Draft August 14, 2023 by Roger M. Zimmerman

# Discussion of Uniqueness of New Mexico Portion of Route66

**Introduction**

The American Society of Civil Engineers (ASCE) has a program torecognize to recognize historically significant local, national, and international civil engineering projects, structures, and sites. Recognition is being selected as a National Historic Civil Engineering Landmark (NHCEL) . The purpose of the program is to increase public appreciation ofcivil engineering contributions to the progress and development of society. Preservation of historic civil engineering contributions includes documentation of landmarks for inclusion into encyclopedias, guidebooks, and maps.

Traditionally the NHCEL program recognizes projects, but the inclusion of Highway Route 66 expands the scope of recognition and provides an avenue for other major infrastructure projects to be recognized for their contributions to society.

Route 66 is the most popular highway in the US. Bobby Troup, in his hit song, "Route 66" talks of "Getting your kicks on Route 66." John Steinbeck in "The Grapes of Wrath" called it the "Mother Road of Flight" as it depicted the flight of citizens westward from the Midwest as they escaped the horrors of the "Dust Bowl" in the 1930s. Some "Dust Bowl" statistics on the internet are helpful in assessing the significant volume of traffic that passed through New Mexico during the 1930s. The Dust Bowl appeared to be at its worst in 1934 and it has been reported that roughly 440,000 people left the Dust Bowl State of Oklahoma in the 1930s. About 250,000 of them left in the 1935-1940 time frame to go to California. The unpaved and paved Route 66 had to accommodate these migrations, and the travelers weren't interested in traveling any further than necessary as is documented in "The Grapes of Wrath." This introduction will provide some insights into how civil engineers have supported the New Mexico part of Route 66 magic that has contributed to the benefit of society.

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Route 66 in New Mexico was started in August of 1926 as a 506-mile alignment of existing dust or gravel covered roadways going from Glenrio, a small town located astraddle the Texas/New Mexico border, to the Navajo Indian Reservation located on the Arizona state border to the west. This route crossed the Pecos River 3 times, the Rio Grande, from 1 to 3 times depending on local traffic needs, and a Puerco River (puerco is pork in Spanish but nominally expressed as dirty in New Mexico when describing a river) in two locations. The Rio Puerco in the east flows from Northern New Mexico into the Rio Grande south of Albuquerque. The Puerco River, located west of the Continental Divide, flows west into Arizona and joins the Little Colorado River upstream from the Grand Canyon.

The first paved alignment of Route 66 came 11 years later, and it was only 399 miles long. The shorter route bypassed Santa Fe, Bernalillo, Los Lunas, and some Native American Pueblos, much to the disappointment of small businesses in those locations. This re-alignment is called the Santa Rosa-Laguna Shortcut and is composed of the Santa Rosa and the Laguna Cut-offs. Politicians, government agencies, technicians, and civil engineers made their contributions to the shortening of this historical highway.

The Santa Rosa Cut-off part of the shortcut was authorized by the New Mexico Legislature on March 19, 1925. This action created NM 6 as a state road that went from 7 miles west of Santa Rosa to a point north of Moriarty, where it would meet a road from Willard, NM traveling north and then west to Albuquerque. In December of 1925, the US Bureau of Public Roads created US 470 as this road. The NM 6 part of the Santa Rosa Cut-off went directly west towards Moriarty, which was a distance of 69 miles. Most of this distance was ranch land in 1926 when the new roadway was first cleared and graded.

In northern Moriarty, the cut-off joined US 470 and went another 45 miles into Albuquerque, terminating at the original location of Route 66, which was at the intersection of Central Avenue and 4th Street. This cut-off saved 90 miles of travel for Route 66 travelers.

The Laguna Cut-off, an extension of NM 6, was proposed by District 3 Highway Maintenance Superintendent Clyde Tingley on June 8, 1925 to Governor A. T. Hannett. It was authorized by the NM State Highway Commission on December 29, 1926. The importance of this date will be apparent later. The Laguna Cut-off went from 4th Street and Central along Central Avenue across the Rio Grande to a point west of Atrisco, where it was aligned up Nine Mile Hill to eventually join the original Route 66 alignment near the village of Correo, some 32 miles westward towards Laguna. By bypassing Los Lunas, the Laguna Cut-off saved 17 more miles for Route 66 travelers.

