

The Great Smoky Mountains National Park Roads and Bridges were documented in 1996 by the Historic American Engineering Record (HAER), a division of the National Park Service, U.S. Department of the Interior. The project was cosponsored by the NPS Park Roads and Parkways Program and the Federal Lands Highway Program. Measured drawings, large-format photographs, and written histories are available to the public through the HABSHAER collection at the Library of Congress.

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Illustration credits: historic photographs courtesy of Great Smoky Mountains National Park (GRSM); HAER photographs by David Haas; HAER drawings by Dorota Sikora, Karen Young, Edward Luppak and Matthew Regnier.



Above: Bear Jam in the Great Smokies. ca.1950 (GRSM)

WILDERNESS HALTS PARK ROAD CONSTRUCTION

While the National Park Service was making Newfound Gap Road more scenic, others advocating the preservation of wild areas also began influencing the motor road system of GRSM. The notion that wilderness was worth preserving emerged in the United States during the 1920s, largely due to the efforts of Aldo Leopold. As an employee of the U.S. Forest Service, Leopold worked tirelessly to convince both his superiors and the nation at large that wilderness was essential to American culture and thus should be protected from development.

Leopold's wilderness philosophy soon found advocates within the federal government and society at large. Robert Marshall, Director of the Forestry Division of the U.S. Office of Indian Affairs, and Benton McKaye, a regional planner for the Tennessee Valley Authority (TVA) and the originator of the Appalachian Trail concept, both promoted the preservation of undeveloped areas during the early 1930s. Such ideas also spread to the Smokies during this period, just as the Park Service proposed additional road construction projects in GRSM.

The Asheville, North Carolina Chamber of Commerce promoted construction of a "Skyway" along the crest of the Smokies in 1932. The proposed road would run along the ridge of the mountains much like Shenandoah's Skyline Drive. In July of that year GRSM officials announced that the Park would go ahead with this project, and in November and December the Bureau of Public Roads inspected the proposed route.

In response to such actions, in 1934 a local lawyer named Harvey Broome invited Marshall and McKaye to Knoxville, Tennessee to organize opposition to the construction of several proposed highways along the Appalachian divide, including the Skyway. At the meeting the three men agreed to mail an "Invitation to Help Organize a Group to Preserve the American Wilderness" to those known to be concerned. This mailing resulted in the founding one year later of the Wilderness Society, one of the nation's leading environmental organizations, and it also led to the defeat of the proposed Skyway along the crest of the Smokies.



Above: Protest sign erected at the beginning of uncompleted Northshore Road. 1996 (HAER)
Right: Rock slides continue to plague Foothills Parkway and other roads, illustrating the fragile environmental conditions of the area. (GRSM)

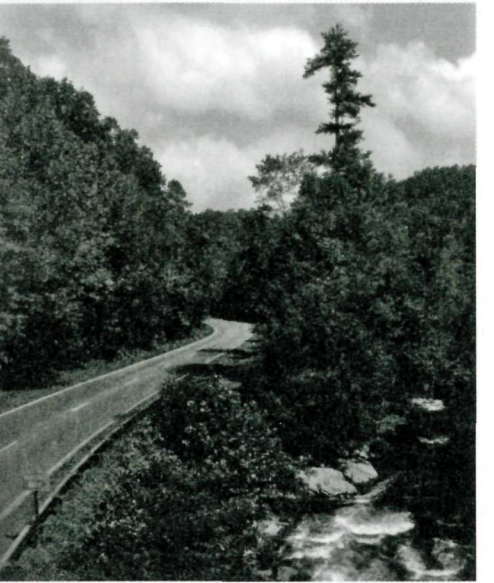
NATIONAL PARK SERVICE AS MEDIATOR

The debate between road proponents and wilderness advocates continued to influence road building in GRSM during the post World War II era. This is most evident in the controversy over the proposed Northshore Road that was to run along Fontana Lake from Bryson City to Fontana Dam. According to a 1943 agreement, the National Park Service agreed to construct a new road within park boundaries along the north shore of Fontana Lake in order to replace North Carolina Highway 288, portions of which were flooded when the TVA constructed the dam near Fontana during World War II. In October of 1947 the Park Service began building a short section of this motorway.

