andrew Jackson Downing and Frederick Law Olmsted, also during the 19th century.

The introduction of the automobile and subsequent rise in recreational driving substantially altered the concept of parkway. By 1925 Frederick Law Olmsted described the four types of roads that in his view fit the definition of parkway. They were the "elongated park" or linear park that possessed the landscape features of two parks it might connect; the "ornamental street" designed to enhance property values; any thoroughfare with a more aesthetically pleasing appearance, in a landscape sense, than an ordinary street; and finally a combination of an elongated park and landscaped thoroughfare.

Thus the use of the term even by one of its originators was somewhat confusing.

The Bronx River Parkway, completed in 1923, was constructed specifically for pleasure and recreational driving, and it was the first of the modern parkways. The exclusion of commercial vehicles, the use of

overpasses at crossings, the use of curvilinear alignment reflecting the design speed in relation to topography, the use of planting to screen adjacent buildings, and the prohibition of billboards all contributed to its significance. Also the varying width of the entire parkway corridor created additional visual interest. The 13-mile-long road was part of a larger effort to save the Bronx River from further degradation through land reclamation, provide a park-like connector between Westchester County and New York City, and create a park on both sides of the river. A parkway could turn an abandoned wasteland into an area of scenic beauty.

While the early focus of parkway design had been in urban landscapes, some of the same concepts applied in the development of more rural parkways. In January 1936, Associate Director A.E. Demaray of the National Park Service presented a paper before the council meeting of the American Planning and Civic Association in Washington. In it he gave a brief history of federal parkway legislation. Demaray discussed the first federal legislation on parkways, from the Act of May 23, 1928 which provided for the Mount Vernon Memorial Highway. The Act called for a highway connecting Washington's Mount Vernon home and the nation's capital. The legislation included provisions for the "planting of shade trees and shrubbery and for other landscape treatment, parking and ornamental structures," and a right-of-way with a minimum width determined by the commission to oversee it.

Following that, congress passed the legislation for George Washington Memorial Parkway in May 1930. Two months later Congress established Colonial National Monument and included the condemnation of rights-of-way not to exceed 200 feet in width to connect Williamsburg, Jamestown, and Yorktown. In May 1934, the legislation for Natchez Trace Parkway was passed to construct a national road along an old Indian trail. Under the National Industrial Recovery Act the first step toward actual parkway construction started after the President approved building a parkway connecting Shenandoah and Great Smoky Mountains National Park; he requested that work begin as soon as possible on the Blue Ridge Parkway. This series of roads possessed some similar legislative and design characteristics.

Demaray discussed how parkways were different from regular highways: they were designed for passenger traffic and recreational use; they had a wider right-of-way than a normal highway so they were insulated from private property; they went through areas of scenic beauty and interest; they provided access to the best scenery even if it meant making the route longer. Also, grade crossings were eliminated, and parkways had minimal exits and entrances. Instead of acquiring land outright, parkways often used scenic easements to protect the land but not acquire it fee simple. The scenic easements prohibited the construction of buildings, pole lines, or structures other than farm buildings. Private road construction, dumping, and billboards were prohibited. [\[131\]](#)

PARKWAYS VS. HIGHWAYS

Because some confusion arose even during the 1930s about the

differences between parkways and highways, the National Park Service distributed a document that provided the distinction between the two types of roads. In general, the points were the same ones that Demaray had presented. The document stated that a parkway was different than the usual highway because:

It was designed for passenger car traffic and was largely for recreational use, aiming to avoid unsightly buildings and other roadside developments, which marred the ordinary highway.

It was built within a much wider right-of-way in order to provide an insulating strip of park land between the roadway and the abutting private property. It thus eliminated frontage and access rights, and protected and preserved the natural scenic values. In other words, an elongated park was provided to contain the roadway.

It was preferably located through undeveloped areas of scenic beauty and interest, and avoided built-up communities and intensively farmed lands.

It aimed to make accessible the best scenery in the country it traversed. Therefore, the shortest or most direct route was not necessarily a primary consideration. Grade crossings between the parkway and main intersecting highways and railroads were eliminated.

Points of entrance and exit were spaced at distant intervals to reduce the interruptions to the main traffic stream. A secondary parallel road was frequently provided to carry local traffic to an access point.

Scenic easements were introduced in order to secure a maximum of protection without increasing the amount of land to be acquired in fee simple. [\[132\]](#)

These became the standards that were applied in the development of the Blue Ridge Parkway.

BLUE RIDGE PARKWAY

The Blue Ridge Parkway refined the parkway concept to the utmost. Begun in 1935 and not completed until 1984, its construction started for two principle reasons: to alleviate unemployment during the Depression; and to provide the physical connection between Shenandoah and Great Smoky Mountains National Parks. To minimize political involvement in the development of its route and to provide a framework for the parkway, designer Stanley Abbott and his team identified certain principles to guide its development.

First of these was the acquisition of a protected right-of-way through which the road would travel, which would allow for preservation and restoration of the surrounding roadside landscape. Next, the parkway and

its structures were to possess a simplicity of character and informality that encouraged harmony with the natural environment. Design elements were to relate to each other so that driving the parkway would provide an unified kinetic experience, although some variety would be encouraged to alleviate monotony. The road would accommodate "ease and safety of travel" while revealing the character of the countryside through which it passed. The man-made roadside landscape was to be preserved and protected. Finally, the parkway was to provide the traveler with ample opportunities to experience the scenic qualities of the country through waysides, overlooks, picnic areas, and lodging. [133]

The combination of those elements in that masterful work of landscape architecture contributed to its significance, but the alignment of the road within the landscape and the, way in which it reveals the surrounding landscape may be its greatest character-defining features.



Fig. 20. In 1938 the basic layout of Blue Ridge Parkway connecting Shenandoah and Great Smoky Mountains National Parks was underway. This photograph was taken at Ice Rock in 1938. (*National Archives, Record Group 79, Rinehart Photo*)



Fig. 21. Glimpses of Appalachian culture were visible along the parkway. This photograph of an ox cart trundling along the road was taken near Bluff's Park in April 1938. The contrast between the technically advanced ongoing construction work and the primitive local conditions was sharp. (*National Archives, Record Group 79, Rinehart Photo*)

BROADER APPLICATIONS TO HIGHWAY DESIGN

Many of the elements developed under parkway construction were later incorporated in highway and interstate design under emphasis from President Franklin Delano Roosevelt. First among these was placement of the road distinct one-way roads that conformed individually to their sites rather than a divided highway with a fixed cross-section. Bridge design was to fit the alignment and gradient of the highway and be subordinate to the surrounding environment. Additional land area on the edges provided space for easier vehicular maneuvering, roadside businesses, and screening. Natural landscape features were to be protected and preserved for use as waysides and in a manner that conformed as much as possible to the existing topography to have the road appear to lie gently on the land. With separated highways both sections should be overlooks. Borrow pits were to remain out of sight or naturalized following construction. Any construction scars were to be naturalized or minimized and revegetation of slopes completed following construction. The highway design and landscape treatment was to require minimal maintenance and possess a natural appearance. [134]

Even today, the large commuter-type parkways that up until recently came under the jurisdiction of the National Park Service received rave reviews from their users. An article in the *Washington Post* in December, 1993, stated:

Among local road-builders, the National Park Service is the tortoise. The agency seems to take forever to finish a project.