In implementing the Shortcut in Albuquerque, Route 66 was changed from north-south travel along 4th Street to east-west travel along Central Avenue. This rerouting transformed the city from being a linear city with a north-south major axis to a cruciform shaped city with north-south and east-west axes. Central Avenue, which was 20 ft wider than other downtown streets, was the logical street for handling the significant amount of transcontinental traffic that would eventually swamp the downtown area.

Key personnel are listed in the New Mexico Section Website that is identified later in this document.

Civil Engineering and Civil Engineers contributed to this major transformation to Route 66 traffic. These activities will be highlighted by discussions of five projects and a physical intersection symbol of the re-alignment.

**Santa Rosa Cutoff**

Starting at the east state boundary and traveling west, the Pecos River had to be crossed and this was done with standard Civil Engineering techniques in 1926. After crossing the Pecos, original Route 66 went 7 miles west and then turned north towards Romerville and joined US 85 there. It followed US 85 through Santa Fe, Albuquerque and deviated westward at Los Lunas, where it went towards Laguna.

The Santa Rosa Cut-off went 69-miles east from this turnoff and was directed over ranch roads towards Palma, which was between Santa Rosa and Moriarty. Between Palma and Moriarty were 27 miles of open space across ranch lands that was filled with uncut Pinon trees. Ranch lands followed the open space towards Moriarty.

The Santa Rosa Cut-off is highlighted by the construction of the 69 mile stretch because the entire distance was cleared and graded in just over 30 days. This is where Civil Engineer members of ASCE made major contributions to this effort. I have to set the stage to make their contributions meaningful.

The Democratic Governor of New Mexico, A. T. Hannett, was on a two-year term and was not reelected on November 6, 1926, which is just months after Route 66 was established in the state. He had set the stage by having the NM State Legislature authorize the route for the Santa Rosa Cut-off, which he signed on March 19, 1925. This became part of the political process and incoming Republican Governor Richard C. Dillon was opposed to the cut-off. It was traditional in New Mexico at that time for Highway employees to be fired during changes of administrations, and workers expected to be terminated because of this tradition. Governor Dillon campaigned against implementing this shortcut.

After the election, Governor Hannett decided that the Santa-Rosa Cut-off should be completed before it would be mothballed by the next administration. He called on ASCE member, E. B. Bail, who he had appointed as the Northwest District Engineer, to be the project leader to close this 69-mile gap before the end of the year. He would use highway department employees and equipment in this effort and funds would come from the maintenance department. E. B., even though he knew he would be replaced, agreed to the task. He immediately decided to attack the challenge using two teams, one starting in Santa Rosa and the other in Moriarty. He used Sam Fulton, Las Vegas District Maintenance Superintendent, as the team leader for the leg from Santa Rosa. He called on ASCE member Burton G. Dwyer, who was the Grant County Engineer, to take temporary leave from that county to be the Team leader for the Moriarty Leg. Burton had experience with ranch properties that had pinon trees on them. I might mention that Burton became the NM State Highway Engineer in 1939 and served in that capacity until 1952. He was also the New Mexico Section President of ASCE in 1940.

Clyde Tingley, who was the ex-officio mayor of Albuquerque and later became Governor of New Mexico 1935-1939, was the District 3 Maintenance Superintendent who supplied much of the equipment and helped in the project funding activities for the 1926 cut-off construction activities.

Needless to say, this was a high-energy and high-profile task. Work would start around December 1 and needed to be completed by the end of the month. There would be no time-off for workers over Christmas or New Years. Equipment would be blade graders, drags, and surplus World War I Caterpillar tractors. Temperatures were cold and there was snow during the month. Some of the equipment operators had to sleep with their equipment to deter sabotage.

As of January 1, 1927, replacement Northwest District Engineer, Frank Kimball, who had previously been the City Engineer in Albuquerque, was tasked by the new governor to shut the project down. He was also a member of ASCE. Because of weather, he couldn't get there until January 3 and he found that cars were traveling over the shortcut. He convinced the new Governor not to deny the presence of this cut-off. Governor Dillon accepted the cut-off and later accepted the Laguna Cut-off.

