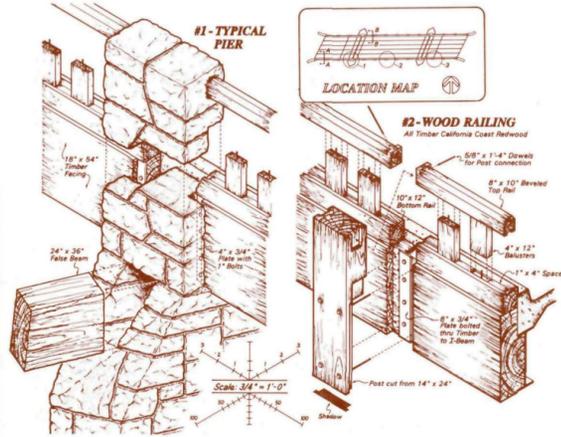


The Union Pacific Railroad worked with the National Park Service and U.S. Forest Service to promote the "circle tour" of Zion, Bryce Canyon, and North Rim Grand Canyon national parks; Cedar Breaks and Pipe Spring national monuments; and Dixie and Kaibab national forests. Union Pacific motor stages prepare for departures at Zion Lodge ca. 1929. ZNP.

### ZION'S FLOOR OF THE VALLEY ROAD

In 1909, President Taft proclaimed Mukuntuweap National Monument (after 1919, Zion National Park.) Six years later Congress appropriated \$15,000 for construction of a park road, the first appropriation allotted to the new reserve. This first automotive road into Zion Canyon was completed in 1917. It extended about 5 miles north from the old south entrance station at today's North Fork Virgin River Bridge to the Weeping Rock area. This road and other developments, including the Wylie tourist camp near today's Zion Lodge, an improved access road from LaVerkin, and automobile stage service from the Union Pacific Railroad depot at Lund, Utah, opened the monument to automotive tourism. The road was replaced in 1925 by the \$70,000 "Government Road," a well-engineered, gravel-surfaced highway running 7.5 miles from the south entrance station to the Temple of Sinawava. This new scenic automobile road—in conjunction with regional road construction, the Union Pacific's 1923 branch line to Cedar City, and the railroad's new hotel and lodges at Cedar City, Zion, and Bryce Canyon (all completed by 1925)—inaugurated a new era for circle route tourism. The Government Road was realigned in 1932 and named Floor of the Valley Road (now called Zion Canyon Scenic Drive), which currently carries nearly a million vehicles per year into the heart of Zion Canyon.

\*U.S. GOVERNMENT PRINTING OFFICE: 1994-0-381-158



North Fork Virgin River Bridge, completed in 1930, employs the rustic style of design, with 54-inch redwood slabs disguising the steel and concrete deck structure. Chris Payne, HAER, 1993.

### THE ROADS TO BRYCE

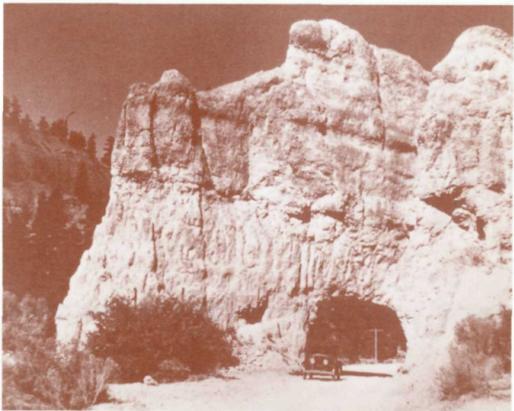
*A meaner, more difficult bit of road would be hard to find than the major portion of this trip.... A series of ditches, ruts, stony and sandy stretches, rocky fords and steep banks engaged our driver's attention.*

—Thomas Murphy, 1922 visitor to Bryce Canyon

In 1922, Cedar City served as a departure point to both Zion National Park and Bryce Canyon. Visitors to Bryce braved the long pioneer road from Paragonah, developed some 50 years earlier but improved little since that time. Three years later, Thomas Murphy returned for another visit and wrote:

