

The stories of Placer County's bridges



Placer County is retrofitting its bridges.
Photo/Erik Bergen

By Robert Miller

For decades, cars, trucks, people, bikes and motorcycles have traveled the 117 bridges that are Placer County's responsibility. From the iconic Foresthill Bridge standing 730 feet over the American River, to the simple, single-lane bridge over Yankee Slough on Dowd Road in rural western Placer County, they have a history.

While there are different reasons behind why the bridges were built, how they were built and their sometimes changing uses, they all have a common thread: engineers in the county's Department of Public Works and Facilities keep a watchful eye on the structures and when warranted, add them to the list of bridges needing replacement or rehabilitation.

To ensure the county's roadways are safe for all who use them, the county is continually prioritizing projects to replace or retrofit worn structures. With an average planned lifespan of about 100 years, many bridges are reaching, or have reached, the end of their planned service life. While that doesn't mean

they are unsafe or can't continue to serve their purpose, it does mean that many of them are overdue for major overhauls – and at nearly the same time. In the last decade, 15 county bridges have been replaced and one was retrofitted. Projects to do similar work to another 14 are either underway or are in the planning stages.

Another commonality for the county's bridges is how replacement and upgrade projects are funded. The 29 projects mentioned above have a combined cost of \$220 million. Of that amount, 92 percent, or \$202 million, is from state and federal funding. The county has parlayed about \$18 million of local taxpayer money into \$220 million worth of public works projects.

Jurisdictions typically use a 100-year bridge lifespan as the benchmark for bridge replacement and rehabilitation. Given the state's aging infrastructure, for all bridges to meet the 100-year standard, the Federal Highway Administration estimates that about \$1 billion a year is needed. The federal government's annual allotment to California for bridge work is \$300 million. While there is competition for funding, the county is judicious in applying for state and federal funding, focusing on those projects that are likely to secure funding.

Last year, the county completed the largest project in county history. Contractors retrofit and repainted the Foresthill Bridge to both improve the span's integrity and increase its ability to withstand earthquakes and the elements.

The bridge was completed in 1973, after two years of construction. It is the highest bridge in California and the fourth highest in the nation.

Building the bridge was part of the Auburn Dam, a project that was started but never completed. Had the dam been completed, the bridge would have been the sole roadway to Foresthill and forestland beyond when the reservoir behind the dam inundated

the canyons below. The three-year, \$76-million retrofit and repainting project was done on a bridge that originally cost \$13 million to build.



Alpine Meadows Bridge replacement. Photo/Erik Bergen

The retrofit project won numerous awards, including the prestigious 2014 Bridge Project of the Year award from the American Society of Civil Engineers, an award given to engineers by their peers.

Not all bridges in the county are as stunning as the Foresthill Bridge. But this bridge, like many throughout the county, was showing its age and wear.

Every bridge in the state is inspected at least once every two years by Caltrans.

Bridges in need of retrofitting or replacement can be categorized as structurally deficient or functionally obsolete. When bridges in the county fit into one or both categories they are moved up on the priority list.

The single-lane suspension bridge at Yankee Jims sits a few feet above the North Fork of the American River on the twisty dirt road between Colfax and Foresthill.

Built in 1930, the suspension bridge was given low ratings by Caltrans after a careful analysis of all the bridge's

components.

Weight limit restrictions were then imposed. Placer County engineers, working with contract consulting engineers, used computer modeling to verify the load limitations and helped determine what future actions should be taken. The bridge, however, is safe.

Any bridge that county engineers feel is a hazard is closed to all traffic. A new bridge is now proposed to span the American River's North Fork and will likely sit adjacent to the existing structure. County public works is still evaluating several designs and has not arrived at a final decision on what the new bridge will be and whether the existing bridge will remain, and for what uses.

Planning for bridge projects can take five years or more before construction begins. Not only do the engineering and design specifications have to be determined, but a project will also be evaluated for environmental considerations including cultural and biological issues. Building a new bridge can disturb a lot of soil. What may be buried in that soil is of concern for project engineers and it's not uncommon for archeologists to be called in to evaluate uncovered artifacts. Most county bridges cross creeks or waterways that are home to endangered fish, frogs, snakes, birds and many other protected animals. County engineers lead the effort on each project to include measures that protect endangered species during construction. Additionally, utility lines are frequently attached to bridges. Moving these lines, whether they handle water, sewer, electrical or communications, can be extremely complicated.

The county board of supervisors recently approved an environmental monitoring plan for the Brewer Road Bridge replacement project. The bridge, a 73-year old structure that crosses the Pleasant Grove Creek waterway, will be replaced with a modern bridge that complies with current building

standards. As part of the project, a county staff member will be assigned to the project to ensure that adherence to the monitoring plan is maintained. The plan calls for environmental protection measures for numerous creatures, including vernal pool fairy shrimp, steelhead, several reptiles, migratory birds and birds of prey.

Environmental documentation is a complex process. The county strives to be a good steward of the environment and every project will be scrutinized for any environmental impacts it causes. Although construction is not expected to begin until 2018, county supervisors recently approved initial environmental documentation for a project to replace a bridge on Gold Hill Road over Auburn Ravine. This is one of the first steps of many that the county will take before construction actually begins.

The existing Gold Hill Road Bridge is more than 85 years old and is at the end of its useful life. It is deteriorating structurally, and is too narrow for modern vehicles. In addition to environmental considerations, the county solicited public input for the project from nearby property owners and provided updates to a local advisory council. Using the input received, the design for the replacement will preserve the area's rural character while providing safe access for residents, emergency vehicles, trucks and other users.

As population has changed in the county and technology has advanced, so too have the uses and requirements of roads and bridges. There are two aging bridges in western Placer County that exemplify these changes. One has already been replaced and replacement of the other is poised to begin.

The old steel truss bridge on Cook-Riolo Road in the western county was a single-lane structure built in the flood plain. Due to its age and the increased traffic in the area, Caltrans determined that the bridge is structurally deficient and functionally obsolete. The old bridge was susceptible to

flooding, which rendered it impassible and created serious safety concerns. The newly completed bridge sits more than 10 feet above the old one, has multiple lanes and provides safe, protected areas for pedestrians and cyclists.

The Walerga Bridge replacement project, in western Placer County, is scheduled to begin in 2018. This project will build a significantly larger structure to accommodate both increased traffic and to replace an aging structure that periodically floods. The current two-lane bridge is about 125 feet in length. The new bridge will be more than 500 feet in length and approximately 14 feet higher, with barriers separating automobile traffic from pedestrians and cyclists.

The Bowman Road bridges in North Auburn are set to be reinforced in late 2015 with a heavy-duty polymer as part of rehabilitation and seismic retrofit.

A project to replace an aging bridge that is subject to harsh winter weather started this spring. The Alpine Meadows Bridge, an old structure over the Truckee River near Lake Tahoe, is the nexus of trails, pedestrian and bike paths, and a gateway into Lake Tahoe. The bridge spans a waterway that is listed as impaired by the Environmental Protection Agency. The replacement bridge will not only improve travel on the roadway, but will also have environmental benefits. Sediment is one of the pollutants that denigrate the Truckee River. The new bridge will have better drainage and catch basins that will capture silt and sediment, preventing its free flow into the river. Aesthetics will also be improved with a new design that will remove a pier that currently sits in the river, allowing for a more natural water flow.

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