When Congress passed the Wilderness Act in 1964, the completion of the Northshore Road was thrown into doubt. According to this law, the federal government could protect public land from all future development, including road construction, by designating such land "wilderness" and adding it to the National Wilderness Preservation System. Wilderness designation could thus kill the Northshore Road project.

In 1965 GRSM became the nation's first testing ground for the Wilderness Act. In that year the federal government held public hearings in Gatlinburg, Tennessee to assess public opinion concerning wilderness designation in GRSM. Two factions dominated the local hearings. On the one hand were hikers, conservationists and outdoor enthusiasts represented by the Smoky Mountains Hiking Club. This group proposed the designation of two large wilderness areas covering approximately three-fourths of the national park. The other contingent hailed from the North Carolina side of the Smokies and opposed any wilderness designation for fear that it would end once and for all construction of the Northshore Road.

In an effort to appease both wilderness advocates and road proponents, GRSM Superintendent George Fry proposed six smaller wilderness areas rather than the two larger ones promoted by the Smoky Mountains Hiking Club. Most importantly, Fry situated these six tracts so as to leave a swath of undesignated land running up and over the crest of the Smokies to allow construction of a 32-mile motor road connecting Townsend, Tennessee with Bryson City, North Carolina. This "Transmountain Highway," Fry believed, would not only relieve congestion along Newfound Gap Road but would also appeal to North Carolinians by serving as a substitute for the troubled Northshore Road project. Although this attempt at compromise between wilderness advocates and road proponents never got off the drawing board, the mediating influence of the Park Service continued to guide the development of GRSM motor roads right down to the present. Similar controversies between the environment and park access continue to delay the completion of Foothills Parkway, begun in 1951, to relieve park traffic.



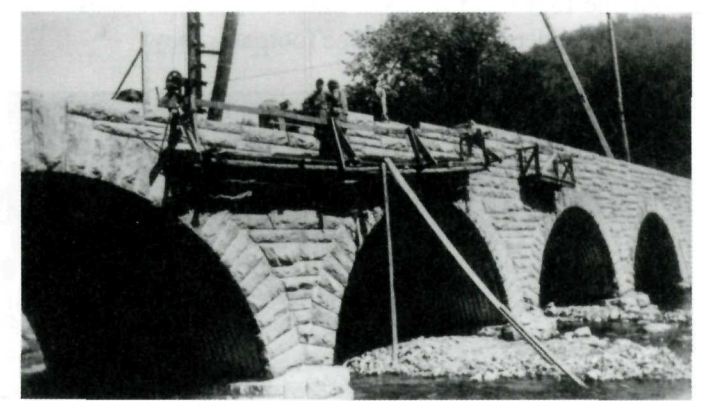
Above: The Gatlinburg Spur of Foothills Parkway runs along the Little Pigeon River. 1996 (HAER)