*...the road was not the savage trail that bumped over rocks, plunged through sand and forded creeks. Instead a perfectly smooth, well-engineered highway ran in graceful curves through the famous Red Canyon....*

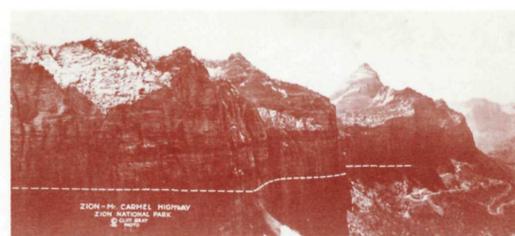
The changes Murphy noted grew out of an ambitious state program, funded partially with new federal aid, to replace old roads with modern highways. The state abandoned the old road from Paragonah to Panguitch and constructed a new highway across the Markagunt Plateau along the same lines as today's Utah Highway 14, and completed a 3-mile spur from this highway to Cedar Breaks. By 1924, the U.S. Forest Service completed the Red Canyon Road, described by Murphy above, and a 2-mile segment of Bryce Canyon's Rim Road from Red Canyon Road to Bryce Canyon Lodge. By 1925, visitors from Cedar City to Zion or Bryce Canyon enjoyed well-designed, surfaced roads.



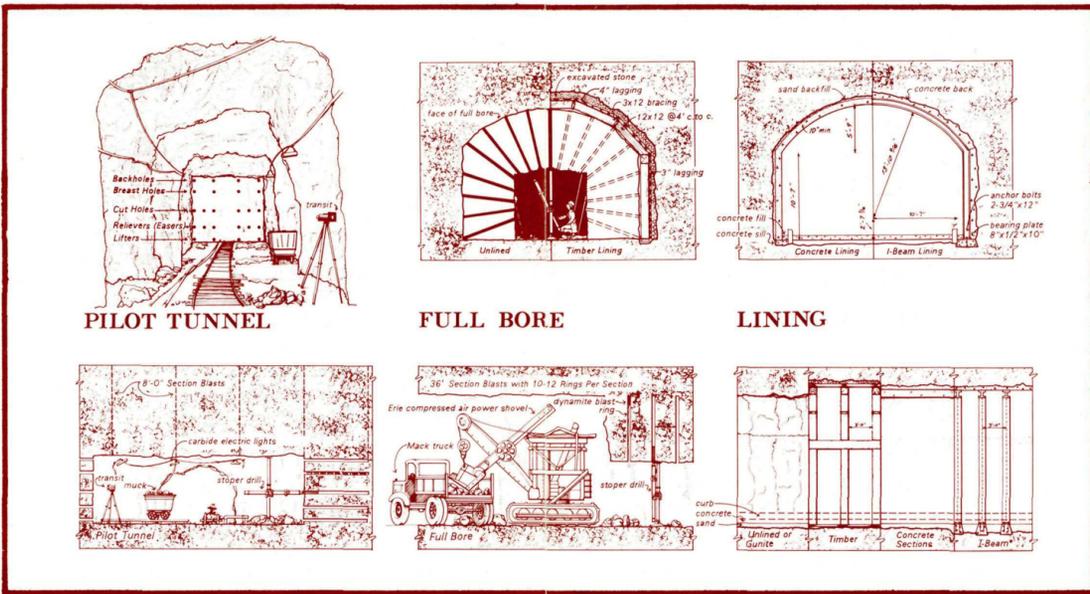
The road to Bryce Canyon National Park, now Utah Highway 12, continues to carry visitors through two auto tunnels in Dixie National Forest's Red Canyon. View, ca. 1929. ZNP.

### COMPLETING THE CIRCLE

In 1925, the Utah Road Commission continued its federal aid projects with new roads from Cedar City south to Toquerville (Highway 91) and from Kanab north toward Bryce Canyon (U.S. Highway 89). The southern segment remained the circle's weak link to regional tourism. The same year, Utah state crews completed the "Rockville Shortcut," which spanned the Virgin River with a \$40,000 steel truss bridge built by the NPS in 1924, and continued around Smithsonian Butte toward Pipe Spring. This bridge and road—today a Bureau of Land Management "scenic backway"—shortened the drive to Pipe Spring by 30 miles. Nonetheless, engineers of the Bureau of Public Roads and Utah Road Commission were already planning a new road to run directly east from Zion National Park and shorten distances to Bryce and the Grand Canyon's North Rim.