But when it's done, it looks beautiful. The trouble is getting to the finish line What other agency plants tulips and daffodils along its roadways? The Suitland Parkway, built as a connector between Washington and Andrews Air Force Base during World War II and left incomplete when the war ended, is being rebuilt to make a dangerous two-lane road into one that is four lanes wide and divided, and the segments that are finished are something to behold. Smooth road surface; a wide, grassy median; low stone walls; large grassy areas on both sides, with buffering trees blocking out development; flowering crab-apple trees along the roadway to vie something of the effect of the Tidal Basin in spring. [136]

Perhaps the best definition of a parkway comes from Landscape Historian Norman Newton. He stated that a parkway was:

a strip of land dedicated to recreation and the movement of pleasure vehicles. The parkway was not itself a road, it contains a roadway. The strip of land was not just a highway with uniform grassy borders; it was of significantly varying width, depending on immediate topographic and cultural conditions. The roadway itself differed markedly from that of an ordinary highway in that it was meant for comfortable driving in pleasant surrounding, not merely getting from one place to another as fast as possible. [137]

SUMMARY

Considerable confusion has surrounded the term "parkway" because of the complex evolution of the concept. Parkways evolved from two sources: boulevards with landscaped edges connecting urban parks combining with the curvilinear roads developed in nineteenth century parks that presented the landscape to best advantage. While linear in form, parkways expanded to include appropriate treatment of the natural areas through which they passed. Additional facets of parkway development is the use of the parkways for reclamation of wastelands, particularly when it is developed as an urban connection.

Federal involvement in parkway design honed some of the legal tools for acquisition, design development, and management of parkways. Many of the design principles developed for parkways were later applied in highway and interstate development.

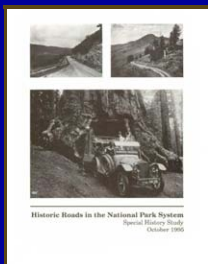
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Historic Roads in the
National Park System

MENU

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Historic Roads in the National Park System



PART I: HISTORY

WORLD WAR II AND BEYOND

Big changes occurred in the development of roads after World War II. The first item affecting park roads was the change that had occurred in visitation, second was a development program known as Mission 66, and the third was an overriding change in the way in which the agency managed its resources. All of these combined forces influenced the way in which roads were constructed in national parks.

In 1941 the deputy chief of planning for the National Park Service was Tom Carpenter. After being involved in the development of national parks since the 1930s, he became concerned about overcrowding in parks and the effect that the construction, management and use of roads had on the visitor experience. Consequently, Carpenter wrote a position paper about road design and speed limits in national parks. In it he explored the influence of speed and people's perception of parks.

In his view there was a limit at which people could travel a road and still perceive the scenery clearly enough to enjoy it. He believed that park roads should reveal representative examples of the types of scenery included within their park boundaries and he saw a need for use limitations. Carpenter reasoned that most of a visitor's park experience was a view from the road, and because of that reason roads took on an increased importance. Carpenter warned that unless the National Park Service accepted some average speed as a criterion for experiencing a park's terrain and scenery, then the agency would have to acknowledge that it was designing roads without consideration for the primary reason for setting aside park areas. Carpenter wrote about the scenic and inspirational values of parks, and notes that park roads and the slowed tempo went hand-in-hand.

But he also noted a differentiation between types of park roads. He believed that the upper portion of the General's Highway at Sequoia should be driven at a maximum speed of 35, while roads built in open, rolling terrain, such as the North Rim approach road to the Grand Canyon, could accommodate a faster speed. He stated that a human limitation factor existed which set a limit to the speed at which a visitor could travel a road and still perceive enough of the scenery to enjoy it. He wanted the National Park Service to establish a criterion of design speed for park roads. He cautioned:

Unless we accept some average speed as a criterion, for the

given conditions of terrain and scenery, then we have to acknowledge that we are designing roads without consideration of the primary reason for setting aside park areas and are, on the other hand, concerned only with building roads without any definite limit as to how high the standard may become in the future, and that limit controlled probably only by cost. [138]

Thus, on the eve of World War II, the idea that restrictions should be placed on park road development and management through design speed had been planted.

Development and construction of park roads came to a near standstill during World War II, and appropriations following the war were insufficient to cover the cost of delayed maintenance of the park facilities that had been postponed until after the war. In 1942 the Public Roads Administration put out a report stating: "Efforts of the Public Roads Administration during fiscal year 1942 were centered on meeting needs of highway transport for war purposes." [139] The Bureau of Public Roads annual report for that year included no information on park or forest roads, which was unusual. By 1945 the situation had improved somewhat. While most road construction in park and forest areas was suspended during the war, a few projects had been completed where timber or mineral deposits were significant and necessary for the war effort. To pick up the slack the Public Roads Administration had completed a considerable amount of survey work, soils investigations, preparation of plans and specifications, and the development and approval of upcoming projects to be completed under the Federal Aid Highway Act of 1944. The report also noted:

The funds for park highway improvement are not apportioned by states but are assigned to projects by the National Park Service in accordance with its development program. The program for park roads and parkways was nearing completion at the end of the fiscal year. Plans and specifications are now prepared for projects that will absorb all park and forest highway funds and those for parkways for the first postwar fiscal year. Construction will begin whenever it is authorized and weather permits. [140]

The suspension in park road construction was about to pick up again.

After World War II the changes in transportation in national parks had become evident. By the 1950s only between 1% and 2% of visitors came to the national parks by transportation other than automobile. The vehicle of choice for getting to and around national parks was the car. Park facilities continued to deteriorate, but visitation increased. The outbreak of the Korean War in 1950 further compounded the situation when congress reduced appropriations to the parks even further to cover the cost of the war effort. Yet the agency still faced the philosophical dilemma of providing safe, adequate roads to accommodate the cars without marring the landscape and harming the resources it was charged to protect.

