

Wondrous Rides Through Nature's Wonders

Series: FHWA Highway History Website Articles

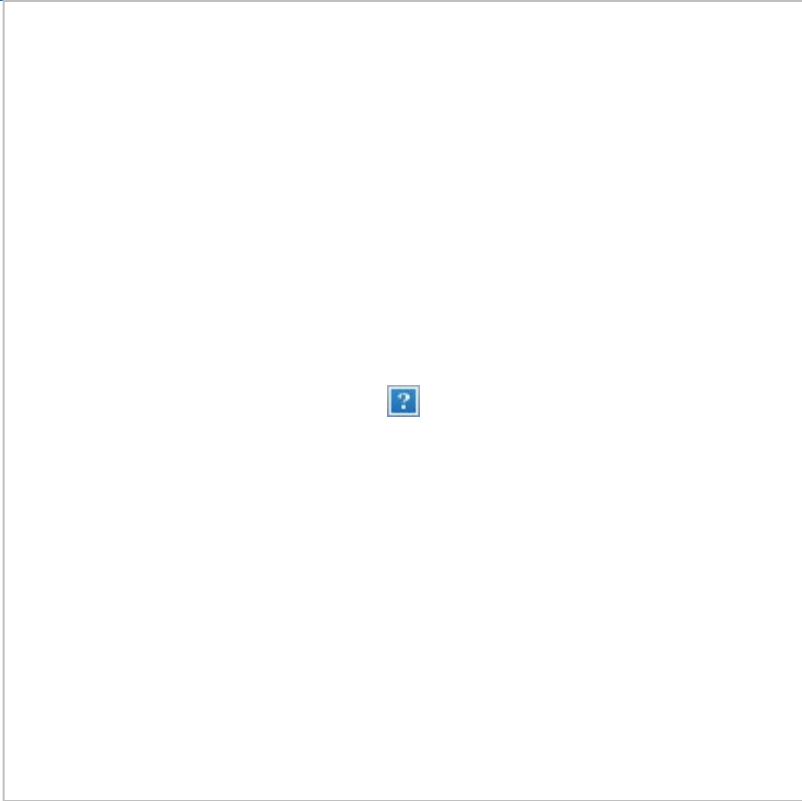
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by Richard F. Weingroff and Sherry Hayman

The partnership between the National Park Service, which turns 100 this year, and FHWA has created highway landmarks throughout the country.



The East Entrance Road in Yellowstone National Park enables visitors to access and enjoy the scenic beauty of the Nation's first national park.

2016

National Park Service
CENTENNIAL

On March 1, 1872, President Ulysses S. Grant signed legislation creating Yellowstone National Park as “a public park or pleasuring-ground for the benefit and enjoyment of the people.” Yellowstone was the world’s

first national park. With it was also born the need to travel to and within the designated lands.

Early in the 19th century, mountain men passed through the hard-to-reach Yellowstone region, which was surrounded by mountains, snowbound much of the year, and so far from civilization that only word-of-mouth reports gave a hint of its beauty. The mysteries began to fall away as a result of expeditions in 1869–1871, some backed by the Northern Pacific Railroad, always eager to expand its passenger business. In 1870, a Montana-based expedition named many of the future park's features, including the geyser known as Old Faithful.

An 1871 expedition headed by Ferdinand V. Hayden, chief of the U.S. Geological Survey of the Territories, included an artist and photographer, whose images helped Americans see the valley's wonders. With Hayden's support and strong promotion by Northern Pacific Railroad publicist Nathaniel P. Langford, who went on the 1870 expedition, the bill creating the national park attracted a number of advocates. To show the need, the bill's supporters pointed to Niagara Falls as an infamous example of what happens when entrepreneurs fill the vacuum of public indifference to majestic public lands. As National Geographic magazine put it recently, "private operators there had bought up the overlooks and blocked the views, turning that spectacle into a commercial peep show."

In 1872, *The New York Times* predicted that, in a few years, people from Europe--then the popular vacation spot for well-off Americans--would visit the park "to drink the waters, and gaze on picturesque splendors only to be seen in the heart of the American Continent."

By late August 1916, the country had 15 national parks. In addition, protected public land included national monuments administered by the U.S. Department of the Interior (historic landmarks, historic and prehistoric structures, and other objects of historic or scientific interest on land owned by the Federal Government), bird reserves administered by the U.S.

Department of Agriculture's Biological Survey to protect native wild birds, and land overseen by the U.S. Forest Service.

To Auto or Not

For several decades, people had only one travel option for visiting national parks: railroads. Within the parks, horses were the primary means of transporting visitors, either on horseback or in carriages and stagecoaches.

Early in the 20th century, motorists and automobile clubs put pressure on the national parks for vehicle access. As Timothy Davis, National Park Service (NPS) historian, put it in his 2016 book *National Park Roads: A Legacy in the American Landscape*, "The automobile was greeted with a mixture of enthusiasm and apprehension when it clanked and wheezed its way into national parks at the turn of the 20th century."