The surveyed route of Zion-Mount Carmel Highway, here superimposed on photographs, challenged BPR engineers. ZNP.



This drawing illustrates the stages of tunnel construction employed on the Zion-Mount Carmel Highway Tunnel from 1927-30. Laura J. Culberson, HAER, 1993.

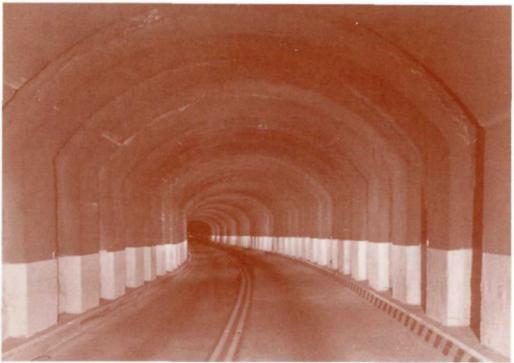
- 1928** Congress establishes Bryce Canyon National Park; 30,000 visit regional parks and monuments
- 1930** NPS, State of Utah, and Bureau of Public Roads complete Zion-Mount Carmel Highway and tunnel
- 1932** NPS completes Zion's Floor of the Valley Road; 86,000 visit circle parks and monuments
- 1933** President Franklin D. Roosevelt proclaims Cedar Breaks National Monument
- 1930s** Civilian Conservation Corps maintains and improves roads in Zion, Bryce Canyon, Cedar Breaks, and Grand Canyon
- 1941** 190,000 visit Zion National Park; World War II soon reduces visitation as well as road maintenance at regional parks
- 1956-66** Mission 66, a \$1 billion NPS construction program, includes new 1960 entrance road and visitor center at Zion National Park
- 1993** NPS replaces Co-op Creek and Clear Creek bridges and widens small tunnel on Zion-Mount Carmel Highway
- 1993** Annual visitation to Zion approaches 3 million; NPS Historic American Engineering Record documents southwest circle tour roads & bridges

### THE ZION-MOUNT CARMEL HIGHWAY

A road designed to go where no road—and few people—had gone before, the Zion-Mount Carmel Highway was the outgrowth of improvements in road-building technology, increased funding, and the persistence of the National Park Service and the Union Pacific Railroad.

In 1923, and again in 1925 and 1926, state engineer Howard Means and Bureau of Public Roads engineers B.J. Finch and R.R. Mitchell located and surveyed the improbable route up Pine Creek Canyon, through the Navajo sandstone cliffs to the eastern plateau, then across the slickrock country to join with U.S. Highway 89 near Mount Carmel.

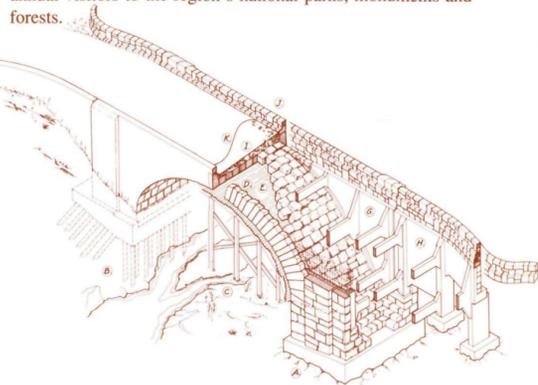
The 25-mile project was a joint effort three years in the making. The National Park Service allotted \$1.5 million to build the first 8.5-mile segment from today's North Fork Virgin River Bridge, up the talus slopes along Pine Creek in seven switchbacks, and through the cliffs with a 5,613' tunnel to the park's east boundary. This segment included the North Fork Virgin River Bridge, which was widened in 1960 but otherwise retains its historic integrity, and the beautiful masonry Pine Creek Bridge, which remains unaltered since its completion in 1930.