MISSION 66

To ameliorate the problem, Conrad Wirth, who had been appointed director of the National Park Service in 1951, devised a plan which he christened Mission 66. He targeted the program for completion in 1966, the 50th anniversary of the National Park Service. This 10-year restoration and development plan covered every type of park facility from employee housing to visitor centers to roads. Mission 66 included a proposal for construction, repair, and rehabilitation of 2,000 miles of park roads. Yellowstone National Park received special emphasis in preparation for its 100th anniversary in 1972. Appropriations for the entire Mission 66 program amounted to more than a billion dollars over a 10-year period. [[141](#)]

To kick off this new program, Wirth put together an American Pioneer Dinner in the cafeteria of the Interior Department. In attendance were approximately sixty members of the Senate and House of Representatives, members of the American Planning and Civic Association, and members of conservation groups. Sponsoring the dinner were the secretary of the interior, the National Park Service, and the American Automobile Association. The South Dakota state park system provided the meat for the feast: elk and bison. Walt Disney put together the movie for the event which he entitled "Adventures in the National Parks." Distributed at the meeting was the booklet "Our Heritage." [[142](#)]

Wirth explained to his audience the guidelines and justification for Mission 66. Although park preservation was the underlying thread throughout the guidelines, other trends appeared. The second guideline, for instance, stated: "Substantial and appropriate use of the National Park System is the best means by which its basic purpose is realized and is the best guarantee of perpetuating the System." The third guideline noted that adequate and appropriate developments were necessary for public use and appreciation of an area, as well as for the prevention of overuse. Another stated that all visitors desiring to enter a park area could do so. The program's emphasis on development was apparent.

In his memoirs, Wirth summarized the Park Service's relationship with the Bureau of Public Roads in light of the Mission 66 program:

Before Mission 66 the master plans were loaded with projects of this type that needed financing. Mission 66 provided the momentum and resulted in a long list of completed projects that improved protection and the preservation of park values. Many of these projects involved major road construction, the engineering aspects of which were handled by the Bureau of Public Roads under agreements dating back to the twenties. Over the years the Bureau of Public Roads worked closely with the landscape architects of the design office and was very sympathetic to the policies of the service. It followed the approved priorities and recommendations outlined in the

master plans. Differences of view regarding road standards and safety requirements admittedly caused some disagreements. The questions of location and design as well as a final approval have always been the Park Service's responsibility. In the overall performance of its responsibilities, however, the bureau rendered outstanding service. It provided park visitors with excellent roads that brought a minimum of complaints.

Wirth recognized a series of indicators that pointed toward an increase in park use that, in his mind, justified development: per capita income was on the rise; more cars were on the highways; and the average length of vacation time was increasing. The national park system had to accommodate more than 50 million visits by 1955, when the parks were designed to carry less than half that number. Wirth used Mission 66 to meet that demand by improving access to national parks. The bottom line of Mission 66 was to develop parks to accommodate visitors. This included widening some roads, changing some to one-way roads to abate traffic congestion, and constructing additional parking space. [144]

After Mission 66 got underway, disenchantment with road development had set in. The Sierra Club, which had often supported the construction of roads in national parks, saw the upgraded roads of Mission 66 as threats to the parks and the resources they contained. [145] One of the projects that the Sierra Club criticized was the Tioga Road rehabilitation in Yosemite. Between 1932 and 1937, the National Park Service had realigned the eastern section of the road from Cathedral Creek near Fairview Dome to the eastern boundary of the park at Tioga Pass. Between 1935 and 1939 the Park Service worked on about 14.5 miles of the western section of the road, realigning parts of it and paving it from Crane Flat to the White Wolf intersection. This older road was noted for the way in which it "tiptoed" across the landscape. The careful work completed during the 1930s had included upgrading alignments, grades, cuts, and fills, and blending all structures along the road including bridges and culvert headwalls with the landscape.

Under the auspices of Mission 66, the 21-mile-long section between White Wolf and Cathedral Creek was scheduled to be realigned and replaced. When the final section of road was under construction during the 1950s, engineers with the Bureau of Public Roads and politically active conservationists went head-to-head. Besides receiving in-house review and approval in the National Park Service and the Bureau of Public Roads, a group of citizens known as the Yosemite Advisory Board reviewed and approved each step of the project. Members of the board included San Francisco Engineer and conservationist Walter Huber, Landscape Architect Frederick Law Olmsted, Jr., and William Colby of the Sierra Club.

Safety standards had changed since the 1930s, and the new design offered by Bureau of Public Roads included 4-foot shoulders on either side of the 20-foot road. The Park Service was fighting for 2-foot shoulders with turnouts where terrain allowed. The Park Service contacted Huber, a past president of the American Society of Civil

Engineers and a man who had built a number of roads in Yosemite and the Sierra, to settle the dispute. Huber sided with the Park Service on the 2-foot shoulders, and the bureau accepted that decision. Despite that less intrusive course of action, one report stated that the new road "elbows and shoulders its way through the park it blasts and gouges the landscape." In addition critics of Mission 66 castigated the program for what it failed to do: make advances in resource management and ecological maintenance of the parks. [147]

PARK ROADS DEFINED

By the time that Mission 66 came into being park roads had developed an identifiable character of their own. The lessons and standards that started in the west in Yellowstone, Glacier, Yosemite, Mount Rainier, and the other large western parks had spread east and evolved even further at Acadia, Shenandoah, and eventually the Blue Ridge Parkway. Dudley Bayliss, the Chief of Parkways for the National Park Service in 1957, wrote an article in the July, 1957 edition of *Traffic Quarterly* that the Park Service reprinted and distributed widely throughout the agency. In it Bayliss summarized the differences between park roads and high-speed highways. He noted that they had specialized access and circulation, and that

1. Park roads were planned to reach the principal features of the park rather than be the most direct route between two points.
2. Park roads were designed to fit the topography of a park rather than to conform to the standards of gradient, curvature, and alignment used in statewide or nationwide applications. The roads lay gently on the land rather than cut through it.
3. Park roads were designed to be low speed roads so that visitors could see and enjoy the park. Their design as low speed roads allowed easier fit into the landscape and reduced the amount of construction scars.
4. Whenever possible, the roads were designed to present the park in the best chronological or interpretive order.
5. In the location of new park roads or in relocation of old roads, NPS landscape architects incorporated points of scenic, historic, or scientific interest even at the expense of additional length or nondirectional alignment.
6. The Park Service employed various methods to protect roadside slopes, to heal cut and fills, and to secure against erosion. These included flattening and rounding slopes, fertilizing, mulching and seeding, restoring native vegetation, protecting natural features from blasting operations, and locating and screening borrow pits from public view.

