Santa Clara County Department of Roads and Airports
Alamitos Creek Bridge on Alamitos Road
Bridge Replacement Letter Report
Caltrans Bridge No. 37C-0159

Alamitos Road is a two-lane County road in the hills south of San Jose and is principally used by local traffic. The bridge over Alamitos Creek, Caltrans Bridge No. 37C-0159, is a two-lane bridge that was constructed in 1935, and its deck was widened in 1964. The bridge length is 152 feet and the bridge clear width is 26 feet from curb to curb. The original concrete bridge has a continuous concrete T-beam superstructure supported on concrete piers and abutments. The 1964 bridge widening added steel girders parallel to the concrete girders and included an additional concrete deck with new railings. However, no additional substructure was constructed, in effect the widening was hung from the existing bridge. The curved approach roadways on either end of the bridge are only rated for approximately a 15 mph design speed. The bridge has three straight spans, each approximately 50 feet in length.

The bridge does not meet current AASHTO geometric standards for rural roads. These standards require such bridges to have a minimum of two traffic lanes at 12 feet each plus two-foot shoulders on each side making a total width of 28 feet clear between bridge railings. Also, there is a very sharp 90° curve at the south approach to the bridge, which presents a very hazardous situation to motorists, particularly at night. This bridge, which is on a curved alignment, should have additional shoulder width to more safely accommodate the curved approaches as well as the frequent bicycle traffic. The existing bridge also does not meet current structural capacity requirements. The bridge is not adequate to carry legal loads and is posted as such. In summary, this bridge has structural deficiencies and is classified as functionally obsolete.

Bridges in this region are eligible for the state and federally funded seismic retrofit program. The bridge is not far from the epicenter of the 1989 Loma Prieta earthquake. The San Andreas Fault is located about 6 miles westerly of the bridge and can generate a Magnitude 8.0 earthquake, with a peak ground acceleration of 0.62g, and a peak spectral acceleration of 1.3. For reference, a magnitude 8.0 earthquake would be about 9 times more powerful than the Loma Prieta earthquake.

As part of developing a retrofit strategy, the County compared the cost to replace the bridge versus the cost of seismic retrofitting. It was decided that replacement was the best option as it would result in a safer and a new bridge. Otherwise, the County would be left with a 78 year-old bridge that would be seismically safer, but still functionally obsolete and structurally deficient. A new structure would meet the functionality and seismic standards for the bridge location, including provision of a 25 mph design speed through the project.

The replacement bridge will be a three span structure. It will be approximately 174 feet long. The bridge deck will have two 12-foot lanes and a 6-foot shoulder on each side of the road. There will be a standard concrete barrier on each side of the bridge. The 6-foot shoulders will provide safer passage for the bicyclists that now ride in the traffic lane and pedestrians.

To minimize traffic and local resident access disruptions, the existing bridge will remain in service while the new bridge is being constructed. The replacement alternative was determined to be the most appropriate for this project. The federal HBP and the State Seismic retrofit program will combine to pay 100% of the cost for replacement of the structure including design, right-of-way, construction, and construction administration. Thus, the County will end up with a safer, legal bridge at little cost. In the absence of this project the County should expect the following:

- Significant current seismic retrofit costs.
- Significant ongoing maintenance costs.
- Significant liability should a motorist have an accident at the bridge or should a bicyclist get hit by a vehicle there for failure to upgrade the bridge to current standards when known deficiencies and the requisite funding exist.
- Significant cost to replace the bridge in the future. The bridge is near the end of its service life, and will need to be replaced in any event. There is no guarantee that any level of federal or State funding would be available in the future to pay for bridge replacement.