DESIGN AND CONSTRUCTION OF GREAT SMOKY MOUNTAINS ROADS & BRIDGES

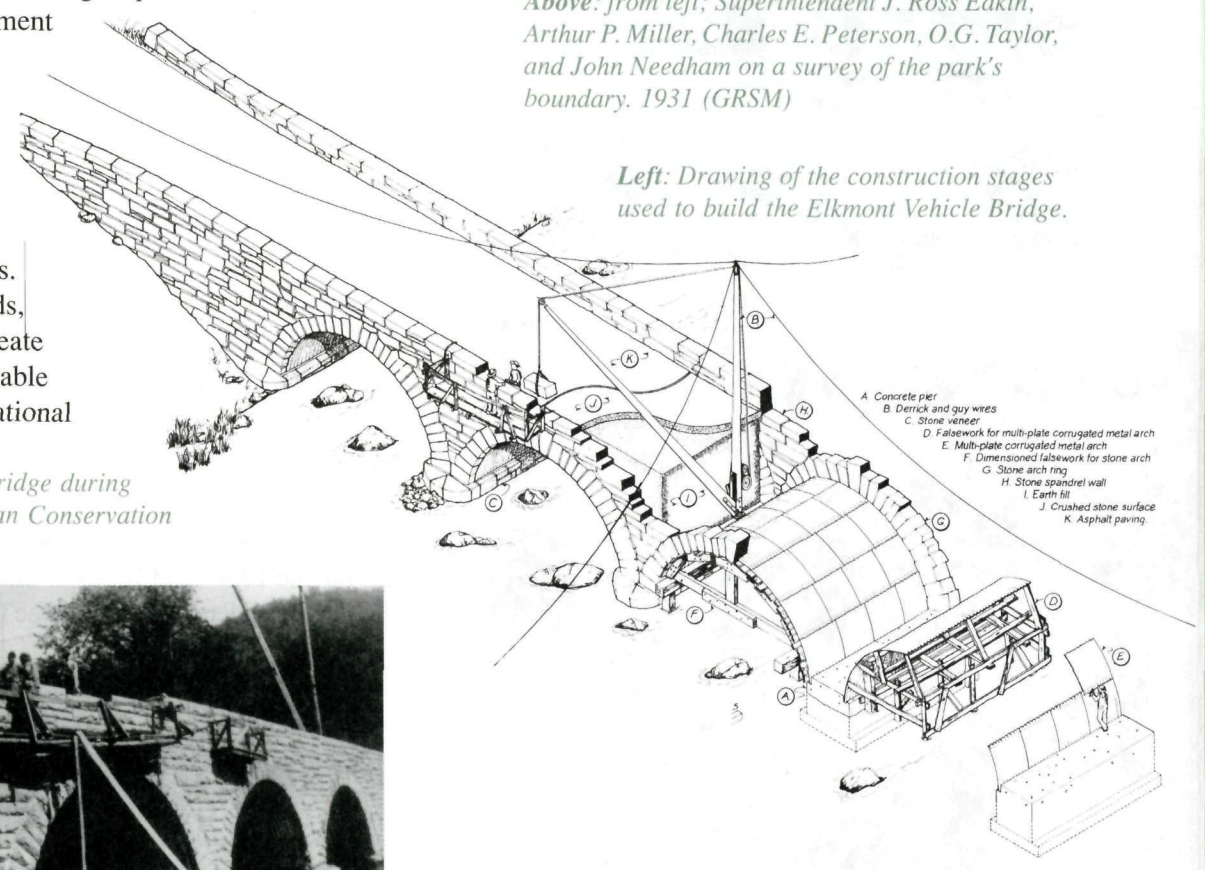
Thousand of years of geological change and erosion have shaped the Great Smoky Mountains, which are characterized by high mountain peaks, steep hillsides, deep river valleys, and fertile coves. This difficult terrain and underlying bedrock presented numerous challenges for the designer of the roads in Great Smoky Mountains National Park. J. Ross Eakin, the park's first Superintendent, once wrote, "to secure good [road] alignment along our mountain sides will require tremendous cuts and fills, "thereby creating " a terrible scar" on the roadsides.

Attempting to avoid as much scarring as possible, designers like Charles E. Peterson employed the use of tunnels, bridges, and retaining and revetment walls. Tunnels cut through ridges, bridges spanned the numerous streams and rivers, revetment and retaining walls were constructed to hold back fill and prevent stream erosion and the revegetation of roadsides controlled erosion and reduced visible road scars. Using all of these methods, designers were able to create some of the most pleasurable and scenic roads in the national park system.

Below: Elkmont Vehicle bridge during construction by the Civilian Conservation Corps, ca.1934 (GRSM)