Park officials questioned the idea. As Major Harry Benson, superintendent of Yellowstone National Park, put it in a 1909 letter to the Secretary of the Interior, road conditions and the nature of the country would "render the use of automobiles not only inadvisable and dangerous, but to my mind it would be practically criminal to permit their use." Benson also feared that noisy automobiles would spook the thousands of horses working in the park.

The Interior Department gradually allowed automobiles into parks subject to detailed regulations. In general, the early regulations required the park superintendent's written permission to enter and permitted automobile use during limited hours to reduce conflicts with horses. Automobiles were required to pull over and stop to let horse-drawn vehicles pass. The speed limit was 6 miles per hour (9.6 kilometers per hour), but on straight stretches, motorists could accelerate to 15 miles per hour (24.1 kilometers per hour) if no teams were in sight.

Regulations aside, the condition of the roads was a restraint on automobile use. Secretary of the Interior Walter L. Fisher said in 1912 that "in the main, the

roads that are constructed are entirely unsuitable for automobiles, especially if they are to be combined in any way with horse travel.” The roads were “narrow, curves are all over the parks, and comparatively little progress has been made in the construction of roads that were originally made for a large, heavy, lumbering coach, drawn by two to six horses.”



Source: Scribner's Monthly, June 1871.

An account of the 1870 exploration of the Yellowstone Valley in Scribner's Monthly included this sketch of the Geyser Basin (now known as the Upper Geyser Basin), including what the expedition named Old Faithful.

After President Woodrow Wilson took office in March 1913, his Secretary of the Interior, Franklin K. Lane, was more open to automobile use in the parks. When Secretary Lane's assistant, a millionaire economist and professor named Adolph C. Miller, was diverted to work on plans for the Federal Reserve, President Wilson advised the Secretary to “find another millionaire with an itch for public service.”

That millionaire turned out to be an acquaintance of Lane's, Stephen T. Mather of Chicago, IL, a one-time journalist in New York City who had become a millionaire from the mining, manufacture, and sale of borax. Mather was a member of the Sierra Club and the American Automobile Association (AAA) as well as a conservationist who enjoyed touring the western parks and forests. When he wrote to criticize administration of the national parks, Secretary Lane replied, “Dear Steve, If you don't like the way the national parks are being run, come on down to

Washington and run them yourself.” Mather, 47 years old, took the oath of office as assistant to the Secretary, a post that paid the millionaire \$2,750 a year.

One of the many tasks Secretary Lane assigned to his new assistant was to study whether to let automobiles into Yellowstone. Mather established a committee that developed a road-use schedule to keep automobiles and horses separated to the extent possible.

Automobiles entered Yellowstone in August 1915. As for horses, an NPS history explained, “The stagecoach companies quickly adapted to the situation, chauffeuring visitors around the parks in gaily colored touring cars.”



J. E. Haynes, used by permission of the Montana Historical Society.

In the NPS annual report for fiscal year 1917, Director Stephen Mather described how “the entire concession system has been reorganized; large 10-passenger automobiles, especially adapted to the requirements of tourist travel have superseded the ancient stagecoaches” during the tourist season “without inconveniencing the public or interfering with its pleasure in any way.” He illustrated the change with this photograph, here converted to a postcard, showing the auto stages on Chittenden Bridge in Yellowstone.

Roads in National Parks And National Forests

National forests had an advantage over national parks. They had a source of revenue from timber harvesting, livestock grazing, and other commercial activities.

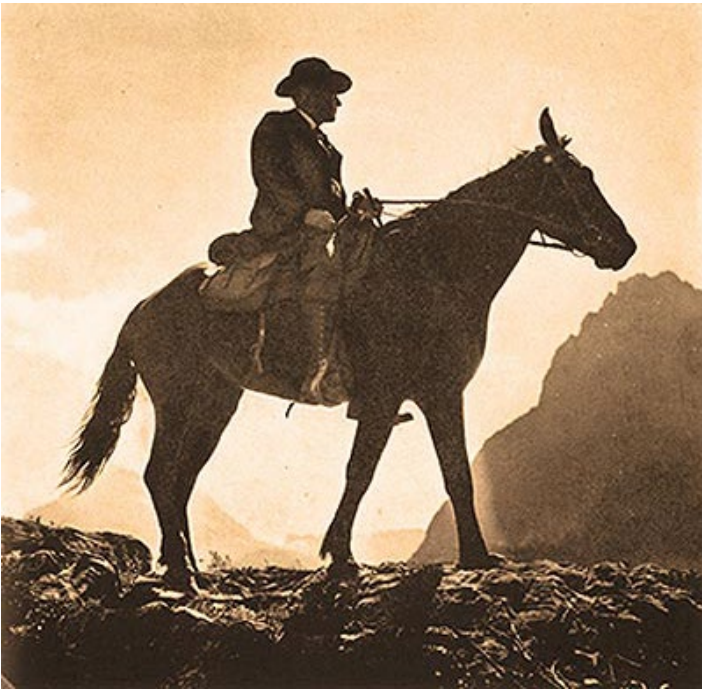
With the formation of the U.S. Forest Service (USFS) in 1905, the Department of Agriculture advised its new agency to work with the department's U.S. Office of Public Roads (OPR) to explore forest road needs. Initially, OPR's contribution was mainly advisory. However, in 1912, Congress began setting aside 10 percent of revenue from commercial activity in the national forests for the construction and maintenance of roads and trails within the forests. This provision, the first law providing a sustained source of revenue for roads in the public domain, generated \$210,925 in fiscal year 1912 and \$239,192 in 1913.