7. An integral part of park roads were the views and vistas. The agency conducted selective cutting and thinning operations to open and maintain views and vistas. In some instances the designers strived for "canopy views" in which the understory or lower branches of a tree were removed, and the larger trees and their shade remained. Mowing, too, was included as part of that vista maintenance.

8. Master plans prepared by the National Park Service guided all park development. The road system plan was a section of each master plan. Each master plan, including road system portion, was developed with the expertise of a variety of disciplines such as landscape architects, engineers, biologists, and administrative representatives who took into account their respective disciplines in developing the plan. Master plans provided a direction to park development that was relatively removed from the effect that changes in personnel might bring to a park.

The summary clarified for many the differences between park roads and other roads.

CHANGES DURING THE 1960S

A key piece of legislation indicative of the changes in tenor of this time period was the Wilderness Act, signed into law in 1964. In general, the country had started placing a greater emphasis on natural resources — 1964 was the same year that NPS Director George Hartzog established the three-part classification system for national parks to better identify and manage the resources in terms of their inherent values and appropriate uses. Hartzog firmly believed that the key purpose of national parks was to bring humans and their environment into closer harmony. Thus, he believed that the *quality* of the park experience was of greater importance than the *quantity* of people who experienced it.

Hartzog expanded his ideas to cover park access and development. He stated:

The automobile as a recreational experience is obsolete, we cannot accommodate automobiles in such numbers and still provide a quality environment for a recreational experience No more roads will be built or widened until alternatives are explored. We want to give a park experience not a parkway experience The National Park Service must not be obligated to construct roads, or to manage traffic, in order that new kinds of mobile camping vehicles be accommodated. The development of parking areas for trailers at park-entrances, and the exclusion of vehicles from park roads not capable of handling them, are appropriate solution. [148]

Hartzog continued by reinforcing his stance on road construction. In his view if the agency were faced with a choice of creating a severe road

scar to bring visitors to a point of interest, or requiring visitors to walk, or provide an alternative transportation system, the decision should be against the road. [[149](#)]

PARK ROAD STANDARDS

In 1966 the functions of the Bureau of Public Roads were transferred to the Department of Transportation and assigned to the Federal Highway Administration. At about the same time the National Park Service had pulled together a team to write the first formal edition of park road standards. The committee who wrote them included: photographer Angel Adams; John Penfold from the Izaak Walton League; Ira Gabrielson of the Wildlife Management Institute; and from the National Park Service Charles Kreuger, assistant director, design and construction; Robert Linn, deputy chief scientist; and as its chairman William C. Everhart, assistant director, interpretation. The composition of the group — three from outside the Service and three from inside — and the disciplines represented (design and construction, the arts and sciences, aesthetics, and interpretation) proved an interesting mix. Missing was any representation from the Federal Highway Administration.

The new standards the group wrote concentrated on establishing an ethic for road design. The standards pointed out that the increase in the numbers of park users was threatening not only park values but the "extraordinary opportunity to make those values a more meaningful part of this nation's cultural inheritance." They were looking at National Parks in a new light.

The standards readily admitted that visitors needed to be manipulated. It stated:

In this era of enormously increasing vacation traffic, it must be assumed that those who visit the National Parks do so for the purpose of enjoying a unique experience, and are therefore willing to accept necessary restrictions, including those regulating numbers of people and their means of travel. Such regulations, as necessary, may deepen the awareness of visitors that they are truly in places of special importance. [[150](#)]

The document recognized that higher speed on park roads diminished the perceived size of parks, as conversely a slower speed could expand the size. The example it gave proved effective. If a visitor were traveling in canoe at 3 miles per hour, the visitor would perceive that lake as 10 times as long and 10 times as broad as the person zipping across the lake in a speedboat at 30 miles per hour. It concluded that "every road that replaces a footpath, every outboard motor that replaces a canoe paddle, shrinks the area of a park."

The 1967 *Park Road Standards* looked at broad park road issues and came to some conclusions. The document stated that new roads should be considered only as a last resort in seeking solutions to park access.

In park areas that already had established roads the document suggested that the National Park Service consider reducing speed limits, converting a one-way road systems, and limiting automobile use in certain areas of the park. To deal with larger vehicles the document suggesting excluding them from parks instead of constructing roads to those standards, and it recommended that all park roads should be designed for slow speed.

The standards also proposed a formal process for approval of road design and construction. The first consideration dealt with a professional ecological determination to ensure that the effect on park resources would be minimal, and the second was a determination about which means of transportation would provide the maximum opportunity for visitor enjoyment and appreciation of park resources.

The key to the ethic summarized in the 1967 *Park Road Standards* was included in the document. NPS Director George Hartzog wrote a short piece that park visitors received at some entrance stations:

If the National Parks were like the rest of the countryside, you probably wouldn't be visiting one now. The National Parks are different, though, and one reason for this is that roadways, where they exist, are planned for leisurely sightseeing. Park Roads are designed with extreme care and located with a sensitive concern for the environment. They are often narrow, winding, and hilly. At times they are little more than trails. But therein lies their appeal. These roads can take you close to America's most breathtaking places of beauty and history. To experience a park at its best, try getting away from your car. Walk or, if conditions permit, go by horse or canoe to the more remote reaches. It is almost a truism that the slower you go the more you will see. The next best thing, for those who have neither the time nor zest for roughing it, is a judicious use of park roads. Along these roads, you will find a world as varied as it is unhurried. But park roads are for leisurely driving only. If you are in a hurry, you might do well to take another route now, and come back when you have more time. [151]

Although the design ethic proposed in the document came through brilliantly, the practical application of the principles to road design, rehabilitation, and construction, was lacking. The exclusion of the involvement of the Federal Highway Administration in preparation of the document was evident.

ROAD STANDARDS REVISED

Almost 20 years later the *Park Road Standards* were in need of revision again. The passage of the Surface Transportation Assistance Act of 1982 set up a coordinated Federal Lands Highways Program, which made Highway Trust Fund money available for the construction and rehabilitation of park roads and parkways, as well as any other federal

agency roads. The Federal Highway Administration and the National Park Service signed a new interagency agreement in 1983. According to the terms of the agreement the National Park Service developed park road and parkway design, construction, maintenance, and safety standards. Federal Highways responsibilities included performing planning assistance, research, engineering studies, traffic engineering service, project development and contract administration. The Park Service provided architectural and landscape architectural services to ensure that "the highest standards of esthetics and resources protection are followed in the placement of road prisms and the design of structures appurtenant to park roads and parkways." [152] Also, Federal Highways was committed under the agreement to accommodate the aesthetic, environmental, and cultural resource protection concerns brought up by the Park Service.

