

Nevada County Transportation Commission meeting – July 19, 2023

State Route 20 Omega Curves Safety and Operation Improvement Project Presentation by Caltrans Resident Engineer Jeff Johnson

Jeff Johnson:

Sam invited me to do a presentation on the Omega Curves project on Highway 20. This is a safety and operation improvement project. My name is Jeff Johnson and I am the resident engineer for Caltrans administering this contract. I'll give you a little bit of an update on the project. I don't know how familiar everybody is with this project, so a little bit of background, the locations and some photos.

The purpose of this project was to improve traffic operations and safety by reducing the number and severity of collisions. There are two segments for the primary project where we had a high concentration of accidents, 39 collisions in a three-year period, which triggered this safety project. It was then combined with a couple other small projects as well, two left-turn pockets.

Basically, we are constructing two 12-foot lanes and an eight-foot shoulder on both sides, mainly at the two locations, White Cloud and Lowell Hill. Improve horizontal and vertical site distance, improve clear recovery zones, make sure there's a little bit more width to the overall roadway. If anybody goes off, slides in the snow, they have a little bit more pavement width to correct. Also reconnect all the roadway connections that we have within the limits of the project and improve and construct the drainage systems throughout the project, bringing it up to standards, all reinforced concrete pipes so it will last 50 to a hundred years instead of metal that corrodes and needs a lot of maintenance throughout the years, and if there is a fire, they don't melt. And as we talked about, added left-turn pockets at Conservation Camp Road and Washington Road.

Project cost and time. I think we estimated more like a \$40 million project. The bids came in great, \$32 million. Low bidder is Granite Construction, 240 working days, and then we have a year of plant establishment afterward. We were kind of anticipating this really to be a three-year job, but we are really condensing it down to two seasons, so we are on track for that.

Project schedule. As of today, we're about 55% complete, as far as costs. We're two thirds of the way through the project by time. This project went out for, it basically had project approval February 23rd and literally five days later we were out starting construction, removing the trees. We had to get all the trees down before any birds would nest and make sure everything was clear. Kind of had a rough year last year, supply chain issues and weather didn't help but we were able to get the turn pockets completed last year. And then Halloween, basically got snow. We were in winter suspension November 1st, started back up mid-May and we've been moving dirt pretty good. We had a couple week period there where we had the thunderstorms but we're caught up pretty much from that. And our anticipated end of construction is mid-November. Really trying to push for November 1, but right now it's looking like mid-November of 2023.

Here is the overall project, there's five locations. Location one was the turn pocket at Conservation Camp. Location two is the curve realignment at White Cloud. You can see in here where the old roadway was and now it is getting realigned. Location three, Washington Road. Location four, we have a turn pocket to allow slower vehicles to pull over to prevent delays with the overall traveling public. And location five is our other curve correction project. You can see where we have the big, major U-shaped curves and now it is all getting smoothed out.

Here are a couple pictures of the before and after, beginning and where we are at to date. Locations one and three were the turn pocket projects, two lane highway, no shoulder, no left turn. If anybody was turning, you really couldn't see. Here is the after. Got eight-foot shoulders, got our left-hand turn pocket, improved site distance, makes both of these intersections a lot safer.

Location two is the White Cloud curve realignment, that is the first one I showed you on the overall map. This is a picture, beginning of last year as we started the clearing operation. This is what it looked

like once we got all the trees off of the slope. We see where it started the overall widening for the eight foot shoulders. This is Jefferson Creek up on the left-hand side there. This is still location two. This is the big fill. If you go back, here's the big cut, this is where we're going through, this is where the alignment goes and this is where basically all that excavated material makes this fill.

Here's the clearing operation to get down to start the drainage work last year. This is a 60-inch reinforced concrete pipe. We actually had to reinforce it because we have almost a hundred feet of fill over the top. That is getting the drainage in so we can start doing the dirt work. Another picture of the drainage. And here's basically where we finished off last season. And you can see the pioneering to get up to start the cut. They didn't really move much dirt here last year at location two at White Cloud.

This was right before our winter suspension, our permit erosion control in place. Everything's ready for the winter. This is close to what it looks like today, this was probably two weeks ago, but you see the big cut coming down, it's about a hundred foot cut going through. And this was the fill at the end of last year with all the erosion control going into the winter. And this is what it looks like today, well close to today, maybe a couple weeks ago. Now it's almost all the way up to grade as of today. Here's a nice panoramic view from the top of the cut. You can kind of see from the right there how the new alignment's going to come through and tie back in, cutting off the other substandard horizontal curves that we had on the project.