By contrast, the legislation authorizing national parks prohibited extraction of natural resources. The U.S. Army Corps of Engineers (USACE) performed most of the road construction in the parks, but the work was subject to funding from an often stingy Congress and the occasional philanthropy of private organizations and individuals. By the 1910s, the Interior Department began calling on OPR to help with road surveys.

On February 16, 1914, OPR Director Logan W. Page created the Division of National Park and Forest Roads, with T. Warren Allen as chief. Most work in the parks that first year involved surveys and plans, not construction. Allen placed an engineer in Yosemite and made plans for an engineer in Glacier National Park, survey parties in General Grant (now Kings Canyon) and Sequoia National Parks, and inspection of road conditions in Mount Rainier and Wind Cave National Parks.



National Park Service



National Park Service

NPS Director Mather, shown here in Glacier National Park, enjoyed traveling the parks on horseback.

Allen believed that the parks would not achieve their best use unless roads provided access to entrances

and to primary points of interest. In 1915, he told a national parks conference, "I, as a road builder, have dreamed of road development in the various parks." However, Allen understood the difficulty of construction where roads would have to provide access without interfering with the parks' natural wonders. For the roads, he emphasized, "No pains should be spared."

In 1916, Allen reported that, "very little work has been done in the national parks." He had inspected road conditions in Rocky Mountain. In addition, the division was surveying the Lake McDonald-East Shore Line Road, the Lake McDonald-West Shore Line Road, and the Fish Creek-McGee Meadow Road in Glacier. The division had completed plans for the El Portal Road in Yosemite.

The Push for a Bureau

President Theodore Roosevelt, an outdoorsman and conservationist, held a Conservation Conference of Governors in 1908. The conference focused mainly on national forests, but in one of the few references to the national parks, businessman J. Horace McFarland called them "one of America's greatest resources" and said they "ought to be absolutely inviolate."

McFarland, who ran a printing business in Pennsylvania, decided that the national parks should be run by a single government bureau, similar to the USFS. He devoted his civic improvement group, the American Civic Association, to the cause. (He called the association "a militant organization for the national good, free from red tape and ready to jump.")

At McFarland's urging, Interior Secretary Richard A. Ballinger included a call in his 1910 annual report for creation of a Bureau of National Parks and Resorts. The importance of the national parks, the Secretary wrote, "has passed beyond the stage of satisfactory control by operations carried on with the small force available in the Secretary's office."

On December 13, 1911, McFarland's association held

its annual conference in Washington, DC. President William Howard Taft's address to the association supported a bureau. The United States managed its "great many natural wonders" in a "lazy way." Because the lands are government property forever, the attitude was, "we will wait in our own good time to make them useful as parks to the people of the country." To illustrate, he said a visitor to Yellowstone might admire the ability of the engineers who designed "such roads as are there," then travel to Yosemite where he would find "the roads not quite so good."

Working the Parks: Recollections of the Early Days

In 1976, FHWA published *The Trailblazers*, containing employee recollections of early work in the national parks and national forests. The full collection is available at www.fhwa.dot.gov/infrastructure/blazertoc.cfm. The following are excerpts.

Bryce Canyon National Park: Karl S. Chamberlain

The field party [in 1923] was made up of a resident engineer and one other instrument man who were regular employees. The balance of the crew were temporary employees, most of whom were students. According to my recollection, expenses were paid to a limit of \$1.20 per day. The automotive equipment consisted of World War I surplus equipment. The resident engineer rated a car, and another was provided for the crew. Both were Model T Fords of the crank-up variety for starting. They used high-pressure tires, and it was an uncommon day's travel if there was not at least one flat tire--repaired and patched on the spot.

The quarters and field offices on the project consisted of tents without the benefit of floors or other unnecessary luxuries. The furnishings in the sleeping tents were rough lumber bunks without mattresses. Fresh-cut pine boughs served as a substitute. A water bucket on a rough lumber stand and a wash basin completed the furnishings. Meals were taken at the contractor's mess at a cost of \$1.00 per day. Food was plentiful, but the mess tent was unscreened. A large horse tent was located in the vicinity as nearly all motive power for the construction was horse-drawn.

Living conditions were rather primitive. A Saturday night bath could be taken in a round tub with only warm water heated on a small wood stove. On a Saturday night, a trip to town could provide a good bath at the barber shop for 25 cents. A cafe meal could also be bought for the very low price of 35 cents plus.