The Park Service began work on the new road standards. Besides completing its task under the interagency agreement, NPS staff noticed additional items that needed to be addressed in new road standards. An internal memo pointed to discrepancies in the application of the 1967 park roads standards, and the fact that the standards did not address the actual types of vehicular and pedestrian use occurring in many park areas. As a result, the NPS director established a task force to look at park road use and to revise the road standards. Members of the task force included Jim Straughan, Denver Service Center; Donald Falvey, Rocky Mountain Region; John Gingles, Washington Office; Robert Jacobsen, Shenandoah National Park; Gerald Lorenz, Denver Service Center; Merrick Smith, Denver Service Center; and George Walvoort, National Capital Region.

The task force wrote that its purpose was to develop a document with road standards that accommodated existing and future road use while continuing to preserve the natural and cultural values of park areas, and at the same time addressing the requirements of Standard 12 of the Federal Highway Safety Program Standards and 23 CFR 1230. The task force wrote the document as a "definitive guide for manager, planners,, designers and others involved in the planning, design and construction of park roads." [153]

The document cited the Senate report that accompanied the Federal-Aid Highway Improvement Act of 1982, which stated that roads through federal land-managing agencies must be designed to protect the significant natural and cultural features, and that they must be designed to blend with the landscape. Also because of the type of use these areas received "the roads in certain instances do not have to be constructed to normal highway standards." The supporting documentation for the bill, then, noted that park roads were different, and could be constructed with a type of flexibility not allotted to state and federal highways.

The standards provided a great deal of flexibility wherein designers could take into account variations in types and intensities of park use, differences in terrain and climate, and protection of natural and cultural resources. The document left many of the basic decisions on the application of the standards to park management. [155] The preface and statement of purpose in the road standards again stressed the quality of

the park experience and the importance of the road to that experience.

Although all of that information was included, the standards lacked an interpretation of the design elements to show in more depth how using them assisted in creating that traditional "feel" of a park road. The link between the two was weak. The document stressed generous rounding at the tops of backslopes "to minimize erosion and ensure long-term stability and revegetation of cut slopes," for instance. But it said nothing about how the Park Service and the Bureau of Public Roads developed this method in the 1920s to accommodate stability and revegetation, and to improve the visual quality of the road and contribute to the way in which it rested gently on the land. [156] That was one of the physical features that made a park road distinct. In the section on guardwalls, the document discussed choosing materials sensitive to the surrounding environment, but it did not discuss the founding principles of the rustic design ethic that gave so many parks a distinctive design vocabulary, which is often extant. The height of guard walls and guardrails was not discussed from the standpoint of considering their impact on vistas and the kinetic scenery — usually highly significant aspects of the park driving experience. The treatment of historic structures was terse and inaccurate: "Preservation or restoration may be the only option for such historic roadways or structures" when rehabilitation/adaptive use is the most common and often the most practical treatment. The document came closer to addressing hard safety and design issues in conjunction with park philosophy than had the 1967 edition, but it held some room for improvement.

NPS Landscape Architect Jay Bright critiqued the standards saying that they did not discuss the relationship between horizontal and vertical geometry. In his eyes — and he had driven thousands of miles of park roads before he wrote his comments — the single most distinctive features of a park road was its curvilinear design. Also, the document did not stress the importance of the landscape architect in the design of park roads. [157] Like the earlier version, this group of standards had room for improvement.

The aesthetics of park roads was only one issue of discussion. The question of liability and safety on park roads, however, was a thorny one that kept cropping up. The historic roads in national parks, for instance, were constructed to lesser standards than those being built in the 1980s. Disagreements often ensued between the FHWA engineers and NPS landscape architects on park road rehabilitation projects. After considerable discussion James F. Zotter, assistant regional counsel for FHWA in Portland, Oregon, wrote an opinion on the tort liability of the new *Park Road Standards*. In it he cautioned:

While each case must be decided on its own facts and circumstances, it is imperative that in those instances where the decision is made to construct a park road to less than the applicable design standards the administrative record describe in detail the factors that were considered in making the decision to waive the standard. Such contemporaneous records are critical to the Government's

case, but even with such records, the Government bears a heavy burden in proving that its decision to waive the standards was reasonable under the circumstances.

This opinion provided cautionary guidance for park road designers. Yet statistics gathered in the mid-1980s indicated that driving the Blue Ridge Parkway was three times safer than driving on state roads in Virginia or North Carolina. [159]

SUMMARY

Prior to World War II, NPS Landscape Architect Tom Carpenter recognized that the speed in which people experienced a landscape had an effect on their perception of it. He applied that to park roads design and pushed the concept of slower speed in national parks. Road work slowed during World War II, when the nation focussed its attention on the war effort. After years of delayed maintenance, Mission 66 helped get rid of some of that backlog, and forged ahead in the construction of new roads, housing for park employees, and visitor centers. The development push of Mission 66 affected park roads, and that strong emphasis on "modern" development to accommodate visitors often had a detrimental effect on the character of the park roads of earlier decades through design based on safety standards rather than aesthetics and resource management concerns. This approach disenchanted environmentalists who often had supported road construction in the earlier years of the agency.

Dudley Bayliss defined what made park roads different than other roads with a listing that identified some of those features. The political strength of the environmental movement during the 1960s culminated in the passage of the Wilderness Act in 1964, and it was indicative of public efforts at the time. In 1968, the National Park Service published its *Park Road Standards* that echoed the sentiments of environmentalism and questioned the validity of any roads at all in the national parks. Despite the philosophical issues raised in that document, the visitors kept coming and the agency continued to repair, rehabilitate, park roads. Although the emphasis had changed during the 1960s from park aesthetics to park environmentalism, the identifiable character of park roads was evident even to the casual observer.

The *Park Road Standards* underwent a revision in 1984. That update stressed the engineering aspects of road design rather than aesthetics and environmental issues. Shortly thereafter a legal opinion on the potential liability of park roads recognized that applicable standards could be waived with adequate documentation, although the National Park Service would bear the burden of proving that decision was a reasonable one.

As park roads such as Going-to-the-Sun aged, their significance started to emerge. At first the agency began recognizing only specific features along the roads as historic — bridges, culverts, aqueducts. Then the entire road corridor came under study: the history, the engineering feats, the masterful landscape treatment.