Location five, this is our other curve correction project. Again, this was a clearing of one of our fill locations. This is, again, the drainage. This was a five by five, reinforced concrete box. We were tying into an existing five by five box and extending it. So again, this is about an 80-to-100-foot fill through this stretch here. And this is the head wall for the outleted box. And this is, they are starting to do the earth work here. There are drainages in, they're starting to bring it up in lifts, compacting, placing it. This is at that same five by five reinforced box culvert location.

See in the background there, that's where the dirt is being generated from. The alignment changes, shifts over and all that dirt is being excavated and placed into the hole. And this is just another picture as it continues to come up.

Here's another fill location. This is our 72-inch reinforced concrete pipe. This is another alignment. If you have the two S-curves going through here, so it just basically goes straight through this location. One of our smoky days. But that is the overall alignment. Got the drainage getting installed down below. This is for our 72-inch reinforced concrete pipe. Got it right there, literally big enough for most people to probably walk through. This is the installation here and there's another picture of the installation down below with all the equipment just ready to go. Once we get that pipe in, we can start placing dirt and there's a head wall for the outlet of the pipe.

Here's a picture, pretty much almost all the way up towards the end of last season. They are actually starting there again this week, but I don't have any pictures of that today. And that's pretty much what it looked like at the end of last winter where we stabilized. We had all of our erosion control in place and ready for the snow. There's just another view from another cut going to that same fill. In the background you can see the bigger cut, which we'll get to here next.

This is the Big Bear Valley cut. Here's a picture of the top of the mountain. First day, really started moving some dirt, another view down into Bear Valley. This is still probably about a hundred feet up from the actual finished grade elevation. Here is a picture of it coming down. A little bit further down you see the scraper with the D 10 pushing it, collecting the dirt and then it transports it over to the fill location. A little bit better picture of all the iron we have out on grade, continuing the excavation, bringing it down a little bit more. Then we got all the way down to the bottom and actually had rock down at the bottom, actually had to blast. This is the blasters setting the charges, getting ready and got a little video for you to see if it actually works. That that was about 5,000 yards of material. That's a finished product. That was pretty much where we finished off the end of last season until we can get into our closures to tie everything in and get everybody on the final alignment.

And then the last but not least, this is our last big fill, the very east end of the low hill location starting down at the bottom, we're bringing up the grade. Slowly but surely, bringing it up. This is almost up to pretty much our finished grade elevation, pretty close.

Here is just another vantage point of that same fill. And that's our big fill right there, about 120 feet in elevation. The overall face is about 160 feet in length. I don't know who wants to be that dozer operator that has to track and walk that slope all the way up and down. But that's the finish there. And then that's our aggregate base ready to be paved. We'll be finishing that and we'll probably start paving that in the next, hopefully, couple of weeks.

That is kind of where we're at. Right now, we do have a couple of milestone events. Probably everybody here likes to know when they're going to happen. We do have a 35 day, one-way reversing traffic control. That started last week. We have traffic signals out on 20, hoping to make that a lot shorter than 35 days. We might be done as early as next week, the end of next week we might be able to get it paved but no later than the following week. By the end of July, we will have two lanes open and the traffic signals will be gone.

And then we do have, in the contract, basically two five-day closures to basically construct all the tie-ins and the road connects. Basically, we have five days where we have a full closure on 20. Traffic will have to take an alternate route because we're going to have close to 30 or 40-foot cuts in some areas. There's no way to keep highway 20 open to traffic. We are working with Washington to try and provide some type of an access to make sure they can get to Grass Valley. But those two closures, we're looking at back-to-back weeks right after Labor Day, kind of mid-September and late September, and we'll be good to go. Get the final paving, striping, guardrail and everything in place and trying to hit that November one milestone to get this project complete.

So that's the presentation I have and pictures. Open to any questions you have on the project.

Ed Scofield:

Jeff, thank you for your presentation. Commissioners, questions?

Tom Ivy:

Thank you for that presentation. Will you stack those five-day closures? Try to schedule them at the same time so we have one, I'm assuming, if at all possible?