The Laguna Cut-off was approved by the NM State Highway Commission on December 29, 1926 as work was being completed on NM 6 between Santa Rosa and Moriarty. As partial recognition of this outstanding construction achievement, Governor Dillon reassigned E. B. Bail to another position in the highway department and did not fire the workers who had worked so hard to get the 69-mile leg completed on time. E. B. wrote a detailed description of the Santa Rosa Cut-off construction in an article listed in the references.

It is useful to discuss the status of Route 66 during the 11 years that it was going through the transition from the longer route to the shorter one. Initially, the Santa Rosa Cut-off to Albuquerque was passable, but it was not a good road for a number of years. The two parts of the cut-off had different needs. The segment from Santa Rosa to Moriarty, NM 6, went through ranches, and the new road cut through some cattle pastures, which had to be sealed with gates on the road surface. It took a while for the highway department to install cattle guards along this stretch and to add gravel to stabilize the surface. The stretch from Moriarty to Barton, along US 470, was considered a wagon road in 1926. With the US identification for the road in 1931 as a future Route 66, federal monies could be used for construction costs and this was done. The shortcut was paved by the end of 1937, when Route 66 was officially aligned over this shorter route.

**Central Avenue Underpass**

This project is discussed assuming travel from the Texas border westward across New Mexico and is discussed here because of position on Route 66 and not time of construction. The underpass is in Albuquerque and just east of the 4th and Central Intersection. After the completion of the following 4 projects by 1937, there was one last major engineering hurdle that needed to be addressed to complete the Santa Rosa Cut-off, the separation of the Atchison, Topeka, & Santa Fe Railway (AT&SF) from the east-west Route 66 traffic in Albuquerque. This grade separation was critical to Route 66 traffic flow. Construction of the Central Avenue Underpass as the grade-separation structure for the railroad occurred in 1937.

Clyde Tingley was governor and Works Progress Administration (WPA), later to be the Work Project Administration, monies were used. Actually, three projects were undertaken with these funds: the Central Avenue Underpass, the Tijeras Avenue Underpass, and the Coal Avenue Viaduct. An underpass was constructed rather than a viaduct because of right-of-way considerations as Central Avenue entered downtown Albuquerque.

AT&SF engineers designed the Central and Tijeras structures, and the New Mexico Highway Department personnel supervised the construction. ASCE member W. W. Kelly was the chief design engineer for the project. The underpass was the final structure that was needed to make the Santa Rosa-Laguna Shortcut fully functional.

A major north-south street, 1st Street, was located less than 300 feet from the tracks. The Alvarado Hotel and YMCA were on 1st Street and bordered the Central Avenue right-of way. Commercial properties, with track sidings, were located next to the tracks on the east side of the underpass and bordered the Central Avenue right-of-way. The city, state and AT&SF highway officials worked together to reach a feasible underpass solution. Because of considerations to protect the Central Avenue-1st Street intersection, the tracks were raised 7 feet to improve the street grade going from the underpass into the intersection.

The details describing the design and construction of this underpass will be published in La Cronica de Nuevo Mexico, the official publication of the Historical Society of New Mexico, in late 2023.

4th Street and Central Avenue Intersection

The intersection of Fourth Street and Central Avenue in Albuquerque, New Mexico is a unique landmark for the history of Route 66. This is the only place on Route 66 where the highway was aligned in a north-south direction (along 4th Street) for eleven years and then re-aligned in the east-west direction (along Central Avenue) for the remaining forty-eight years of US 66 existence.

"Historic Route 66" signs are displayed on both streets in Albuquerque. The re-alignment saved 107 miles of travel across the state and had the distinction of bypassing the historic capital of New Mexico from major tourist travel for the purpose of improving transcontinental travel through the state.

As has been discussed, the Santa Rosa Cut-off terminated at 4th and Central, and the Laguna Cut-off originated there. The intersection at 4th Street and Central symbolizes the important historical events that took place in the first 11 years of US 66 existence. The significance of this intersection is recognized by the inclusion of the intersection as a topic for Additional Documentation for a building listed in the National Register of Historic Places. The intersection is recognized by the title: "The Rosenwald Building and the Route 66 Re-alignment Intersection in Albuquerque."

The Rosenwald Building was opened in 1910 to great acclaim. For its time, the Rosenwald was as modern as they came. It was the city's earliest reinforced concrete structure and probably the first fireproof building in New Mexico. Its massiveness, two-story entrance bay and minimal decoration reflect the Chicago training of its architect, Henry C. Trost.

