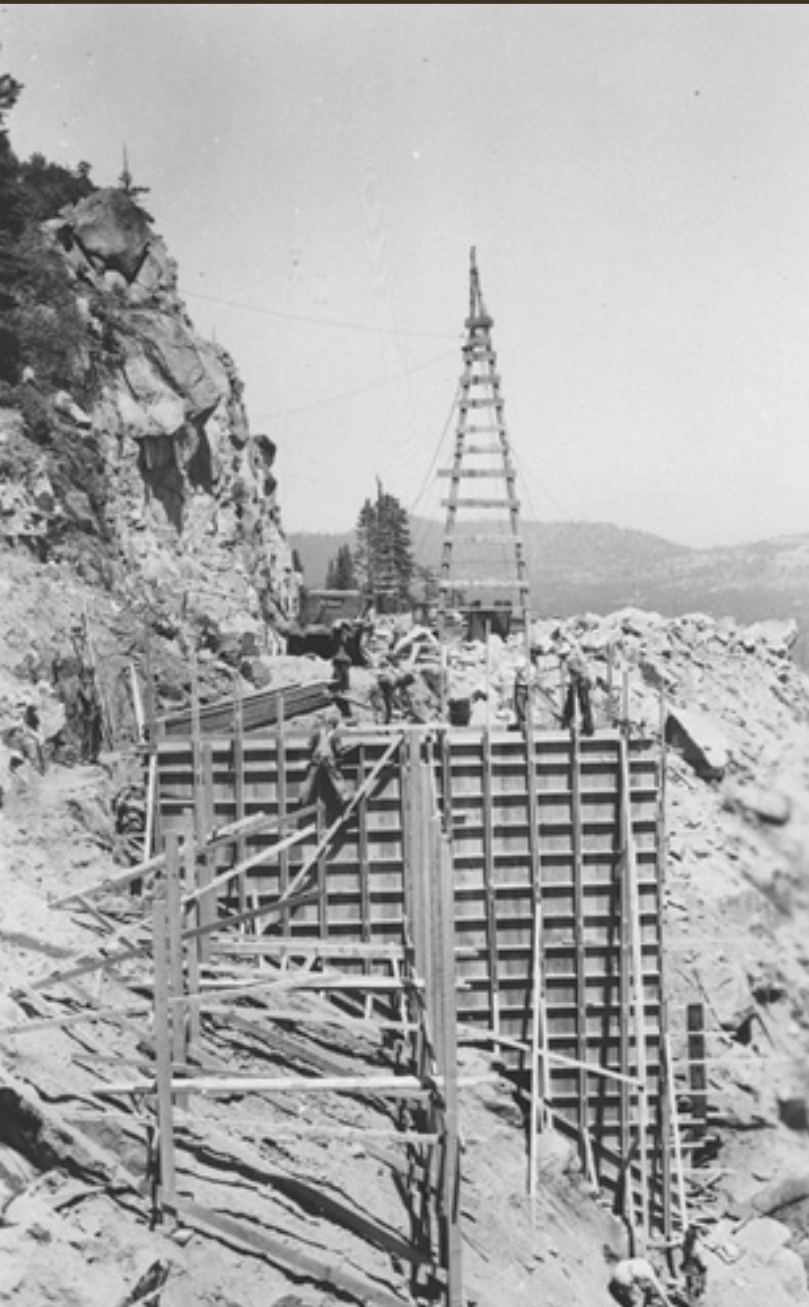


Building

UPPER MEYERS GRADE





If you entered the Lake Tahoe Basin from the west, chances are that you drove on US Highway 50 (US 50) over Echo Summit. Although the route was steep and winding, your drive was likely uneventful and provided picturesque views of forested hills, deep valleys, granite outcroppings and, as you rounded that one particular curve on your descent from Echo Summit, a spectacular panorama of Christmas Valley and the entire Lake Tahoe Basin. This segment of US 50 is known as Upper Meyers Grade and is part of more than 100 years of transportation history in the area.



