



There are no good routes to build a railroad between northern and southern California. Only two routes were ever constructed connecting the state by rail: the first was the Southern Pacific route completed in 1876 from a junction with the (first) Western Pacific Railroad south of Sacramento to Los Angeles, and the second was the SP's difficult coastal route, which was not completed until 1901. The main obstacle is the divide between the Pacific Slope and Great Basin, with the most feasible crossing at Tehachapi Pass. The pass itself is an old, elevated plain with easy grading, and the eastern slope is an easy grade on desert alluvium to the high desert with little elevation change. The hard part is the western slope, that rises almost 4,000 feet from the Central Valley floor to Tehachapi Pass. The route required many tunnels and trestles, highlighted by the Tehachapi Loop, built in 1874-1875. The loop maintains the route's 2% grade by gaining 77 feet in elevation.

A consist of empty container cars works up the loop, passing over its own tail in 2011. Note the oak grassland typical of the western Sierra foothills, which contrasts with the desert ecosystem in the rain shadow east of Tehachapi Pass.



The Tehachapi Depot is about 8 miles east of the Loop at the summit elevation of 4,031 feet above sea level. Note the perfectly flat topography at the pass, which is an ancient (about a half million years old) lake bed. Being located on the Pacific Crest (here the Tehachapi Mountains) the lake is just in the process of being captured from both ends and the capturing streams as well as the flat lake bed are followed by the SP route.



Eastward view of the SP (now UP) mainline, 3 miles east of the Tehachapi Depot. The overpass is at the point where the Tehachapi Valley lake bed is being captured by this dry creek, which the route follows eastward into the desert.



Westward view at same location as previous. Note the flat topography of the dry creek, much easier building than the west slope. A few miles farther east, the grassland gives way to Joshua Tree desert in the rain shadow of the Pacific Crest.