Originally the entire building was used as a department store until a fire in 1921 necessitated a six-year total renovation. The building remained a major department store until 1927 when the ground floor was then leased to McLellan Stores, which remained there for 50 years. McLellan's has the distinction of being the store with the longest exposure to both phases of Route 66 traffic in Albuquerque.

The text for the Additional Documentation for the Rosenwald Building in the National Register is: "The Advanced Documentation supplements the historical context for the listed Rosenwald Building by providing information on the building's pivotal location along historic Route 66 through Albuquerque. The documentation does not change any aspect of the existing nomination as the listing criteria, areas and period of significance and boundaries all remain the same."

**Central Avenue Bridge Site**

A highway bridge was constructed in 1930 on Central Avenue in Albuquerque, NM that spanned the Rio Grande. The bridge was constructed with state funds with the approval of the Dillon administration. Frank Kimball was a District Engineer during this construction. As will be seen, flood control of the Rio Grande was an important part of the design and construction of the bridge. The Central Avenue Bridge eventually became a key part of Route 66 history. The construction of the bridge became its most important feature. With its completion, the US Bureau of Public Roads agreed to the Route 66 re-alignment and authorized federal funding for finishing the construction of a rerouted Route 66. This occurred in 1931.

The location of the new Central Avenue Bridge over the Rio Grande on NM 6 presented challenges to the designers. The Rio Grande begins high in the San Juan Mountains of Colorado. Due to snowmelt, the river flows much higher every spring. In 1930, there were no dams on the river, and the spring runoff would barrel south through New Mexico, resulting in major floods. In 1874, just before the railroad came, the flooding was so severe that the entire region, where downtown Albuquerque now stands, was under water. Old Town Albuquerque was an island in the Rio Grande flood plain.

The Middle Rio Grande Conservancy District (MRGCD) was created in New Mexico. The MRGCD created a plan in 1927 to address flood protection and channel improvement in Albuquerque. This initial part of the plan was to construct levees spaced from 1,500 to 2,000 ft apart, which would outline the Rio Grande. Within this span, there would be an inner flow channel that was 600 to 750 ft in width. The function of the wide channel would be to pass the high floods, which may occur in intervals of 15 to 20 years and prevent overflow to adjacent lands. The inner low flow channel would carry the annual floods and would be expected to help with silt buildup.

Higher levees were placed in Albuquerque as additional protection from floods. Drainage ditches would be located next to the levees. The material removed from those ditches would provide fill for the levees that may be 8 to 10 feet above the low water elevation of the river. The levee and ditch would have a minimum berm of 20 ft to keep the functions separate. Mechanisms would be instituted to protect the levees from scour. The drainage ditches would also help reduce the elevation of the high ground-water table. By 1935, the MRGCD had built almost 200 miles of levees along the river banks and a system of jetties and checks to protect against floods.

Until 1973, no dams had been constructed between the headwaters of the Rio Grande and Albuquerque. In the end, The MRGCD levees and drainage ditches constrained the Rio Grande and bridge designers created a 1350 ft. long bridge, with 54- 25 ft spans. The bridge had spans having a 20 ft. wide roadway and 6 ft. sidewalk.

The bridge was composed of a concrete deck, steel girders, and timber piles. The timber piles, sixty feet in length, were driven about 45 ft. into the riverbed and capped with huge timbers in a manner common for such river crossings. Then, heavy steel was laid horizontally along the length of the bridge. A steel and wooden framework was erected on which the concrete flooring could be placed.

Between 1927 and 1929, officials from the city and the State Highway Commission worked to arrive at a plan for Route 66 traffic through the city. Out-of-state highway planners wanted the shortest and most efficient way through the city, and they continually provided this advice to the State Highway Commission. Unfortunately, Central Avenue, as a through street, terminated at the Rio Grande in the 1920s. A ford had been there. Earlier bridges had been built and had washed out. A bridge was not present at that location in 1930.

A key consideration was where to cross the Rio Grande because an existing bridge, the Barelas Bridge, existed about a mile south of Central Avenue. The Barelas Bridge was convenient to the original north-south alignment of Route 66, but not to NM 6, and it was old and needed replacing. Retail stores catered to tourists coming through Albuquerque and there was fear that a new alignment of Route 66 would have serious impacts on those older businesses.