"View of new construction on Echo Summit looking south toward Luther Pass. Arrows indicate portions of old Hawley Grade" (CHPW, August 1938:6)



Future route of Upper Meyers Grade, c. 1936 (Caltrans Transportation Library)

Although numerous wagon trails and toll roads crossed through the area south of Lake Tahoe during the era of exploration and immigration of the mid-19th century, US 50 evolved from what was the Lake Tahoe Wagon Road, a route with early origins that had fallen into disrepair due to lack of private funds for maintenance. When the California Legislature passed the Lake Tahoe Wagon Road Act in 1895, this route became the first state highway and the first step in establishing a state-owned system of roads.

When acquired by the state, the Lake Tahoe Wagon Road, which became State Route 11, was distinctly primitive and had widely varying characteristics as a result of its piecemeal construction history and lack of consistent maintenance. In 1909, State Route 11 was designated as a "secondary" highway and the state began allocating less funding for its upkeep in favor of the Truckee River Route to the north (the current route of Interstate 80).

Several occurrences in the next two decades brought additional attention and funding to State Route 11.

First, the U.S. Bureau of Public Roads, an agency within the U.S. Department of Agriculture and the predecessor of the Federal Highway Administration, co-designated the route as Forest Highway 32, which came with federal financial support for maintenance of the road. Second, State Route 11 became the southerly alignment of the Lincoln Highway.

By 1929, most of the highway had been widened to 24 feet, rock-surfaced, and oiled, and some portions were paved with asphalt.¹ Between the late 1920s and the late 1930s, the road was completely rebuilt through a combined state and federal effort. Major realignments eliminated hairpin curves and steep grades, and long sections of the old road were abandoned. By the mid-1930s, most of the road was paved and more heavily used by vacationing or weekend tourists driving to Lake Tahoe in ever-greater numbers. One difficult section of the road remained: the steep switchbacks of the old Meyers Grade.²

The U.S. Bureau of Public Roads and the Division of Highways began planning the five-mile-long Meyers Grade realignment project in 1936, dividing it into two construction projects. Upper Meyers Grade, 2.3 miles long, would be constructed first and Lower Meyers Grade, 2.7 miles long, would be constructed second.

Construction began on Upper Meyers Grade in 1936 as a cooperative effort. Using Forest Highway funding, the California Division of Highways surveyed the route, the U.S. Department of Public Roads prepared the plans, and federal contractors Louis Biasotti & Son and John Rocca undertook construction. The new alignment deviated from old Meyers grade two miles east of Phillips Station and headed in a southeasterly direction over relatively open land on a gentle grade. The last mile of the 2.3-mile realignment, however, lay across a steep rock face that would present many construction challenges.³



Steam shovel on future alignment of Upper Meyers Grade, c. 1936 (Caltrans Transportation Library)



¹ Speer 1984:10; Donaldson 1975:n.p.; Mikesell 1990:18-19; Supernowicz 1993:58, 62.

² Donaldson 1975:n.p.

³ Sheridan 1947:30.

In August 1938, California Highways and Public Works (CHPW) magazine reported on the project under construction.⁴

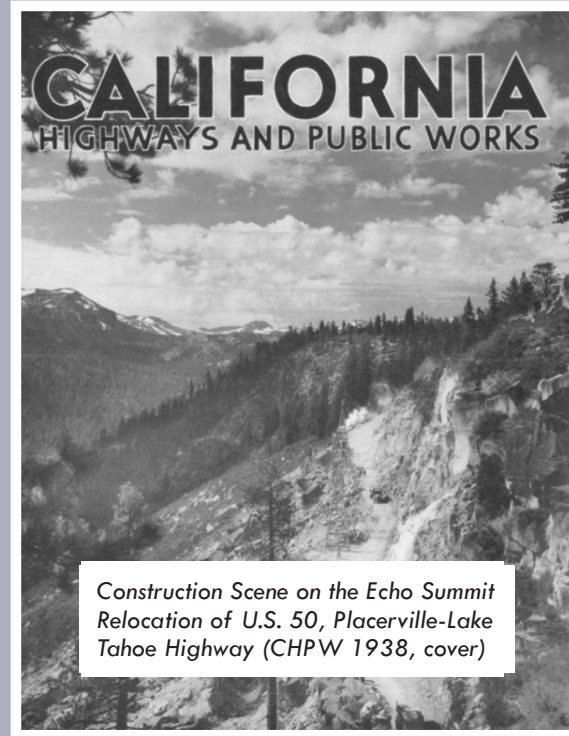
"From the summit to the easterly end of the contract, one mile, the work passes through irregular rock bluffs that top the steep slopes high above the valley floor. On this mile the design and construction of a roadway for a 24-foot crown width of surface present a difficult problem. Solid benching, retaining walls and concrete bridging were the practical means of providing roadway. At only several places would fills hold and, in these places, but to limited extent.