Now designers are charged with rehabilitating historic roads that provide access to national parks in a way that ensures visitor safety while at the same time addresses the sense of place the roads provide. Part of that sense of place comes from the landscape itself, but also key to that is the sensitive design that occurred through the symbiotic relationship between the Bureau of Public Roads/Federal Highway Administration and the National Park Service. Today's challenge is to continue that partnering of good engineering and good design with a respect for the past while meeting the social and environmental needs of the future.

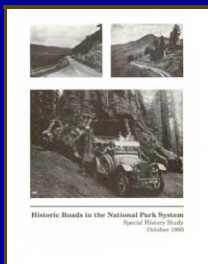
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Historic Roads in the National Park System



PART II: UNDERSTANDING AND MANAGING HISTORIC PARK ROADS

CHECKLIST

UNDERSTANDING THE COMPLEXITIES OF PARK ROADS

Only in this decade have we started to comprehend the significance of historic park roads. In March 1992, the Transportation Research Board included in a series of research needs the preparation of a study on the identification, evaluation, and management of historic highways. [160] The National Register of Historic Places has been recognizing the importance of historic roads and highways and has been working on criteria for evaluation for those resources. The Historic American Engineering Record, with funding from the Federal Lands Highway Program, has been documenting historic roads in a number of national parks throughout the United States. Various regions of the National Park Service have been preparing national register nominations for historic roads. The Olmsted Center of the North Atlantic Regional Office has been working very closely with the Federal Highway Administration and the park staff to come to a meeting of the minds on the treatment of the highly sensitive roads at Acadia. The Pacific Northwest Regional Office is studying the Rim Road at Crater Lake in terms of its importance as part of the park's cultural landscape. The Rocky Mountain Region has worked out a mitigation plan for rehabilitation of Going-to-the-Sun Road at Glacier. These are only a few examples of work underway nationwide on historic park roads. All of these studies show a growing level of concern about historic park roads and their subsequent management of them.

In addition to those studies, the National Trust for Historic Preservation has been studying potential conflicts between the AASHTO Green Book and the preservation of historic parkways. In 1993 a program associate of that organization presented a paper to the AASHTO Task Force on Geometric Design. In it, author Paul Daniel Marriott argued that providing a safe driving environment on parkways while preserving significant historic resources is an achievable goal. The National Trust is pushing for the development of a new functional classification for historic parkways in the AASHTO Green Book that would carry with it a distinct series of standards for that type of historic road. Park roads, too, are a road of a different type that deserve a separate classification warranting distinct standards.

Although the preservation community has been quick to grasp the idea of historic roads, the physical elements that make up that road can be confusing. Understanding the nature of historic roads and then managing them accordingly is far more complex than working with historic buildings. A look at the evolution of management of historic structures might provide a useful analogy. Twenty years ago the National Park Service looked most often at only the historic building and paid little or no attention to the surrounding landscape. Now it has evolved to a point where it realizes the importance of the building's environs and the cultural landscape of which it is a part and takes that into account in assessing the significance of and managing the resource.

Roads are even more difficult. In earlier years we understood the importance of the structures on historic roads — the bridges, guardwalls, and culverts — but only recently have we started understanding the importance of the entire road prism, horizontal and vertical alignment, slope design, and the path that the road takes. All those, again, are physical features. In addition roads can possess intangible features, and in a sense they become intellectual properties where the physical features of the road may not be significant, but the road's history or the use of it as an artery can be significant.

Further complicating the issue of historic roads is their continued use in today's world. Of prime concern is safety. Lives depend on it. Many of these historic park tour roads cover some of the roughest terrain in the United States. The geography of national parks can bring with it a host of natural occurrences that threaten road safety, from rockslides and mudslides to fires and floods. Park roads tend to have minimal width and numerous features to cause traffic jams such as scenery and wildlife. Most national parks are overcrowded to the extreme, and the primary method of access to the parks is by automobile. In addition most visitors expect a quality visual environment in any national park. At the same time we have been part of a large trend in this country involving safer highway design for high-speed driving. Most drivers have become accustomed to the easy rhythm of driving interstates and two-lane roads with ample shoulders, and most park roads do not fit into those types. Also, the concept of sustainability can no longer be ignored in a polluted world with rapidly diminishing natural resources. As a result the construction, rehabilitation, and continued use of park roads must be considered in that broader vision in terms of potential impacts to the earth's resources. Trying to mesh all of those factors is a formidable task. All of those considerations must be taken into account in managing historic park roads.

The Park Service is evolving out of a myopic view of resources into a broader vision. The only problem with that evolution is that as we gain understanding of the complexity of our resources, the resources get harder to manage. They seem to become amorphous when we try to nail down the physical characteristics, significance, and integrity.

INVENTORY AND EVALUATION

To start the sorting process of working with historic park roads, the

traditional methods still work: inventory and evaluate the resource and determine its significance and integrity, and then address the management direction. First it must be determined what the resource is and the best way to manage it. The management goals might include: preserving portions of the cultural landscape, improving safety, moving traffic more efficiently, improving aesthetics, repairing or rehabilitating existing roads, improving drainage, or enhancing wildlife habitat/crossings. In delineating those goals, however, the broader impacts must be visualized. A "better" road usually accommodates higher speeds, increased traffic, altered landscape or park scene, and greater visitation.

The first step in understanding park roads, as in understanding any other cultural resource, is to inventory the historic resources to meet federal requirements under section 110 of the National Historic Preservation Act, Executive Order 11593, section 8© of the DOT Order 5610.1. This task may seem cut-and-dried, but it is quite complex because of the interrelationship among the elements of park development.

Primary park tour roads in nearly all cases were constructed as parts of larger systems that included trails, secondary roads, and primary park roads. For the purposes of the national register, these roads must be considered as integral parts of these larger systems. Most historic park roads should be evaluated as part of multiple property nominations for national parks within the additional context of the individual state comprehensive preservation plans.

Roads should not be considered in isolation. They are an integral parts of a park's cultural landscape. A prime example of the integration of these systems is at Acadia National Park. There, the tour roads, secondary roads, carriage roads, and trails form a network of ways to experience the park. They should be evaluated in terms of statewide and nationwide systems, such as the National Park-to-Park Highway and the connecting roads as well as within the context of the park. The overall context is the key.

However most construction and rehabilitation efforts under the Federal Lands Highway Program involve only the primary park tour road or a section of it. Thus it is the joint responsibility of the park manager and cultural resource staff to consider the road or road segment within the larger context of the park's cultural resources when assessing the impact of any changes proposed by road rehabilitation, repair, or construction.

Grappling with historic park roads is difficult. Understanding what makes a road historic and eligible for the National Register of Historic Places can be difficult. Following the process below will help gain in the understanding of the significance of the road and the relative significance of all of its features.