Crater Lake National Park: Norman Wood

During the summer season of 1931, someone decided that part of the Rim Road

around Crater Lake should be located inside the crater itself.... As was then customary on location surveys, the party chief (me) was out in front of the transit party "flagging the line." Along the base of the vertical cliff above me was a narrow game trail, and it was along this trail we proposed to run the "P" line. About the middle of the afternoon, of the first day out, I was setting an angle flag along this trail at a point in a small draw along which I could look downward some 800 feet [243 meters] and see the deep blue water of the lake. As I attempted to drive the lath, I apparently shifted my weight and my footing gave way. Down I went--with my axe and bundle of lath. While the lath and axe were never found, I managed during my slide down about a 1:1 slope to catch hold of a large rock imbedded in the slope and stop my slide before I reached the vertical drop below me. I "froze" and was unable to move for a time, after which I dug my boot toes into the pumice slope and transferred some of my weight away from my arms. . . . This is the closest I have yet come to going to the big survey camp in the sky--needless to say, I never again worked in such areas alone or without ropes. I cannot yet look over a high cliff without the same cold fear I experienced that day.

Mount Rainier National Park: Rene Wright

Animals were an occasional nuisance around camps [in the 1920s], especially the big, black bears in [Mount] Rainier National Park. One big fellow would come around the cook tent every day for scraps or whatever else he could find to eat--he knew exactly what time dinner was served. We tried to scare him off with boiling water, sharp sticks, pepper, and everything else, but to no avail. The Park Service finally trapped him in a big corrugated pipe trap and hauled him off to the other end of the park. In three days, however, he was back.

Cougars would follow you around to see what you were doing. They would follow you directly in your trail, criss-crossing to stay out of sight. They didn't pose a problem unless you wounded one. Most of the so-called "wild" animals weren't aggressive--they didn't seem to consider us enemies.

Landowners were another occasional problem, although most were extremely cooperative. A few would object if you went through the middle of a field. Survey parties were sometimes challenged with shotguns and a local sheriff would have to be called out to control the owner.

Yosemite National Park: Eric E. Erhart

In the spring of 1926, Tom Roach hired on in Yosemite Park as transit man for Harry Tolan. . . . Tom was later in charge of driving the Wawona tunnel in Yosemite. One of his favorite stories is telling how they had cut a window in the tunnel wall to outside air. This permitted the tunnel air to exhaust immediately after each successive blast permitting the crew to start working sooner. On one occasion Tom thought about standing in one of the windows when a shot was fired. On second thought he set a loaded wheelbarrow in the window. When the shot went off, the wheelbarrow was blown into oblivion in the next canyon.



Source: National Park Service.

In the 1910s, most people traveled to the national parks by railroad. This 1916 map depicts the national parks and the railroads providing access to them.

President Taft acknowledged that the idea of a new agency might raise the “gooseflesh” of budget officials and some members of Congress, but if the country was going to have national parks, “we ought to make them available to the people, and we ought to build the roads, expensive as they may be, in order that those parks may become what they are intended to be when Congress creates them.” A bureau might increase costs, “but it is essential that we should use what the Lord has given us in this way, and make it available for all the people.” It would not “exhaust the Treasury” and was “a necessary expense. Let us have the bureau.”

Interior Secretary Fisher followed the President’s address at the conference by discussing the absence of consistent legislative authority over the parks. At that time, some parks had statutory authority to use the revenues generated in the park for improvements. Others did not. The funding Congress authorized varied for each park based on “political pressure.” The result was “that we have no consistent theory of park administration.” A Bureau of National Parks would “vastly improve their condition and their advantage to the public.” (The phrase “and Resorts” was dropped from the name because it implied an appeal to the wealthy.)

On February 2, 1912, President Taft submitted a special message to Congress about the Interior Department. The message covered many topics, including establishing a Bureau of National Parks. He said: "I earnestly recommend the establishment of a Bureau of National Parks. Such legislation is essential to the proper management of those wondrous manifestations of nature, so startling and so beautiful that everyone recognizes the obligations of the Government to preserve them for the edification and recreation of the people."

Only at Yellowstone had the country "made anything like adequate preparation for the use of a park by the public." He concluded: "Every consideration of patriotism and the love of nature and of beauty and of art requires us to expend money enough to bring all these natural wonders within easy reach of our people. The first step in that direction is the establishment of a responsible bureau, which shall take upon itself the burden of supervising the parks and of making recommendations as to the best method of improving their accessibility and usefulness."

Although legislators had introduced bills to create a bureau as early as December 1911, President Taft's support gave the idea renewed energy.

Representative John E. Raker, a member of the Committee on the Public Lands whose California district included Yosemite, introduced a bill to create the National Park Service. Senator Reed Smoot of Utah, chairman of the Senate Committee on Public Lands, introduced a bill to create a Bureau of National Parks. However, neither bill made it out of committee.