The desire to keep construction scars to the minimum on this recreational route influenced design and affected construction methods. Cabins and lodges along the brink of the crest above the highway location increased difficulties. Careful attention is being given to landscaping...

Careful engineering and construction work are evidenced. Cement rubble masonry walls maintain support for much of the roadway in critical stretches, with design of these features well in keeping with the character of the country traversed.

The new construction will be a spectacular section of the Tahoe Highway. Coming from the west the motorist will pass from an avenue of virgin timber to a vista overlooking the panorama of the Lake Tahoe basin. The transition will be made over a sweeping summit curve, widened and safeguarded.

The descent that follows will be on a roadway where width, curvature, grade and sense of security will be in marked contrast to the present road. The new road will facilitate maintenance, especially in providing reasonably safe conditions when snow removal is required to keep the route open. Similar road standards will apply when the entire grade can be reconstructed to Meyers"⁵



As mentioned above, one of the most challenging elements of designing and constructing the Upper Meyers grade was incorporating the roadbed into a fractured and irregular granitic cliff face. Although much of the road was placed on a "bench" blasted out of the slope, at other locations that technique was impractical. The designers employed the use of retaining walls and, at one particularly deep cleft, a type of bridge. In all cases, the features were designed to harmonize with the natural landscape and were constructed using native rock to the maximum extent possible.

The Echo Summit Sidehill Viaduct, so called because it clings to the side of the cliff face and carries traffic, was constructed in 1939. The structure



"On sheer eastern cliffs of Echo Summit power shovel is making final cut for Meyers grade relocation. Lake Tahoe in distance" (CHPW, August 1938:5)

consisted of three reinforced concrete girder spans supported by two reinforced slab piers and two rubble masonry wing abutments constructed in the field to fit the contours of the underlying rock. When complete, the viaduct measured just over 112 feet long, 29 feet wide, and included low granite parapets intentionally designed to not obstruct views of the valley or lake.

After the contractor finished construction and grading, it was the responsibility of the California Division of Highways to surface the road. Contractor Lee J. Immel began work on completed sections in the fall of 1939, stopped when winter set in, and resumed in June 1940. The road was officially opened to traffic in July 1940.

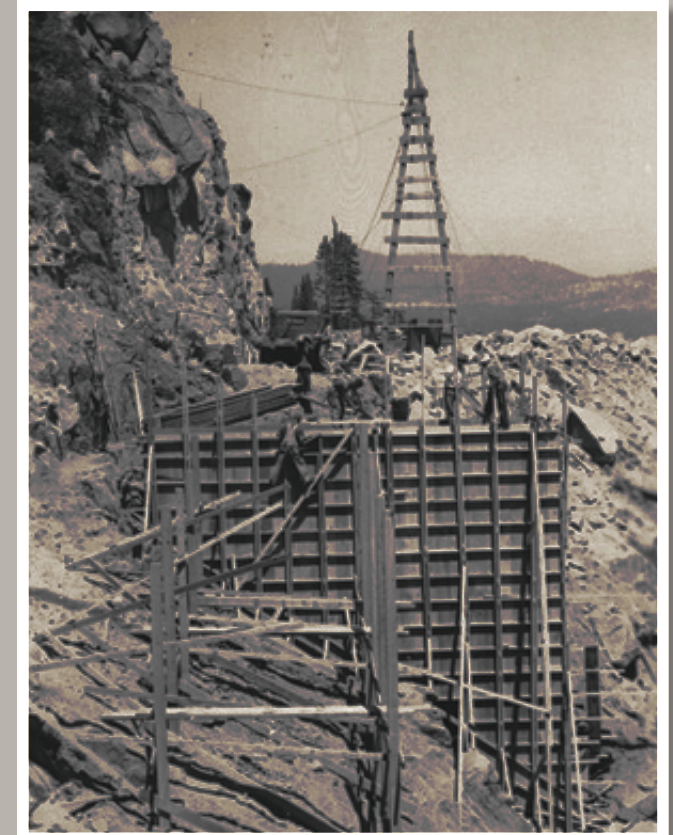
The old, narrow alignment of Meyers Grade, with its numerous hair-pin turns, prevented modern rotary snowplows from clearing the summit route. As a result, the road was typically open in winter only as far as Kyburz but closed to traffic between Kyburz and Meyers. Once the new Upper Meyers Grade was open to traffic, however, the California Highway Commission allocated funds to purchase snow removal equipment and hire crews to operate it.