Jeff Johnson:

They're actually going to be two separate weeks. Number one, it's just too much work to do at both locations. And then we'd really cut off Washington where the town of Washington wouldn't have access. So yeah, there's really no way to do them both at the same time. It's really going to be two separate five-day closures.

Susan Hoek:

This is great. It's been interesting to watch this project unfold, watching the lifts go in. And this had been up for a while and it was very interesting to see how far you've come in the last month. So, thank you for the presentation. I appreciate that.

Jan Zabriskie:

I had one question. During the September closures, what is the plan in the event of a big wildfire in that area for evacuations?

Sam Vandell:

I will let Mr. Johnson handle this. Mr. Johnson is actually very familiar with this scenario. Actually, he was on the 174 project that was completed a year or two ago where they had the fire just, I guess it was around Colfax area and they had to shut down and coordinate with the first responders. The contractor worked with the first responders as well to close all construction activities and reopen the road for two lanes. I do know there was a requirement as part of the contract to develop a plan to coordinate with this, in those evacuation events. It was requested that the contractor prepare an evacuation traffic scenario. Jeff, can you provide a little more background or detail on some of that?

Jeff Johnson:

We do have the wildfire evacuation plan for the project itself, not specific to the five-day closures. But we will have access for our construction equipment. So, if there was an emergency, we'd be able to get, definitely emergency vehicles through. Luckily where we're at, really there's better access, if there was a fire, to go the other way. Where 174, we were right in the middle of it. But access will be maintained. If there's a wildfire, we'll be able to get emergency vehicles and everybody through that needs to evacuate because we're going to have to get locals through. So, we have to be able to get through the project so we'd be able to get locals and emergency vehicles through. And we've been talking with all the local fire departments, forest service, the town of Washington, everybody, we've been communicating. So, we'll be able to get everybody through.

Daniela Fernandez:

Thanks so much for that last question, Jeff. It's good to hear that you guys have been thinking about that and have a plan. Just a quick point of clarification. I was on this drive yesterday, so it was really neat to see the presentation today and hear exactly what's happening. You guys are working hard out there. It did add about 40 minutes to my commute. According to your presentation as I understand it, that'll be through the end of this month, correct?

Jeff Johnson:

Probably through the end of September.

Sam Vandell:

She means the one-way traffic control, correct?

Jeff Johnson:

Oh, just the signal? The signal, that'll be through the end of the month.

Sam Vandell:

It was planned initially for longer and he is trying to finish it off early, by as early as the end of July and potentially earlier.

Jay Strauss:

Okay, great. Very good. And I have a really foundational question, and I apologize for not knowing this because I wasn't involved when this project started, but it looks like you're building, in places, a whole new road. And my question is, what happens with the old road?

Jeff Johnson:

It may be T Chris, landscape will get into that too. But the old roadway is going to be decommissioned. All the asphalt is going to be removed, topsoil is being added and then it's being ripped and processed. Not all of it's being planted, but just the tie-in locations so we have a better visual impact as you're driving through. And I like to do even more grading to try and bring it back to its original contours as we have before even the old road was there is the hope if we have time and money.

Jay Strauss:

Yeah, that would be great. And I had a question about the Highway 20 project, if I just may. At this point, I guess it's for Sam. We'll be paving and we've been talking or I've been talking about the stretch of Highway 20 between Grass Valley and Rough and Ready Highway. And Mike indicated to me that the repaving would have some salutary effect on cars going on that downhill when it's wet. I wonder if I could get a little more detail on the efficacy of that improvement.

Sam Vandell:

Right now, we're evaluating those collision data. Mike and our safety team have been evaluating and trying to review those collision data and things along those lines to try and identify any additional safety measures we can implement as part of this process. As well as, our typical process is when we do a grind and replace for some of the pavement, we grind off the top layer of pavement and then we put back two layers of pavement, a dense grade pavement, and then we put in what we call an open grade pavement where the gradation of the rock is similar to one another and there's a larger gap between those rocks, which allows the water to go down below the surface of the roadway and travel underneath on top of that dense grade asphalt. So, it takes the water, it's called open grade, it allows the water to drain down below the surface of the roadway and flow underneath on top of the dense grade asphalt. And then also with that, with the open grade, because of the open grade and the gaps and things like that, it also allows for smoother and less noise on the traffic as well. So, actually, it helps with the drainage and also with the noise of the traveling public as well.