Conditions Shift

In 1912, the Republican, President Taft, lost his reelection bid to the Democrat, New Jersey Governor Woodrow Wilson, who came in first, and to former President Roosevelt, who came in second running on a third-party Progressive (Bull Moose) ticket.

Senator Smoot and Representative Raker again introduced legislation in April 1913. Both bills called for

a National Park Service with a director who would have “the supervision, management, and control” of the national parks and other national monuments and reservations. The bills were still in committee when the 63rd Congress ended on March 3, 1915.

By the time the 64th Congress convened on December 6, 1915, the situation had changed.

The Panama-Pacific International Exposition in San Francisco, CA, and the Panama-California Exposition in San Diego, CA, that opened in 1915 attracted millions of visitors. The expectation that many of these visitors would travel by automobile was one of the reasons vehicles were allowed into Yellowstone. Many travelers stopped off at one or more national parks before or after they reached the expositions. Members of Congress also visited the parks, heard from constituents who had visited them, or read newspaper and magazine accounts of the parks’ wonders.

Most travelers used railroads for interstate travel, but long-distance automobile touring was growing. The automobile, formerly accessible only to the wealthy, became popularly available once Henry Ford introduced the low-priced Model T in 1908. After that, private groups identified interstate roads, gave them colorful names, and aggressively promoted their improvement and use. In 1915, the named roads with termini on or near the west coast promoted their routes as the best access to the expositions. Some trail associations used the national parks in their names, such as the National Parks Highway (the route from Chicago, IL, to Crater Lake National Park passed Yellowstone, Glacier, and Mount Rainier), the Yellowstone-Glacier Bee Line Highway, and the Yellowstone Trail (which had the motto “A Good Road from Plymouth Rock to Puget Sound” and linked Yellowstone, Glacier, and Mount Rainier). There was also the Yellowstone-Yosemite Highway, and the National Park-to-Park Highway, a 6,000-mile (9,656-kilometer) loop linking the western parks, with the motto You Sing “America”--Why Not See It?

Further, the outbreak of World War I in Europe in

August 1914 cut off the European tours that had been common among those who could afford them. As a result, the See America First movement that had begun in the early 20th century gained strength. As historian Marguerite S. Shaffer explained in her 2001 book about the movement, “The Panama-Pacific International Exposition succeeded in some ways where earlier campaigns had failed because of widespread corporate support combined with the rise of reactionary patriotism sparked by the European war.”

During the American Civic Association’s annual conference in December 1915, speakers promoted the national parks under the See America First theme. Gilbert H. Grosvenor, director of the National Geographic Society, told the conference, “Americans should go to see their own parks. They are better than anything in Switzerland.” Europe had better accommodations, but if Americans would instead spend their tourist millions “in America for a while there would be equal accommodations here to go with the far superior and less spoiled scenery.”



In 1915, Stephen Mather encouraged supporters who wanted to develop a highway loop, dubbed the **National Park-to-Park Highway**, linking the national parks in the western part of the country.

At the same time, with encouragement from Mather, the railroad companies were heavily promoting the great parks. The Atchison, Topeka & Santa Fe Railway and Union Pacific Railroad invested about \$500,000 to provide exhibits on the national parks at the 1915 expositions. In 1916, the railroad companies issued 2 million copies of promotional literature on the parks to encourage ticket sales.

Also in 1916, 17 companies pooled \$43,000 and Mather personally contributed \$5,000 for the first edition of *National Parks Portfolio*, a deluxe collection of park photographs designed to appeal to the wealthy and influential travelers looking for an alternative to war-torn Europe. (NPS published later editions, but instead of giving them away as with the first edition, charged \$1. Even so, it became one of the agency's all-time bestsellers.)

National Park Service

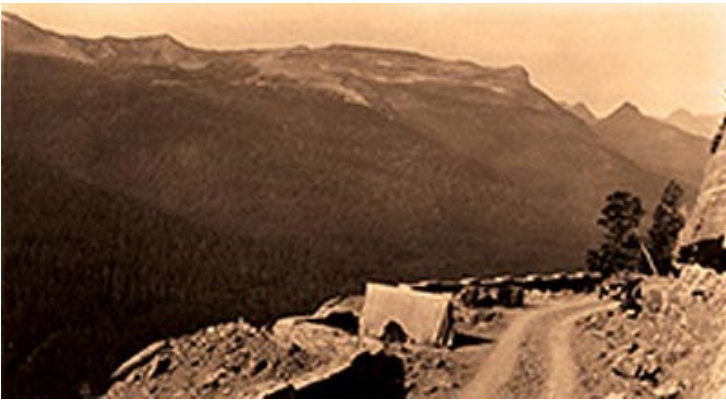
With these forces at play, Mather decided the time for action had come. He joined with McFarland, Grosvenor, Representative Raker, Frederick Law Olmsted, Jr., Representative William Kent, and others to lay out the strategy. For one thing, they agreed that Representative Raker would take a back seat. He was in a feud with House Minority Leader James R. Mann that could undermine the bill. Instead, Representative Kent, a conservationist who represented a district in Marin County, CA, would take the lead in the House. He introduced his bill in January 1916.