CHRONOLOGY AND ANALYSIS

Roads in national parks most often have complex histories, and tracing that history is imperative in understanding the road as a resource. The

preparation of a chronology and the analysis of that information is the first step in understanding the nature of the resource — include in the chronology not only the date that something happened, but what that meant. When doing the assessment, think in terms of "inherited" roads as well as NPS-built roads. Often things were constructed for purposes that had nothing to do with the national park. Consider overall transportation systems and their evolution — from trails, railroads, and international roads. Consider the historical perspective of park roads, how they came about, how road systems are not static but are constantly developing, and evaluate what the changes did to the park experience.

In some instances the existing road fabric may not be eligible for the national register, but the broad transportation corridor in which it is sited may be. An example of that is the Tioga Road at Yosemite National Park. Because the physical features of the road had changed so much over time, minimal fabric was left that met the criteria. Yet at the same time the corridor possessed numerous archeological features that were eligible, and the road had a checkered history that typified the growth of western national parks and the environmental movement.

The Tioga Road developed out of a wagon track to an 1880s mining venture, and it evolved into one of the primary roads to cross the Sierra Nevada. The Tioga Road was included in the National Park-to-Park Highway, and NPS director Stephen Mather believed so much in its importance that he contributed financially to its acquisition. The road also was the center of a huge controversy over appropriate development for national parks during the 1960s that involved Ansel Adams, the Sierra Club, the National Park Service, and the Bureau of Public Roads. The controversy was perhaps the largest one ever on a park road. It questioned appropriate road development in national parks, and impacts on scenic and natural resources. Thus the artery possesses archeological and historical significance, but few physical features along its length meet the criteria. In a situation such as this, the road meets certain National Register criteria, but most of what is significant about it is not the physical fabric. Thus, the driving forces behind decisions on changes to the road should be based on priorities that would include impacts on natural and scenic resources, safety, and maintenance.

The elements of a road that might be significant in terms of landscape architecture can vary tremendously. Some of these elements appear in the photographs at the end of this chapter and in the drawings in the appendices. These can include

- the overall layout of the road and the way in which it lays gently on the land with minimal resource impact
- the manner in which the topography dictates the design
- the use of cut-and-fill and flat-fill slope operations
- the manner in which the slopes are finished and rounded at the top and bottom;
- the shape and width of the road prism
- the gentle curvilinear shapes of the road and the ways in which turn-outs are incorporated
- the presentation of specific vistas and vista clearing
- the use over the course of the road of a variety of vistas that show

- the variety of natural features in the park landscape
- the integration of natural features into the road corridor; the use of tunnels to avoid deep scars to the landscape
- the design of bridges, culverts, tunnel portals, and other features in harmony with the surrounding natural landscape of the park and in harmony with the built environment of the park
- use of standard-plan guardrails and guardwalls
- entrance features such as historic gateways and signs that mark the boundary from the outside world
- rustic road furnishings such as benches and water stations designed in harmony with the park's natural and built environment
- vegetation and treatment of it along the road
- the effect of all of the above on the experience of driving the park road.

Because of the rough terrain encountered in many national parks, particularly those in the West, the construction of park roads included major advances in road engineering and the physical processes involved in building park roads. In reviewing this aspect of the potential significance of a road, the Historic American Engineering Record has prepared background documentation on roads of the major western national parks. The division is working on documenting eastern national park areas now.

INTEGRITY

After consideration of all of the above factors, the integrity of the significant features needs to be evaluated. Changes that have occurred over time and the effects those may have had on the original design intent need to be carefully assessed. For instance vistas that were an important feature of the park road in its early years may no longer exist because the vegetation had grown up. Mowing patterns along road edges may have altered the historic feel of the road. Widening the road and altering the slopes might have changed the manner in which the driver perceives the park and its resources. Instead of feeling an intimate connection with nature, the road may feel like just another two-lane road through a scenic area. Some road sections may retain high levels of integrity. Others may have none. In considering this category, however, evaluate the road as a whole, rather than just individual segments. Compare the original construction and design intent with extant features.

PRIORITIES

Not all features of a historic park road are of the same level of relative significance. One specific vista might be the most significant aspect of a road. The built environment along a road, such as the bridges and tunnels or even the curbing, may be more significant than the views from the road. In assessing all of the significant features of a road, they should be grouped in priority order, which will help management in decision making.

In these days of comparative fiscal austerity, most road projects will probably be limited to rehabilitation. Rehabilitation and adaptive use of historic roads go hand-in-hand. The roads are meant to be used. Problems arise when certain elements that contribute to the significance of a road are determined to be a safety hazard.

One feature that is causing some consternation in rehabilitation projects these days is the stone guardwall. Most historic guardrails and guardwalls were constructed to only 18 inches in height. That height was fine for allowing visitors good views of the park landscape from their vehicles. Speed limits were so slow that safety was not a pressing issue at the time the walls were constructed. In the interim some of the walls have lost any semblance of structural stability. Layer after layer of new pavement laid adjacent to the walls has sometimes raised the height of the pavement so much that the wall height is no longer 18".

To counteract that problem several approaches have appeared in national parks in recent years to meet safety concerns. At Shenandoah a new wall of a concrete core and stone veneer is now lining Skyline Drive. The stone veneer is of high quality and appropriate for the park setting. Unfortunately the height of the wall is such that the driver feels more as if he is driving along a parkway than a park. The height has removed the middle-ground vistas from the view in the average automobile, and the views were one of the most significant features of Skyline Drive.

HISTORIC PARK ROADS

At Glacier National Park the stone walls that are in repairable condition will be repaired, and sections that are too decrepit will be removed and replaced with simulated stone (toned concrete cast from forms made from walls extant in the park). The height of the historic stone wall will remain. The speed limit and the size of vehicles on the Going-to-the-Sun Road will be limited. Reaching those agreements took several years, but it preserved not only the road but the entire park experience of driving the road.

No easy design solutions exist for these problems, and as an agency all we can do is continue with these efforts to refine some solutions, and discard others in future efforts.

A FINAL WORD

In 1994, Secretary of the Interior Bruce Babbitt called for no new road construction in national parks. In his words, roads are "the enemies of national parks. They disrupt, divide and fragment animal habitat and the natural systems that are the very reason for the park. Our task is to invite visitors out of their cars and away from the roads." Instead of seeing park roads in that vein, perhaps these roads are just a job too well done. In our quest for nirvana, we have made that place a little too easily accessible, and by doing so we have invited so many that we are threatening to destroy that place of beauty and light.