Bored within the sandstone cliffs in 1927-28, Zion-Mount Carmel Tunnel is the longest vehicular tunnel in the national park system. Brian Grogan, HAER, 1993.

The State of Utah completed the remainder of the road to Mount Carmel Junction as a federal aid project at a cost of more than \$400,000. This segment continued from the slickrock drainage of Clear Creek to the high plateau before dropping to U.S. Highway 89 just south of Mount Carmel, and featured the state-designed concrete Co-op and Clear Creek bridges, both replaced in 1993. With the supervision and engineering expertise of the Bureau of Public Roads, the result was a remarkable highway with scenic vistas and the longest vehicular tunnel in the western United States when it was completed in 1930.

The Zion-Mount Carmel Highway, a road segment between Utah Highway 9, completed the southwestern circle tourism route with a touch of engineering magic. It is useful to think of the circle's roads as evolving from Indian footpaths to pioneer wagon roads to well-engineered modern highways. The evolution has continued since 1932 with Interstate 15 replacing Highway 91 and the completion of Utah Highway 14 in the late 1950s. All of the circle roads have been realigned or widened and paved with asphalt, but the routes and scenery continue to thrill and bedazzle millions of annual visitors to the region's national parks, monuments and forests.



Believed to be the only stone-masonry arch bridge designed by the BPR for the NPS, Pine Creek Bridge (1930) is a superb example of blending structures with the natural landscape. Todd A. Croteau, HAER, 1993.

This leaflet was produced by the Historic American Engineering Record (HAER), a division of the National Park Service, U.S. Department of the Interior. The 1993 National Park Service Roads and Bridges Recording Project was cosponsored by Zion National Park, Donald Falvey, Superintendent; and the Historic American Buildings Survey/Historic American Engineering Record (HABS/HAER), Robert J. Kapsch, Chief.

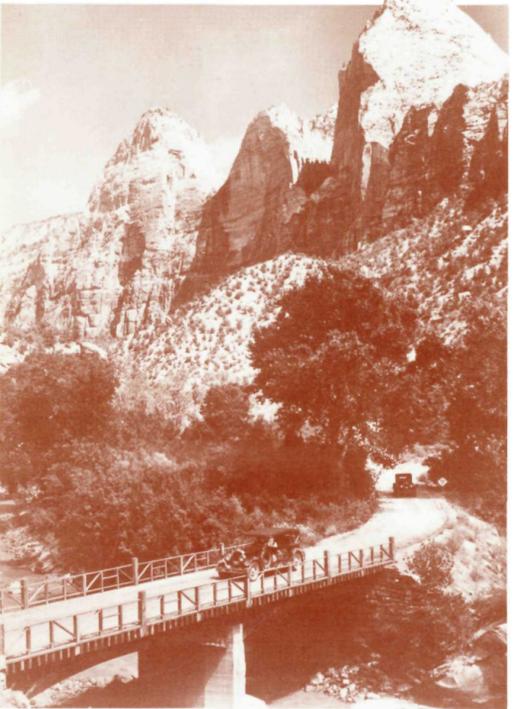
The fieldwork, measured drawings, histories, photography, and this brochure were completed under the direction of Eric N. DeLony, Chief and Principal Architect, HAER. The recording team consisted of Todd A. Croteau, field supervisor; architectural technicians Laura J. Culberson and Christopher Payne; photographer Brian C. Grogan; and historians Michael F. Anderson, Christine L. Madrid and Richard H. Quin.

Text: Michael F. Anderson, edited by Richard H. Quin  
Design: Todd A. Croteau

## HIGHWAYS IN HARMONY

### Southwest Circle Tour Roads and Bridges

Zion, Bryce, Grand Canyon North Rim National Parks  
Cedar Breaks, Pipe Spring National Monuments  
Kaibab, Dixie National Forests



Constructed in 1924, this arch-girder bridge carried Zion's Floor of the Valley Road across the North Fork Virgin River, ca. 1929. Zion National Park Photo Collection (ZNP).