By the time the bill reached the House floor, prospects for passage in a presidential election year were uncertain, but as it turned out, concerns were about details, not the general idea. Representative Irvine L. Lenroot, a self-appointed treasury watchdog from Wisconsin who had often fought against spending on the parks, forced a change in the bill to limit the number of employees in the service. He also proposed a successful amendment to reduce the director's annual salary from \$5,000 to \$4,500. Other concerns involved grazing rights, control of monuments, and why the NPS director needed an assistant at a salary of \$2,500. Nevertheless, after a brief debate, the House passed the Kent bill without a recorded vote.

Senator Smoot had introduced the NPS bill in the Senate, where it came up for a vote on August 5. Senator Jacob H. Gallinger of New Hampshire was the only critic. He was concerned that the new service would turn into "another great bureau . . . as large a bureau as the Forestry Service." Although serving a gadfly function during the debate, he said he would honor Senate courtesy that dictated that Senators from the East would not interfere in western affairs. The bill passed the Senate, again without a recorded vote.



In Glacier National Park, engineers and crews building the Transmountain Highway (renamed the Going-to-the-Sun Road) confronted rugged conditions. This photograph from October 1925 shows two crew members standing on rocky terrain.



Stone masons working on the Transmountain Highway in Glacier National Park lived in tents like this one while building the retaining wall.

After a House-Senate conference resolved differences between the bills, the Senate approved the bill on August 15 and the House did so August 22, without debate in both cases.

With Mather due to return from a long trip through western park country on August 28, his assistant, Horace M. Albright, wanted a telegram waiting for him with the news that the bill was law. The problem was that President Wilson was not planning to sign that bill and others before Mather's return. By chance hearing that the President might make an exception, Albright persuaded a legislative clerk at the White House to send in the park bill. Rushing out of the room, Albright

added, "Oh, and save the pen he signs it with for me, will you?" President Wilson signed the bill that evening without ceremony or a photograph. Albright dispatched the telegram to Mather and received the pen for the new agency.



In 1926, Chief Thomas H. MacDonald of the U.S. Bureau of Public Roads, shown here, joined NPS Director Mather in signing a memorandum of agreement "Relating to the Survey, Construction, and Improvement of Roads and Trails in the National Parks and National Monuments." The agreement, updated over the years, has been providing access to America's treasures ever since.

The National Park Service Organic Act created the NPS under charge of a director who would have an assistant, a chief clerk, a draftsman, a messenger, and "such other employees as the Secretary of the Interior shall deem necessary," as long as the total salaries did not exceed \$8,100.

The law described the new agency's mission in words that Olmstead had written for the Kent bill: "The service thus established shall promote and regulate the use of the Federal areas known as national parks, monuments, and reservations hereinafter specified by such means and measures as conform to the fundamental purpose of the said parks, monuments, and reservations, which purpose is to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations."

The legislation left unanswered how to provide for enjoyment of the parks without impairing the natural environment for future generations.

The Secretary was authorized to cut timber "to control the attacks of insects or diseases or otherwise conserve the scenery or the natural or historic objects in any such park, monument, or reservation." He may "grant privileges, leases, and permits" for accommodation of visitors, but "no natural curiosities, wonders, or objects of interest shall be leased, rented, or granted . . . to interfere with free access to them by the public." The Secretary also was to issue regulations covering grazing of livestock.



American Association of State Highway and Transportation Officials.

About 2,000 people attended the dedication ceremony for the \$1.9 million, 25-mile (40-kilometer) Zion-Mt.

Carmel Highway in Zion National Park in Utah on July 4, 1930. The ceremony took place in this gallery of the 1.1-mile (1.8-kilometer)- long tunnel that is a unique feature of the highway. Guests included the Governors, NPS Director Horace M. Albright, and Chief Thomas H. MacDonald of the Bureau of Public Roads. During the ceremony, Utah Governor George H. Dern said, “Perhaps the most remarkable part of the work is the engineering, and I take off my hat to the men who conceived this almost impossible project and carried it through to a successful conclusion.”

Interior Department officials established the National Park Service immediately after legislation was enacted on April 17, 1917, making funds available for that purpose. Mather, having secured the agency he had come to Washington to create, was about to wind up his public service. Instead, on May 16, 1917, he became NPS director, a post he would hold until he suffered a paralyzing stroke that led to his retirement on January 8, 1929.

By 1917, the need for the USACE in the national parks had diminished. As Robert Shankland’s biography of Mather put it, “There were no more insurrections to put down.” Further, the Secretary of War objected to the continued use of military funds for park work. The Interior Department began replacing the soldiers with rangers, a change that was completed when the last Army engineer left Crater Lake in 1919.



AASHTO.

NPS describes the Zion-Mt. Carmel Highway as a

“road designed to go where no road had gone before.” This historic photograph shows the view looking east from Gallery #2.