Environmental historian Roderick Nash pointed out that the controversy between the natural and the utilitarian has been a historic one. In other words, objects like trees can be seen as lumber or scenery. Park roads also can be viewed from two different angles: as parts of transportation systems that provide access into and through national parks, and as integral parts of the entire park experience — and for far too many people the only park experience. The bottom line is how the nation decides to deal with them. [[163](#)]

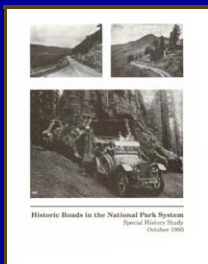
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The Park History Program, begun in 1931, preserves and protects our nation's cultural and natural resources by conducting research on national parks, national historic landmarks, park planning and special history studies, oral histories, and interpretive and management plans. Our staff helps evaluate proposed new parks, and we support cultural resources personnel in parks, regional offices, and Washington in all matters relating to the history and mission of the Park Service.

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- For the National Park Service [oral history](#) has long been an invaluable way to document the history of individual parks and the people and events the parks commemorate. Interviews also safeguard the collective memory and expertise of the people who have shaped the Park Service over the years.
- As the Deputy Federal Preservation Office for the National Park Service, we manage [park National Register documentation](#) and assist parks and regional offices with Register and National Historic Landmark preparation.
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- The National Park Service recognizes the value added to its conservation mission by a comprehensive understanding of the [agency's history](#). The origins and development of our parks and programs tell their own story about how Americans have identified, managed, and interpreted special places across the country.



*Historic grave markers on the Chilkoot Trail,
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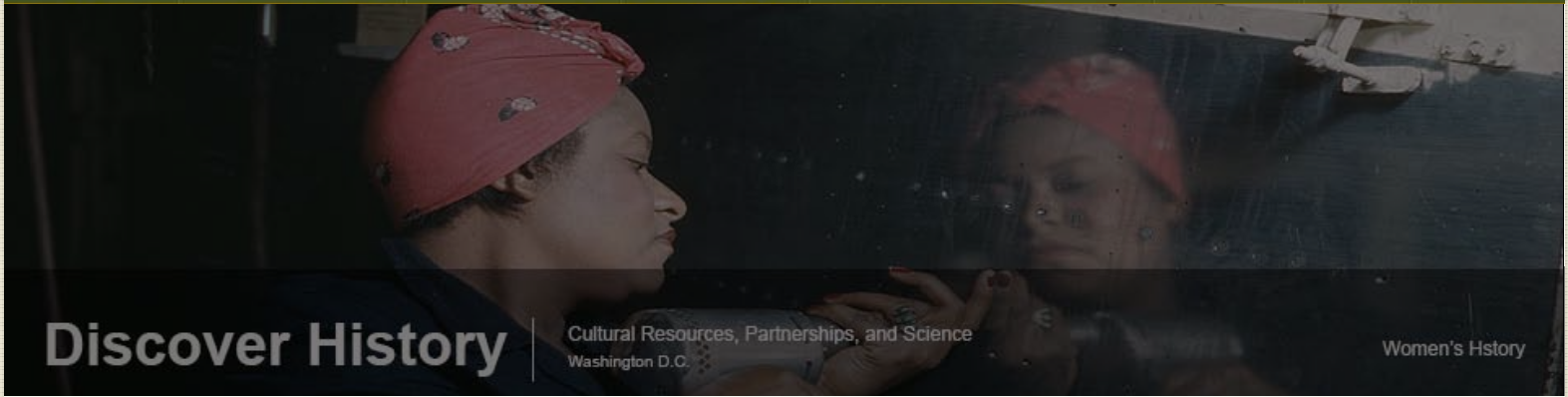
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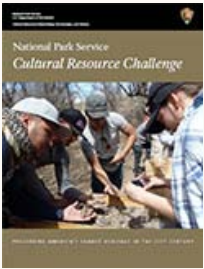
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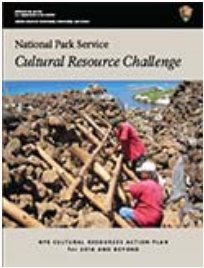
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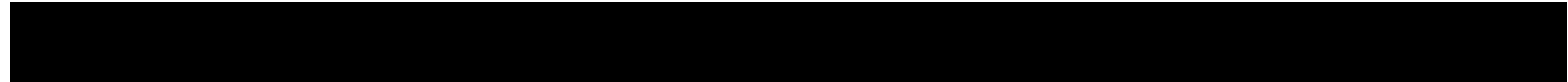
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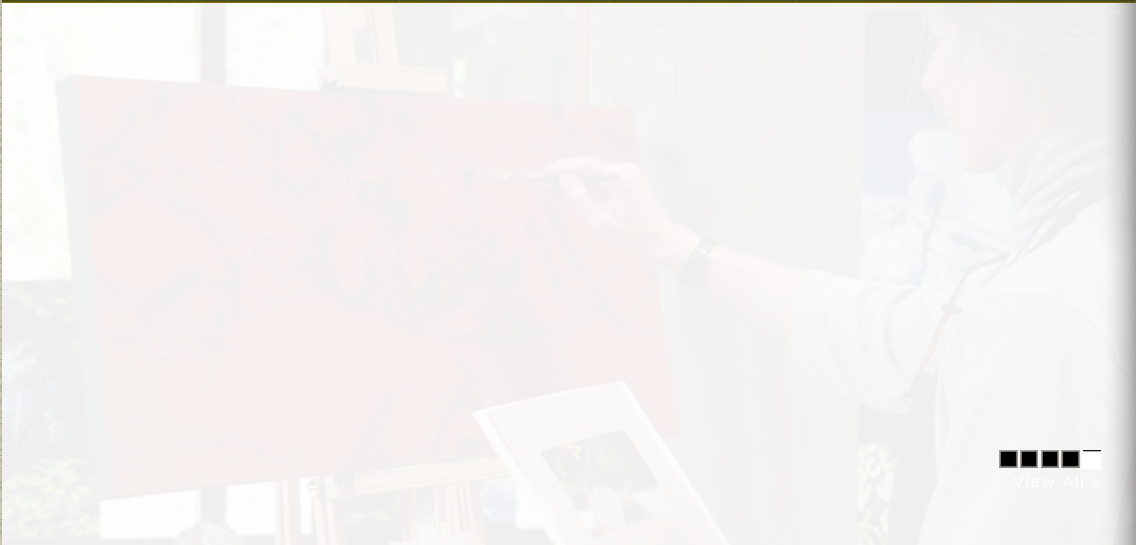
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