## HIGHWAYS AND THE LANDSCAPE

Since its creation in 1916, the National Park Service (NPS) has adhered to a policy that structures in the national parks and monuments "lie lightly on the land." Stephen Mather, the agency's first director, established the NPS landscape engineering division in 1918. Since that year, landscape engineers have reviewed plans and specifications for all major building projects.

Today's park roads also benefit from the engineering expertise and aesthetic sensitivity of the Bureau of Public Roads. The U.S. Department of Agriculture created the BPR (then known as the Office of Road Inquiry) in 1893 to lead the way in modern road-building technology. Since 1925, it has managed all major road projects for the Park Service, and continues that service today as the Federal Highway Administration.



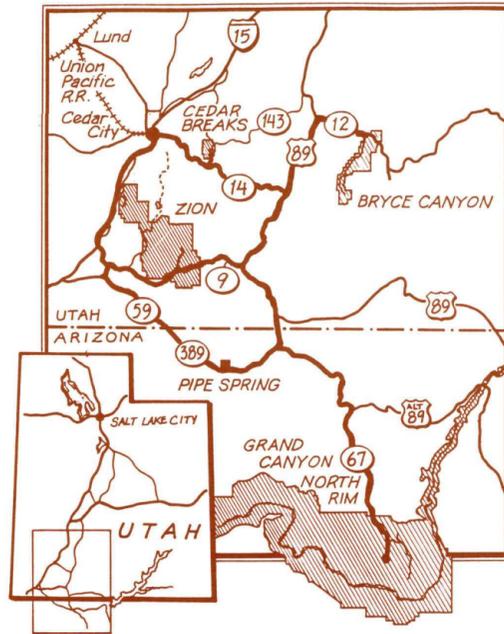
Construction crews, ca. 1930, hand place sandstone blocks for retaining walls that carry Zion-Mount Carmel Highway up the talus slopes of Pine Creek Canyon toward the Zion Tunnel. ZNP.

The NPS/BPR team undertook the Zion-Mount Carmel Highway in Zion National Park as one of its first road projects. As you drive the road today, note the many ways the highway blends with the environment. The roadway is chip-sealed with red-tinted gravel, chosen to match the surrounding sandstone cliffs. The masonry arch of Pine Creek Bridge mimics the Great Arch of Zion viewed upstream. Masonry retaining walls and guardrails, many of which were built by the Civilian Conservation Corps in the 1930s, line the switchbacks carrying the road up and down the steep grades. The tunnel itself was designed to reduce destruction of the sandstone cliffs and to conceal the road as it ascends Pine Creek Canyon to the plateau above.

These and dozens of other highway design and construction techniques—road curvature, consistent grades, masonry culverts—date from a period when road building was emerging as an art form in tune with the landscape. Slow down and enjoy the vistas at every turn!

## THE SOUTHWESTERN CIRCLE TOUR

Visitors to the national parks, forests, and monuments of the American Southwest generally follow a regional loop along state and federal roads. There are many variations, depending on the length of one's trip, but few cover the same ground twice. This leaflet explores the "circle tour" connecting the early parks and monuments of southwestern Utah and the Arizona Strip: Zion, Bryce Canyon, Grand Canyon North Rim, Pipe Spring, Cedar Breaks, Dixie and Kaibab national forests. Initially a series of individual roads linking pioneer towns, the southwestern circle tour achieved its final form through the efforts of the Union Pacific Railroad and the National Park Service.



General route location of the Southwest Circle Tour. ZNP.

## AMERICAN INDIANS POINT THE WAY

American Indians blazed the first paths and trails through what is now the American Southwest. Bands of nomadic hunter-gatherers ranged throughout the Colorado Plateau as early as 10,000 years ago, but the first evidence of permanent occupation occurred with the Basketmaker and Pueblo Anasazi cultures of some 2,000 years ago. Along with later bands of Southern Paiutes, they hunted, farmed, and gathered wild plants along waterways and atop the mountains and plateaus of southwestern Utah and northwestern Arizona. Centuries before the first Europeans set foot in the region, native peoples developed a complex network of local and regional foot trails later used by early explorers and settlers.



Today's "circle route" generally follows the paths taken by explorers and early pioneers. Spanish missionaries Domínguez and Escalante, led by Ute Indian guides, were the first Europeans to encounter the region in 1776.