From a highway design standpoint, there were better places to cross the river above Alameda, 8 miles to the north, or Barelas, 1 mile to the south. The fact that Central Avenue was established in this flood plain required that major attention should be applied to bridge design that would carry a major transcontinental highway through a challenging flood zone and provide an all-weather road through the state. The design has stood the test of time.

The purpose and design features of the bridge site are discussed in a La Cronica de Nuevo Mexico publication later this year. La Cronica is the Official Publication of the Historical Society of New Mexico. The bridge site has been approved for recognition by the Albuquerque City Landmark Commission, and formal recognition is awaiting Albuquerque City Council action.

Consistent with early New Mexico customs, Frank Kimball was relieved of District Engineer responsibilities in 1931 and reassigned toother duties. He had the satisfaction of recommending the use of the Santa Rosa Cut-off and in getting the Laguna Cut-off functional and accepted by the Federal Government for the future re-alignment of Route 66.

**Laguna Cut-off**

The shortest route for the Laguna Cut-off portion for NM 6 was to use Central Avenue: to construct a new bridge near Old Town, and to build a short road up the hill on the west side to eventually intersect a convenient alignment over Nine-Mile Hill that went into the Rio Puerco valley.

The Laguna Cut-off, NM 6, really got going in 1930 when the Central Avenue Bridge was completed and travelers could get through downtown Albuquerque and cross the bridge. After 1931, Federal funds could be used for highway construction.

One of the attractions for constructing the bridge on Central over the Rio Grande was to make a road to the new Albuquerque Airport headed by Western Air Express. In December of 1929, Governor Dillon conferred with officials of Western Air Express and supported the alignment and improvement of the Laguna cut-off from the new bridge as far as the airport. This decision essentially locked in the shorter route along Central Avenue for the Laguna cut-off. A desirable outcome was that Route 66 traffic would go near Old Town and Central Avenue did this.

There is an entry in the National Register of Historic Places titled: “Route 66 State maintained from Albuquerque to Rio Puerco.” This National Register listing is: “The historic U.S. Route 66 (US 66, Route 66) ran east–west across the central part of the state of New Mexico, along the path now taken by Interstate 40 (I-40). However, until 1937, it took a longer route via Los Lunas, Albuquerque, and Santa Fe, now roughly New Mexico State Road 6 (NM 6), I-25, and US 84.

Large portions of the old road parallel to I-40 have been designated NM 117, NM 118, N M 122, NM 124, NM 333, three separate loops of I-40 Business, and state-maintained frontage roads. It is one of the roads on the Trails of the Ancients Byway, one of the designated New Mexico Scenic Byways.” The Santa Rosa and Laguna Cut-offs are mentioned in the history associated with the NRHP listing.

**Rio Puerco Bridge**

Once Federal Funds could be used for highway and bridge construction, efforts were intensified to get the shortcut ready for full-time Route 66 travel. A necessary structure was a bridge over the Rio Puerco. One of the first things that was funded with a Federal Aid Project was the Rio Puerco Bridge on the Laguna cut-off.

The Rio Puerco had always been difficult to cross and extra measures had to be taken to establish a reliable highway crossing. The Rio Puerco has headwaters in Northern New Mexico. In the 1930s, the Rio Puerco had large sand deposits where the Route 66 alignment was planned, and this provided a challenge to bridge designers. In the end, a 250 ft long Parker through-truss bridge was designed and constructed. This bridge was built in 1933. The single-span Parker through truss steel bridge was fabricated by the Kansas City Structural Steel Company and built by F.D. Shufflebarger in 1933. Its substructure includes two concrete piers and massive concrete abutments set upon timber pilings. The total bridge length is 330 feet (100 m), including the 250 feet (76 m) span, which has ten 25 feet (7.6 m) panels, and two 40 feet (12 m) approaches.

With the completion of the Rio Puerco Bridge in 1933, transcontinental travelers could take the full shortcut across the state on an all-weather basis, and this became a popular route even though it wasn't completely paved until 1937.

This bridge is listed in the National Register of Historic Places in 1999 as: "Rio Puerco Bridge." It is located approximately 19 miles (31 km) west of Albuquerque. The NRHP listing indicates it was built to carry a past alignment of US 66 over the Rio Puerco, and in 1997 carried a frontage road for Interstate 40 (I-40). It no longer carries traffic, and has been bypassed by a different frontage road bridge.