

Willits Bypass: The Wait is Over

Six Decades After It Was First Proposed, North Coast Route Becomes Reality



Caltrans photos by Scott Lorenzo

The southbound U.S. Highway 101 bridge spans State Route 20 at the new southern interchange of the Willits Bypass. Note the unique redwood cone pattern designed just for this project. These redwood cones adorn all the concrete structures of the bypass, which opened in November 2016.

The Willits Bypass, first envisioned more than 60 years ago, had become to many living along California's North Coast a mythical tale, like Bigfoot, something you only hear stories about but never see for yourself. Until ground was broken for construction in the fall of 2012, many locals believed it would never be completed.

U.S. Highway 101 is considered the lifeline of the northern California coastal range. For decades, travelers through the city of Willits experienced delays that would often reach 30-60 minutes or more during summer. The purpose of the Willits Bypass is to ease congestion for interregional traffic along this important trucking and tourism corridor.

After being shelved numerous times due to funding shortages in the 1960s and 1970s, the project was revived by the California Transportation Commission (CTC) in 1988 — only to be put on hold due to funds diverted to seismic retrofit projects.

But after many challenges, construction did begin and the bypass saw its first vehicles on November 3, 2016.

Funding issues

After getting past the funding shortages due to the seismic retrofit projects, Caltrans moved forward on an environmental document, with the final document completed in 2006. Funding for construction from the CTC seemed to be automatic after so many years of work, but when Caltrans brought the project to the CTC in early 2007, the economy was starting to falter, and highway funding shortages were looming on the horizon.

The CTC told Caltrans that funding for Northern California projects was too competitive at that time to pay for the full proposed four-lane bypass, but was more feasible if the project was divided into two phases. Staff quickly drew up such plans, held a public meeting to gain local support and returned to the CTC. Funding for Phase 1 of the Willits Bypass was allocated, for two lanes over the full length of the project.

Lesson learned: Large, expensive projects are getting harder to fund, so breaking them up into prioritized phases, or sections, may be the only way to get them funded over time.

Protests

While some in the community voiced concerns about the scope of the bypass, or whether it was really needed, organized protests did not begin until after the 2012 groundbreaking. The first of these protests, the so-called “Boot Print” tours, trespassed onto various areas within the footprint of the bypass. These protests gradually faded after construction began.

Tree sitters then began to occupy trees within the bypass construction area in January 2013, about one month before tree and brush removal began. The protests continued through the summer, until there were no more trees along the project route to occupy.

Other actions initiated by the protesters included chaining themselves to equipment and blocking trucks on the highway, while others chained themselves to the trucks or gathered at the local construction office to block employee access.

However, a strong show of support for the bypass also emerged, by those who backed construction of a new route. Counter-protests were sometimes staged on behalf of the bypass at the same time as rallies against it.

Due to the ongoing protests, CHP maintained a large presence on this project, paid for through the Construction Zone Enhanced Enforcement Program (COZEEP). This program is normally used to enhance work zone safety by reimbursing CHP to provide off-duty officers with vehicles to be present at each end of a work zone. Six officers within the six-mile project area were assigned around the clock to discourage trespassers, among them specially trained officers to safely remove tree sitters.

Lessons learned: COZEEP can be used rather than hiring private security for construction projects; it is important to provide safe access for media; and tree sitters may climb more than trees!

Cow vandalism?

While installing water lines on mitigation parcels for grazing cattle, a team of archeologists worked a day or two ahead of the trenching crew, looking for any potential cultural areas to avoid. They found an area that contained a concentration of chert, or stone flakes, left behind when Native Americans made stone tools. They used tall survey stakes to clearly mark the Environmentally Sensitive Area (ESA) so the trenching crew would avoid the site.

What the archeologists did not realize was there were cattle in another part of that field. The cattle wandered over to the survey stakes and did what bovines tend to do: they rubbed up against the stakes to scratch themselves, knocking them to the ground, and trampled them into the grass.

The trenching crew, assisted by a tribal monitor looking for any artifacts brought to the surface, had already trenched through the area when one of the stakes was spotted on the ground. Work stopped, and local tribes were notified of the mistake. Caltrans staff discussed the issue with the tribal monitor, and it was agreed that since no artifacts had been dug up, work should proceed with pipe laying and backfilling.

Lessons learned: The quick reporting to the local tribes kept the situation from escalating, but when local media found out about the mistake, there was initial disbelief about the cattle. However, the issue was resolved because Caltrans was truthful early, owned the mistake, and explained the changes implemented so it would not happen again.

Falsework collapse

It would be difficult to talk about Willits Bypass challenges without mentioning the falsework collapse that injured several workers. Falsework is the temporary structure that supports the concrete forms until the concrete hardens and the bridge can support itself.

The 1.1-mile-long viaduct is the type of challenging project that every structural engineer wants in their work history. Built in eight frames, or segments, its foundations rest on friction piles (steel



These columns, or bents, rise over 20 feet to support the 1.1 mile viaduct. In all, 64 of these columns support the viaduct's roadway.



Mitigation and relinquishment work will be completed over the next few years.

piles that do not extend into the bedrock) due to the very deep soils in that area of the valley. Designed to withstand large earthquakes, the viaduct crosses two local roads, several waterways and a 100-year floodplain.

On January 22, 2015, a section of falsework collapsed as it was being loaded with wet concrete.

Caltrans concluded that the falsework was not installed as shown on the approved falsework drawings provided by the contractor, that certification by the contractor's Engineer of Record's designated representative may have been ineffective, and that the collapse was rapid with no prior indicators of an emerging loss of stability.

Recommendations included:

- revising the Standard Specifications regarding delegation of certification of the falsework and timing of certification;
- evaluating the need for horizontal forces to be positively restrained; and
- providing internal training for reviewing best practices in design, construction and inspection of the falsework.

Late design change minimizes delays

The bypass was scheduled to be a three-season project, breaking ground in the fall of 2012 and opening to traffic in the fall of 2015. However, after the first season it was clear that the protests had delayed the project schedule a full year, and the completion was changed to the fall of 2016.

After the second construction season, the continuing protests, a lawsuit against the project, and a temporary suspension of Caltrans' permit by the U.S. Army Corps of Engineers, it seemed the bypass would not open until fall 2017.

Another reason for the second year of delay was due to the original design of the north interchange. The bridge foundations were designed to require a full 300 days of settlement from the time the fill was placed before the bridges could be constructed. This lowered the cost for pilings, and was considered to be a good tradeoff when the original schedule allowed for the long settlement.

Facing approximately \$10-12 million in costs for a second year of delay, Caltrans' construction staff brainstormed with design staff to see if the foundations could be quickly redesigned to reduce the settlement time, saving significant time and money. Plans were modified to reduce the settlement time from 300 days to just 30, a change order for about \$3 million was initiated, and steel friction piles ordered. This change did add increased risk due to potential settlement issues, but paid off by paring the project delay to one year.

Challenges will continue

The main Willits Bypass project has been completed, but there are several related projects still in progress. Mitigation and relinquishment work will be completed over the next few years. The main mitigation project is the largest of its kind ever to be designed and constructed by Caltrans. To make up for the approximately 40 acres of wetlands permanently impacted during construction of the bypass, as well as another 20 acres temporarily impacted, more than 2,000 acres of land were purchased to create and rehabilitate wetlands, improve riparian areas along creeks, remove non-native invasive plants, and replant almost 800,000 native species. After the mitigation is completed, the work will be monitored for 10 years to assure success. There are sure to be more challenges waiting to be met, and still more to be learned from this project. **MM**

Source: District 1 Chief Public Information Officer Phil Frisbie Jr.