Geology of Circle Tour Region



Mormon pioneers travelled the rugged terrain with horse-drawn wagons. Several primitive roads existed in southwestern Utah, such as this one used to haul lumber to the Zion cable works, an aerial conveyor to the Valley, ca. 1908. Zion Natural History Association (ZNHA).

## EARLY EXPLORATIONS

The first Europeans to venture through southwestern Utah sought a route from the pueblos of New Mexico to the missions of southern California. In 1776, Ute Indian guides led Spanish missionaries Domínguez and Escalante across Utah's Wasatch Mountains to the edge of the Great Basin, where they abandoned their quest and started back for Santa Fe. The missionaries returned by way of Ash Creek and the Virgin River, travelling north of the Grand Canyon through the future sites of LaVerkin, Hurricane, and Pipe Spring—a route that is now the western and southern segment of today's circle tour.

In 1826, trapper Jedediah Strong Smith and 18 men followed the Spanish fathers' footsteps along Ash Creek and the Virgin River. Smith continued south to the Mojave villages along the Colorado River, then struck west across the desert to complete an overland route to southern California. Trappers, Mexican traders, and gold seekers followed, wearing the path that became the Old Spanish Trail—one of the region's most important early routes.

None of the early explorers and transients on the Old Spanish Trail ventured east to the canyons and plateaus that now constitute Zion, Bryce Canyon, and Cedar Breaks, but their discoveries soon led others to settle the region.

## MORMON SETTLERS TO SOUTHWESTERN UTAH

Soon after Brigham Young led members of the Church of Jesus Christ of Latter Day Saints (Mormons) west from Illinois to the Great Salt Lake in 1847, he sent explorers south to find additional settlement sites. These pioneers followed the Old Spanish Trail as far as present-day Cedar City, then struck south in the footsteps of Dominguez, Escalante, and Smith to reconnoiter the Virgin River and its tributaries. By 1863, dozens of small Mormon agricultural towns had sprouted along the river and streams, from Paragonah and Cedar City on the north to St. George on the south and Zion Canyon on the east. Nephi Johnson, a young pioneer, was among the early scouts and the first to set foot in Zion Canyon in 1858. Four years later, Isaac Behunin and others founded the small settlement of Zion within the canyon near the site of today's lodge.

Soon after these pioneers colonized the Virgin River area, others crossed the Markagunt Plateau from Paragonah to the later town of Panguitch, then headed south along the Sevier and East Fork Virgin rivers as far as Fredonia, Arizona. The many white settlements established along this path and elsewhere in the region—having overcome periodic floods, pestilence, disease and efforts by the Navajo, Utes and Southern Paiutes to retain their lands—went on to construct roads and paths linking the isolated communities.

## CONNECTING THE DOTS WITH WAGON ROADS

Nearly all the highways that connect Zion, Pipe Spring, the North Rim of the Grand Canyon, Bryce, and Cedar Breaks began as rough wagon roads between the early Mormon towns.

West of Zion, Interstate 15 follows the path of an early wagon road connecting Cedar City to Kanarrville, Pintura, Leeds, Washington, and St. George. The most difficult portion of this route passed over the "Black Ridge" at the southern edge of the Great Basin, a few miles north of Pintura. Here, at a point called Peter's Leap, Mormon teamsters dismantled their wagons and lowered them by ropes to the basin floor. In 1863, townspeople built the Black Ridge Dugway down the ridge, permitting wagons to roll (in one piece) south from Salt Lake City to St. George. Today, motorists can view portions of this road within the canyon to the east of Interstate 15.

East of Zion, U.S. Highway 89 from Kanab north to Panguitch follows the wagon trails linking these towns—and Mount Carmel, Orderville, and Glendale in between—with Salt Lake City. The road immediately north of Kanab crossed some of the most rugged terrain in southwestern Utah, where quicksand, steep slopes, and sand dunes hampered travellers well into the 1900s.