Making the Parks Available

The problem, Mather said in a 1915 interview, “consists chiefly in making these national playgrounds available and useful to the people. Means of getting to them and living in them economically when one gets there must be systematized better than they have been.”

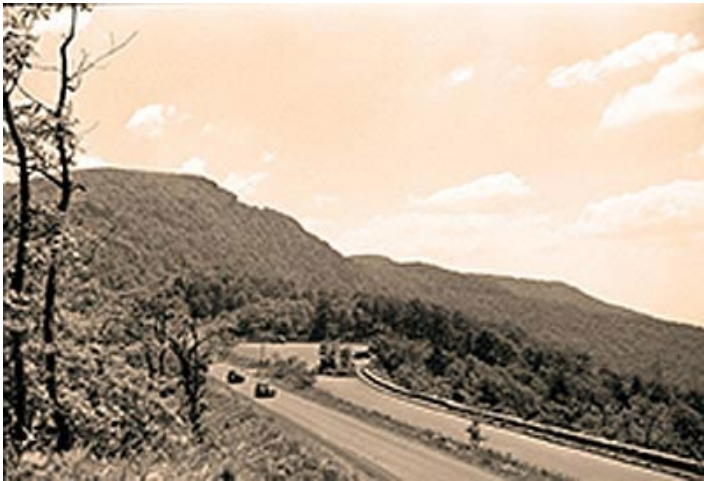
Railroad companies had promoted travel to the parks aggressively for years, but Mather was well aware of the growing importance of the automobile to the national parks and other NPS facilities. The question was what type of roads would best serve the parks-- and how to pay for them.

The 1916 Organic Act had not included a funding mechanism, leaving the NPS subject to the annual will of Congress. As of 1924, Congress had appropriated a total of \$3.5 million for park roads over the half-century of national parks, or an average of less than \$70,000 a year. By then, the parks had 1,060 miles (1,706 kilometers) of roads, most of which were better suited to horses than automobiles.

Mather, in 1917, borrowed George E. Goodwin from the USACE and made him chief engineer, a post he held until 1925. Goodwin was a skilled road builder, but his work was criticized because, while working within NPS budget realities, he often defied the NPS policy of reducing the visibility of roads.

During this period, the NPS neglected its brief partnership with the Bureau of Public Roads (BPR), as OPR would be called beginning in 1918. Moreover, the Federal-Aid Road Act of 1916, which created the Federal-Aid Highway Program, also had authorized \$1 million per year for 10 years for forest roads, trails, and bridges. As work with the NPS declined, BPR eliminated its parks and forests division and focused on the expanded forest work.

The Transmountain Highway in Glacier brought the two agencies together again. Goodwin had completed an early design for it in 1918 and had begun construction. By 1924, Mather decided the plan included too many switchbacks (a zig-zag pattern to ascend a steep grade) approaching Logan Pass. Mather turned to BPR Chief Thomas H. MacDonald for help in conducting a survey of the link. MacDonald was pleased to show what his agency could do.



Skyline Drive, shown here, spans the full length of Shenandoah National Park along the crest of the Appalachian Mountains. The roadway offers physical and scenic access, providing views over the western valley and eastern plateau some 2,500 to 3,500 feet (762 to 1,067 meters) below.



The Bureau of Public Roads, separate from the NPS, completed the Mount Vernon Memorial Highway in Virginia, shown in this 1932 photograph, to parkway standards in 1932. The highway was later incorporated into the George Washington Memorial

Parkway, which NPS and BPR collaborated on under their interagency agreement.

BPR's Frank Kittredge directed the survey that mapped 21 miles (34 kilometers) over the Continental Divide, as his team raced to complete the work before winter closed in. An NPS historical account states: "Kittredge and his team of 32 men often climbed 3,000 feet [914 meters] each morning to get to survey sites. The crew walked along narrow ledges and hung over cliffs by ropes to take many of the measurements. The work was too challenging for some, and Kittredge's crew suffered from a 300-percent labor turnover in the 3 months of the survey."

The two agencies collaborated on the survey and design, with the NPS having final say and approving construction. Contractors, under BPR supervision, completed the construction, which spanned 2 decades and cost more than \$2 million. During the dedication ceremony on July 15, 1933, the Transmountain Highway received a new name: the Going-to-the-Sun Road.



Excavation work on the Blue Ridge Parkway, shown here, included a crew drilling holes for explosives used to break up rock, while a diesel-powered shovel loaded earth into dump trucks.

On April 9, 1924, President Calvin Coolidge signed legislation authorizing \$7.5 million for the NPS to use over 3 years "to construct, reconstruct, and improve roads and trails, inclusive of necessary bridges, in the

national parks and monuments.” With one stroke of the President’s pen, the NPS had twice as much funding for park roads as had been appropriated in the entire history of the national parks. And in 1928, Congress appropriated another \$2.5 million.