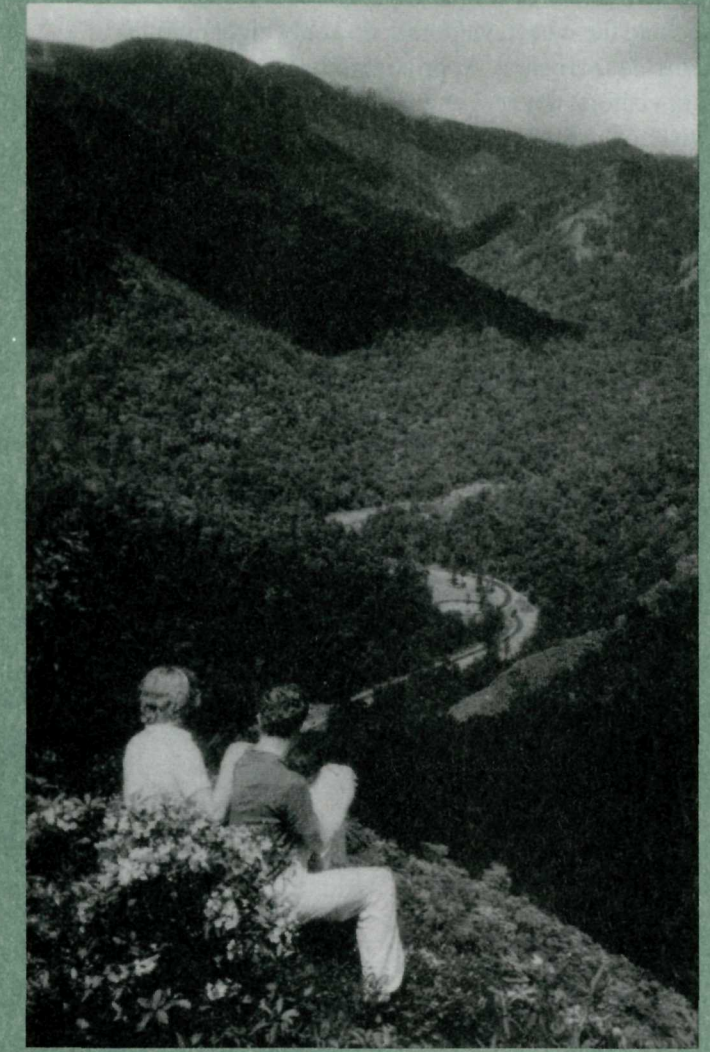
Above: from left; Superintendent J. Ross Eakin, Arthur P. Miller, Charles E. Peterson, O.G. Taylor, and John Needham on a survey of the park's boundary. 1931 (GRSM)



Left: Drawing of the construction stages used to build the Elkmont Vehicle Bridge.

Highways in Harmony

Great Smoky Mountains National Park North Carolina, Tennessee

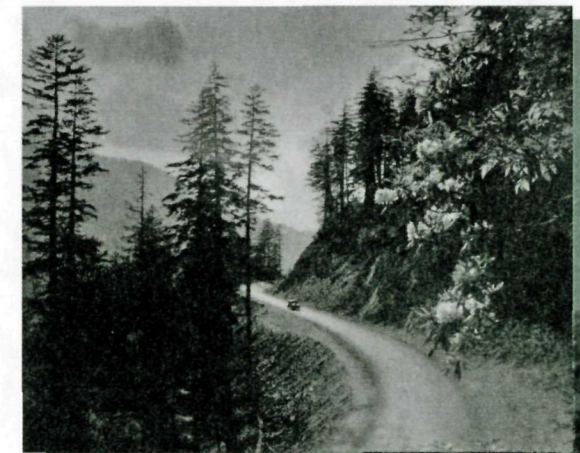


Loop Over on Newfound Gap Road from Chimney Tops. 1937 (GRSM Monthly Report)

Timeline continued . . .	
1938	Work began on the Laurel Creek Road in October which runs from Townsend Wye to Cades Cove.
1940	President Franklin D. Roosevelt officially dedicates Great Smoky Mountains National Park.
1942	U.S. enters WWII. The National Park Service withdraws the CCC from the Great Smokies.
1944	Fontana Dam is completed and begins operation.
1947	Park Service begins constructing the Northshore Road and completes a one mile section at Fontana Dam.
1951	Construction of the Foothills Parkway began when engineers broke ground on the "Gatlinburg Spur."
1955	National Park Service begins Mission 66, a program to improve park infrastructure.
1963	Construction of the Roaring Fork Motor Nature Trail begins. One of the major projects of Mission 66 in Great Smoky Mountains National Park.
1964	Wilderness Act signed into law by Congress.
1986	Park Service recommends all work on the Foothills Parkway be halted in order to review environmental concerns.
1996	Foothills Parkway incomplete, but planning continues for completion.
1996	Great Smoky Mountains National Park Roads and Bridges are documented by NPS Historic American Engineering Record.