As difficult as these north-south roads were to travel, connecting east-west roads posed even greater challenges as they had to surmount intervening plateaus and deserts. An early road developed south of Zion along today's Utah Highway 59 and Arizona Highway 389 beneath the Vermillion Cliffs. Following established Paiute trails, Mormon trailblazer Jacob Hamblin formalized this route east and west from Pipe Spring, which he found in 1858. By 1870, the wagon road linked St. George to Colorado City, Pipe Spring, and Kanab, then ran east parallel to today's U.S. Highway 89 to the Colorado River. A variation of this trail dropped south around the Kaibab Plateau and paralleled today's U.S. 89A to cross the Colorado River at Lee's Ferry.

North of Zion, Mormon explorer John D. Lee and others pioneered a trail across the Markagunt Plateau to the site of Panguitch. This path developed into a wagon road used throughout the nineteenth century, but later roads in the same area ran farther south. By 1925, the final grade of the northern connection lay along today's Utah Highway 14 from Cedar City to Long Valley Junction.

## EARLY MOTOR ROADS

*We lost our way and our tempers getting over the Sahara bordering Kanab. A lone sheep herder saved us on the second morning out and we floundered into Kanab.*  
—tourist on U.S. Highway 89 in 1911

Until the World War I era, limited funding and technology restricted the development of good-quality roads. Federal and state governments contributed little to road building and maintenance, and county crews maintained the earthen roads with horse-drawn, split-log drags that levelled the surface until the first hard rains and narrow-wheeled wagons rutted them again. The State of Utah and the counties made some road improvements



With the advent of tourism in southwestern Utah and the establishment of the National Park Service in 1916, new facilities were constructed to provide visitors with information and services. This checking station, replacing an earlier structure, was constructed by the Civilian Conservation Corps at Zion's South Entrance in 1934. ZNP.

**6-10 million years ago**  
Great uplift of Colorado Plateau and increased erosion begin to form Zion, Bryce, Grand Canyon, and Cedar Breaks

**200 B.C.**  
First known occupation of the region and develop canyons by Basketmaker people of the Anasazi culture; abandoned region by A.D. 1300

**A.D. 1200**  
Paiute Indians occupy the region and develop early transportation routes.

**1776**  
Dominguez and Escalante pass 25 miles west of Zion; find Parrusits Band of Southern Paiute Indians along Virgin River

**1847**  
Brigham Young leads Mormon settlers to found Salt Lake City; expansion to Zion and Bryce region follows

**1858**  
Southern Paiute Indian guides Mormon scout Nephi Johnson into Zion Canyon, the first European-American to see the wonders

**1863**  
First Mormon settlers apply the names "Joseph's Glory," "Zion," and "Little Zion" to Zion Canyon

**1870**  
John Wesley Powell names Zion Canyon and North Fork Virgin River "Mukuntuweap," a Southern Paiute name of lost meaning



**1901-16**  
Operators of Zion lumber cable works maintain a rough wagon road into Zion Canyon as far as Weeping Rock

**1909**  
President Taft proclaims Mukuntuweap National Monument (Zion Canyon); several hundred visitors arrive in wagons and buggies

**1914**  
First automobile enters Mukuntuweap National Monument; State of Utah and counties begin to improve regional roads

**1916**  
National Park Service established; first auto road completed to rim of Bryce Canyon; guest services established

**1917**  
First automobile road and Wylie tourist camp built along Zion Canyon floor; annual visitation reaches 1,000

**1919**  
Congress elevates Mukuntuweap NM to Zion National Park and Grand Canyon NM to Grand Canyon National Park



**1922**  
Union Pacific Railroad begins \$5 million investment in regional tourism; begins branch line to Cedar City for bus service to parks.

**1923**  
President Harding visits Zion National Park; proclaims Pipe Spring and Bryce Canyon national monuments

**1925**  
NPS completes "Government Road" from Zion park entrance to Temple of Sinawava; Zion and Bryce lodges replace old camps

**1925**  
National Park Service and Bureau of Public Roads sign agreement; BPR responsible for road construction in all national parks

**1925**  
Roads of the circle tourism route lead to Zion, Bryce, Cedar Breaks, and Grand Canyon; 17,000 visit Zion National Park