Impressed by BPR’s collaboration on the Transmountain Highway, Mather decided to use BPR as the park road-building unit, thereby sidelining the NPS engineering division. He and MacDonald approved a formal agreement, completed February 10, 1926, related to the survey, design, construction, and improvement of roads and trails. The NPS would initiate projects, but BPR would conduct surveys in cooperation with NPS landscape engineers, who issued stringent guidelines for landscape preservation and retained ultimate authority over all decisions. Based on the surveys, the NPS would undertake minor projects, but for major projects, BPR would cooperate with the landscape engineers to design the project and administer the resulting contracts. The agencies agreed to “use every effort” to harmonize construction standards on parks and monuments with the standards adopted for the Federal-Aid Highway Program.

This agreement, updated over the years, still governs the interagency collaboration of the two agencies.

Expanding the Partnership

In addition to rebuilding Yellowstone’s road network to automobile standards, the NPS-BPR partnership resulted in several early park road gems such as:

- Zion-Mount Carmel Highway in Zion National Park in Utah
- Desert View Drive approach road to the Grand Canyon in Arizona
- Rim Drive in Crater Lake National Park in Oregon
- The 4,200-foot (1,280-meter) Wawona Tunnel and Big Oak Flat Road in Yosemite in California
- Trail Ridge Road in Rocky Mountain in Colorado
- Tioga Pass Road approach to Yosemite

After Congress designated national parks in the East, one of BPR's eastern projects was Skyline Drive in Shenandoah National Park, designated in 1935 along the Blue Ridge Mountains in Virginia. Work began in 1931 as a source of employment early in the Depression. Completed in 1939, Skyline Drive was the only road in the park.

In 1928, Congress authorized funds for BPR to build a highway in Virginia between George Washington's Mount Vernon home and Arlington Memorial Bridge, which was planned to connect the Lincoln Memorial in the District of Columbia with Arlington National Cemetery in Virginia. The goal was to complete the highway as part of the celebration of the bicentennial of Washington's birth in 1732.

On January 16, 1932, President Herbert Hoover participated in ceremonies marking completion of the bridge and the BPR's Mount Vernon Memorial Highway. The highway combined freeway design features with a park setting to create what was essentially a long, narrow park.



The Blue Ridge Parkway provides beautiful vistas, as in this section near Grandfather Mountain in North Carolina.

As BPR worked on the parkway, Congress passed legislation extending it along the Potomac River to Great Falls in Virginia and creating a parallel parkway in Maryland, both to be known as the George Washington Memorial Parkway (the portion in Maryland is now called the Clara Barton Parkway).

The success of Skyline Drive led to consideration of a link between Shenandoah and Great Smoky Mountains National Park (established in 1934). The result was the 469-mile (755-kilometer)-long Blue Ridge Parkway following the crest of the Appalachian Mountains. The award winning Linn Cove Viaduct around Grandfather Mountain in North Carolina, completed in 1987, was the final section to open.

Other projects included the Natchez Trace Parkway in Alabama, Mississippi, and Tennessee; the Colonial Parkway (completed in 1957) in Virginia; and the Baltimore-Washington Parkway (completed in 1954) in Maryland. (For more information on the Natchez Trace Parkway, see “The Road Is a Park, and the Park Is a Road,” on page 28 in this issue of Public Roads.)

The Partnership Continues

At the time of the NPS Organic Act of 1916, the NPS administered 15 national parks that received a total of 356,097 visits. Today, the NPS administers 412 areas, including 59 national parks, plus monuments, battlefields, military parks, historical parks, historic sites, lakeshores, recreation areas, scenic rivers and trails, and the White House. These national assets are located in every State, the District of Columbia, American Samoa, Guam, Puerto Rico, and the Virgin Islands.

In 2015, NPS sites received more than 307 million recreation visits, including 75 million visits to national parks.



In 2007, FHWA and the NPS began a multiyear rehabilitation of the Going-to-the-Sun Road. As shown here, the project included placing stone masonry veneer along a concrete retaining wall to simulate the original masonry construction. The simulated material matches the historic character of the rock wall while adding the stability needed to meet today’s safety standards.

NPS facilities of all types cover 5,500 miles (8,851 kilometers) of paved roads, including 1,100 miles (1,770 kilometers) of parkways; 7,000 miles (11,265 kilometers) of unpaved roads; and 17,872 miles (28,762 kilometers) of bicycle and pedestrian trails, of which 5,012 miles (8,066 kilometers) are front country paved trails. The NPS estimates vehicle miles traveled in the national parks to be in excess of 2.4 billion (3.9 billion kilometers).

Today, Stephen Mather and Thomas H. MacDonald are legendary figures in their fields, although little known to the public. However, the partnership they forged in 1926 remains strong today, as FHWA’s Office of Federal Lands Highway and the NPS work together to keep the national parks’ transportation facilities robust.

As the NPS celebrates its centennial, FHWA is proud of its enduring partnership to expand access to the country’s “wondrous manifestations of nature.”

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For more information, see the NPS History eLibrary at <http://npshistory.com> and *Historic Roads in the National Park System* by Laura E. Soullière at www.nps.gov/parkhistory/online_books/roads/index.htm.

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