AUTO TOURISM IN GREAT SMOKY MOUNTAINS NATIONAL PARK

Great Smoky Mountains National Park (GRSM) has always been famous for its biological and scenic diversity. Yet rather than experience this natural abundance first hand, most visitors see much of it from their automobiles for only short periods of time. For example, more than 70 percent of the recreational activities undertaken in the park are pursued within a stone's throw of a roadway. For every hour spent behind the wheel, visitors spend only eight minutes outside their cars. Approximately 16 percent, or one in six visitors, never even turn off their engines during their visit to the Smokies.



Above: Mountain Road through the Great Smoky Mountains, ca. 1936. (GRSM/Grant)

Right Motorists in Cades Cove capture their auto tour on film, ca.1950. (GRSM/Boucher)



While many present-day visitors recognize that motorways greatly influence their park experience, most are unaware that the history of GRSM has always been intimately linked to the history of its roads. Not only was the campaign to establish the park led by road boosters, but the debate over road construction in the Smokies became the pivotal issue influencing subsequent park development. Visitors can enhance their park experience by better understanding the very motor roads they are driving upon.



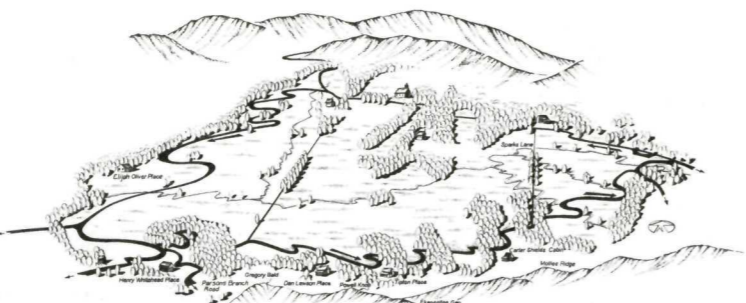
Left: Visitors enjoy the view at Clingmans Dome parking area, 1959. (GRSM/Boucher)
Below: Automobile on Clingmans Dome Road, 1952. (GRSM/Rowe)



PRE-PARK TRANSPORTATION SYSTEMS

The motor roads of GRSM did not simply materialize with the establishment of the park in 1934. Long before tourists began motoring over Newfound Gap and causing traffic jams in Cades Cove, American Indians, European settlers and logging companies created sophisticated transportation networks throughout the mountains that would greatly influence the future motor roads of GRSM.

Early on, Indians blazed an intricate system of footpaths across the Great Smokies. This process continued when the Cherokee, a branch of the Iroquois nation, migrated to the region more than one thousand years ago from the upper Ohio River. To link their two principal trails running parallel to one another on either side of the Smokies, the Cherokee cut three footpaths directly across the mountains. The Cataloochee Trail, the Tuckaleechee-and-Southeastern Trail, and the Indian Gap Trail were each used for hunting, for socializing with kinfolk, and, on some occasions, for making war. All three footpaths also laid the foundation for future park roads including the Cataloochee Valley Road, the Laurel Creek Road near Cades Cove, and Newfound Gap Road.



Above: Drawing illustrating present day road system in Cades Cove.

As did their predecessors, early white settlers also traveled extensively throughout the mountains. Those settling during the 1820s and 1830s in Cataloochee and Cades Cove first widened the Cherokee footpaths they

had followed into the region. Soon they also began constructing new wagon roads throughout the Smokies so they could visit with neighbors, attend school and religious services, and transport herds of cattle and wagon-loads of produce to distant markets in Maryville, Knoxville, and beyond. The present-day road system in the Cades Cove area dates from this era.



Above: Locomotive No. 148 steams up the Little River Gorge, ca. 1909-1914. The present Little River Road was constructed over this right of way in 1932. (GRSM/Joe Murphy, Jr.)

Unlike early settlers, loggers sought out the more inaccessible land within the Smokies. Here, where no farmer had cleared, sown or harvested, they found one of the greatest virgin deciduous forests on earth. Timber firms such as the Little River Lumber Company began cutting in 1901 and by the mid 1930s had logged approximately 85 percent of what would become the national park. To transport this timber from forest to mill, timber companies relied on an elaborate system of logging railroads, some of which eventually became park motor roads. The Little River Road on the Tennessee side of the park and the Balsam Mountain-Heintooga Road in North Carolina were both constructed atop old railroad beds.