To store the equipment and house the crews, the Division of Highways constructed a new maintenance station at Echo Summit. Although the equipment was in place in time for the first heavy snows in late December 1941, the nation's entry into World War II forced the temporary abandonment of snow removal efforts on US 50. Only roads deemed essential by military authorities were kept open in winter for the duration of the war, partially for military reasons, and partially to conserve aging equipment that could not be replaced due to wartime shortages and restrictions. The Division of Highways moved the snow removal equipment purchased for US 50 to US 40 (now Interstate 80) to ensure that the northern route would remain open. Snow removal on US 50 did not resume until after the war ended.

World War II also delayed planned construction of Lower Meyers Grade, the second part of the project. The contract awarded in 1941 was terminated in 1942 due to wartime demands, and vehicles



Construction of retaining wall, c. 1937 (Caltrans Transportation Library)



Echo Summit Sidehill Viaduct under construction, c. 1939 (Caltrans Transportation Library)

⁴ CHPW, "Realigning" 1938:4.

⁵ CHPW, "Realigning...", 1938:4-6.



Echo Summit Sidehill Viaduct before replacement
(Caltrans District 3 files)



Damage at south end of Johnson Pass Sidehill (Caltrans 2006)



Modified concrete barrier at Echo Summit (Caltrans 2011)

continued to use the old alignment of Lower Meyers Grade. Once the war ended, the contractors completed the remaining segment of the road, snow removal efforts resumed, and US 50 finally became an all-year highway.

Caltrans found Upper Meyers Grade eligible for listing in the National Register of Historic Places in 2007 as an engineering achievement and for its aesthetic qualities and received concurrence with that finding from the State Historic Preservation Officer. It is also listed in the California Register of Historical Resources. As a result, Caltrans is required to consider the effect of any project that might alter features that contribute to its historic status.

Over the decades, the Division of Highways has made some safety improvements to Upper Meyers Grade, such as the installation of metal beam guardrails in 1957. More recently, Caltrans replaced the remaining masonry parapet walls with modified concrete barriers in 2011. By that time, these original stone features, which were commonly used on mountain roads at the time, had severe structural issues, had been hit numerous times and no longer met safety standards.

Keeping the historical significance of Upper Meyers grade in mind, Caltrans commissioned its contractor to sculpt a prototype for the concrete barrier because there were no surviving sections of the barrier long enough to make a mold. Several modifications later, a Caltrans Principal Architectural Historian approved the prototype wall and the contractor created a form liner that could be used throughout the project limits. Once in place, the contractor hired a specialist to paint the concrete of the wall to mimic the original granite of the stone barriers. Once again, a Caltrans Principal Architectural Historian was involved in reviewing the paint samples and making suggestions, such as painting the "grout lines" a darker shade to suggest depth, before the painting specialist went to work. As a result of these efforts, Caltrans District 3 was given an American Association of State Highway and Transportation Officials (AASHTO) award for Preservation.



New Echo Sidehill Viaduct (Caltrans District 3 files)

The most recent project on Upper Meyers Grade was the replacement of the Echo Summit Sidehill Viaduct in 2020. As with the original masonry barriers, this structure had deficiencies caused by age and failing concrete. With preservation in mind, Caltrans directed the contractor to duplicate the efforts made for the masonry barriers when replacing this important feature. In addition, Caltrans stipulated that the contractor should preserve and reuse portions of the original granite abutments and wing walls, and retain the large granite outcropping on the southern end of the bridge to the maximum extent feasible.

With continuing maintenance, even through harsh winters, rockfalls, and fires, Upper Meyers Grade remains a vital link to the Lake Tahoe Basin. It is also a tribute to the dedicated engineers, construction crews and maintenance staff that had and have the vision, grit, and stamina to build this highway and keep it open year-round.

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