ROAD BOOSTERS PROMOTE A PARK

The movement to establish a national park in the Great Smoky Mountains was intimately linked to road boosterism. The so-called "father of the park movement," Willis Davis, was not only on the board of directors of the Knoxville Automobile Club but first promoted the idea of a national park in the Smokies at an Automobile Club meeting in 1923. Members of the car club responded by creating the Smoky Mountains Conservation Association to publicize and coordinate the campaign, and elected Willis Davis as its president.

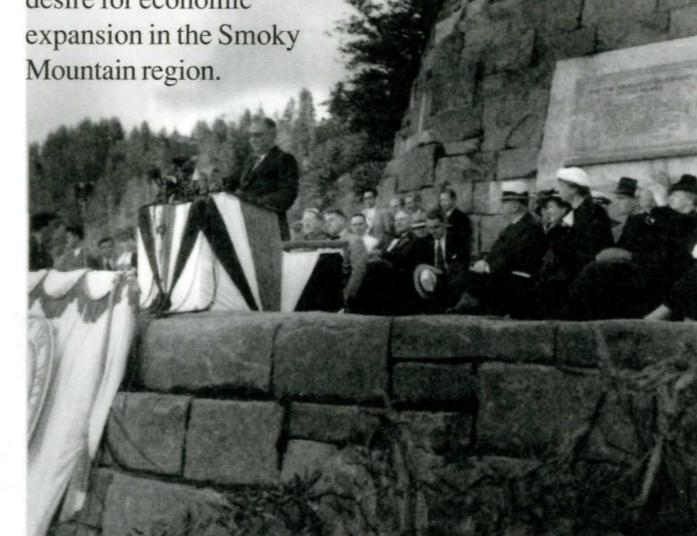
Knoxville road boosters were not alone in their desires or actions. The local campaign was part of national and regional trends taking place during the 1920s that also encouraged the creation of GRSM. Nationwide, the development of mass-produced automobiles was resulting in cheaper prices and a correlating increase in automobile ownership. During this time the need for good roads became one of the primary political and civic issues in the



Above: Park boosters attending a meeting on March 6, 1928 when a \$5 million gift for the Laura Spellman Rockefeller Memorial was announced, Willis P. Davis is second from left in the front row. 1928 (National Park Service)

South. Believing that improved motorways would finally propel the region into the national economic mainstream, Southerners, including members of the Knoxville Automobile Club, advocated numerous road-building projects. Although particularly appealing to those living in the regions of Western North Carolina and East Tennessee with primitive roads, the high cost of constructing roads through the Smoky Mountains kept road building in this area at a minimum, even during the height of the "Good Roads" movement.

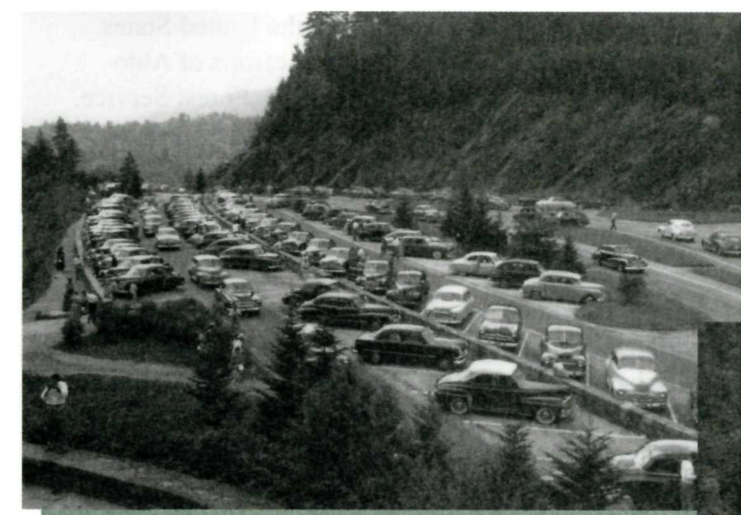
Along with wanting to protect the Smokies from the onslaught of loggers, Willis Davis and others also viewed the national park as a means of encouraging tourism through road development. For many park promoters tourism, road construction, and the creation of GRSM were three aspects of the same desire for economic expansion in the Smoky Mountain region.



Above: President Franklin D. Roosevelt officially dedicates Great Smoky Mountains National Park at the Laura Spellman Rockefeller Memorial. 1940. (GRSM/White)

SCENIC MOTORWAYS AND NEWFOUND GAP ROAD

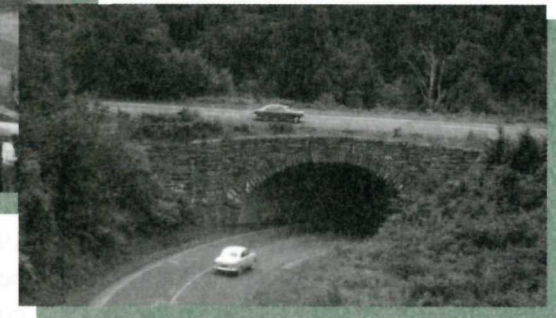
In 1926 the National Park Service entered into a cooperative agreement with the Department of Agriculture's Bureau of Public Roads (BPR), to develop a systematic approach for future road building in the national parks. Under this agreement, BPR engineers provided technical expertise for road construction while Park Service landscape designers ensured the roads' aesthetic qualities. The result was a naturalistic method of construction, often called "rustic," that involved the careful positioning of road alignments in relationship to natural topography and scenery and minimizing scars caused by construction. Such an approach ideally suited the needs of park road designers, making it possible for them to uphold the twofold policy of the National Park Service: to provide public access to national parks while preserving their resources and scenery.



Above: View of the Newfound Gap Parking Area from Rockefeller Memorial, 1952. (Rowe)

Although the Park Service constructed several mountain roads during the early 1930s in eastern parks such as Skyline Drive in Shenandoah and Cadillac Mountain Road in Acadia, none posed the technical challenges of Newfound Gap Road in the Smokies. BPR engineers reconstructed large portions of the existing road, originally built during the 1920s by Tennessee and North Carolina, to make it safer for motorists. For instance, to eliminate sharp curves and steep grades the Bureau constructed a loop-over structure in 1934 to replace two switchbacks, and added a second tunnel and several bridges in 1936.

As important as the technical improvements made by Bureau engineers to Newfound Gap Road were the aesthetic changes undertaken by the National Park Service's landscape designers. In general such changes took two forms. First, the road was reconstructed so as to provide motor tourists with even better access to the Park's breathtaking mountain scenery. Park Service landscape architects accomplished this through a variety of means, the most important of which was the scenic parking area or overlook. The second set of scenic improvements were aimed at making Newfound Gap Road itself more aesthetically pleasing. By using native construction materials and extensively landscaping road cuts and shoulders with native flora, the Park Service was able to blend Newfound Gap Road in with its natural surroundings.



Left: A popular tourist attraction in itself, the Loop Over on Newfound Gap Road replaced a dangerous switchback. (GRSM, 1950s)

Timeline and development of Great Smoky Mountains National Park Roads and Bridges

200 Million Years Ago	A.D. 800	1803	1832	1838	1851	1901	1904	1923	1926	1927	1932	1933	1934	1935
North American continent strikes African continent and uplifts the Appalachian Ridge.	Cherokee settle in southern Appalachia.	Louisiana Purchase.	Oconalufee Turnpike over Indian Gap constructed connecting the north and south sides of the Smoky Mountains.	The construction of Parson Branch Road was authorized by the county courts	North Carolina Legislature authorizes the continuation of the Cataloochee Turnpike through Mt. Sterling and Davenport gaps down to Big Creek and Cosby, Tennessee.	Little River Lumber company establishes the first major logging operation in what would become Great Smoky Mountains National Park.	Little River Lumber company builds a standard gauge rail road from Townsend up the west prong of the Little River to Crib Gap.	Willis Davis launches promotional campaign for a national park in the Smokies at Knoxville Automobile Club board meeting on October 22.	Congress passes the bill authorizing the creation of Great Smoky Mountains National Park. NPS, Bureau of Public Roads cooperative agreement signed.	Tennessee begins its part of the construction of the Indian Gap Highway.	Tennessee constructs road over Little River Railroad right-of-way to accommodate automobile traffic between Townsend and Elkmont.	First CCC camp in Great Smoky Mountains National Park developed along Laurel Creek in Tennessee.	Great Smoky Mountains National Park officially established.	Wilderness Society established in part by Harvey Broome, Robert Marshal and Bernard Frak. Construction of the Loop Over completed.

