

Fatal Collisions on the State Highway System 2010-2013:

Prioritizing Safety Improvements in Caltrans District 1

Executive Summary

Caltrans District 1 has attempted to justify the Richardson Grove Operational Improvement Project, the 197/199 Safe STAA Access Project, and other major highway projects in part by claiming they will improve safety, despite the fact that this is not the primary goal of any of the projects. In fact, in the case of the two projects identified, we argue that it is likely they will decrease highway safety rather than improve it. We identify 14 state highway segments in District 1 which have a substantially higher rate of fatal accidents than the district average, and note that only one of these segments overlaps with one of the projects identified above (and even in that case, the project boundaries do not include any of the fatal accidents in the segment). We challenge Caltrans to prioritize true safety projects that will make a real difference, and to stop using dubious safety claims to justify highway expansion projects.



November 2015

Background: Assessing Safety Claims for Oversized Truck Projects

Construction projects to modify existing roads are often at least partially justified by claims of safety benefits for road users. This has certainly been the case for the “Richardson Grove Operational Improvement Project” on US-101 in Humboldt County and the “197/199 Safe STAA Access Project” on US-199 and SR-197 in Del Norte County. The explicit purpose of both of these projects is to allow the roads in question to be reclassified to allow legal access for the largest trucks generally allowed on US highways, so-called Surface Transportation Assistance Act (STAA) trucks.¹ Yet Caltrans also claims that both projects will “enhance” or “improve” the safety of the roads in question,² and these claims have featured significantly in public justifications for the projects. Yet barely any evidence or argumentation to support this claim has been presented in the case of the Richardson Grove project. In the case of the Highway 197/199 project, Caltrans argues that “safety-enhancing improvements, including wider lanes, wider shoulders, longer radius curves, and improved sight distances would...benefit all users.”³ The agency has also performed an analysis of collision rates for this project which purports to show that some of the proposed improvement locations have higher rates than the state average (although it also shows that some of the locations have lower rates by the same measures).⁴

Caltrans safety claims for these projects neglect two critical facts:

1. The projects’ primary purpose is to allow larger trucks to travel the roads in question. Large trucks are simply more dangerous than other road users when an accident occurs, accounting for only 4% of registered vehicles and 9% of miles traveled, but 11% of deaths in traffic accidents and 23% of car occupant deaths in multiple-vehicle crashes.⁵ Safety assessments of both project failed to account for the safety implications of allowing larger trucks on the road.
2. Both projects would require significant exceptions to the state’s mandatory design standards for measurements such as curve radius, shoulder width, and sight distance.⁶ In other words, both projects propose roadway modifications which do not meet Caltrans’ own standards for safe highway design. This is a troubling fact on its own, given that improvements in these areas are the apparent basis for safety claims about the project. But it is especially troubling in combination with the plan to allow larger trucks on the road, creating a substantially increased need for safety standards to be met.

Taken together, these facts cast serious doubt on the claims that the projects in question will improve safety for highway users and the public.

Identifying the Most Hazardous State Highway Segments

Claiming that a project will improve highway safety may be an easy way to garner support, but such claims deserve critical scrutiny, as demonstrated above. Moreover, transportation funding is in short supply—there is an estimated \$5.7 billion annual statewide deficit for highway repairs alone⁷—and not all projects can be funded. If improved safety on the state highway system is truly a priority, an important first step is to identify the most hazardous segments or locations in the system. These are the locations where well-designed safety projects can have the greatest impact.

Caltrans apparently performed no official collision analysis for the Richardson Grove project, and the data used in its analysis for the Highway 197/199 project are now nearly a decade out of date.⁸ Moreover, the method used by Caltrans to assess a road segment’s safety is not the most appropriate method for prioritizing safety projects. Caltrans assesses the number of accidents relative to the number of vehicles and compares this rate to the statewide average collision rate for “similar” road segments. This is a sensible and appropriate methodology for many purposes. However, for Caltrans district staff deciding which projects to prioritize within their region, the rate relative to traffic volume and the type of road should matter much less than the raw number of serious accidents. Furthermore, statewide averages are less relevant than within-district averages for prioritizing district funds. Therefore, a better methodology would simply rank all state highway segments within a district according to the number of serious accidents in recent years, thus identifying the most dangerous segments regardless of road type or traffic volume. This is what we have done for Caltrans District 1.

Using raw data from the National Highway Traffic Safety Administration’s Fatal Accident Reporting System, we first summed all fatal accidents which occurred on the state highway system in District 1 for the four years 2010-2013 (the most recent years for which data were available).⁹ There were a total of 190 fatal accidents during this time period. Next we summed the total miles of state highways within District 1¹⁰ and divided to determine the average rate of fatal accidents which would be expected for each 5-mile segment if the accidents were randomly distributed throughout the system. The average rate was 0.98, or just less than 1 fatal accident per 5-mile segment over the course of the 4 years studied.

Next we divided all roads which are part of the state highway system in District 1 into 5-mile segments and counted the number of fatal accidents in each segment in order to determine if these roads had a higher or lower rate of fatalities than the district average.¹¹ We sorted the segments to identify those whose number of fatal accidents substantially exceeded the district average. Results, shown in Table 1, indicate that many segments exceed the average.

In order to reduce the number of segments to a manageable number for the purpose of prioritizing potential safety projects, we chose 400% of average as a benchmark. The fourteen 5-mile segments which exceeded 400% of the district average for fatal accidents are shown in Table 2. Thirteen of these most hazardous segments are on just three highways in the district—US-101, SR-20, and SR-29—and one is on US-199.

Table 1: Number of 5-Mile Road Segments on the State Highway System Substantially Exceeding the Average Number of Fatal Accidents in Caltrans District 1, 2010-2013.

	<i>Number of Segments</i>
At least 200% of average	51
At least 300% of average	25
At least 400% of average	14
At least 500% of average	5

Table 2: 5-Mile Road Segments on the State Highway System Exceeding the Average Number of Fatal Accidents in Caltrans District 1 by 400% or More, 2010-2013. Although only one of them meets the rate criterion, all segments containing the Richardson Grove and Highway 197/199 projects are shown for reference. Asterisks (*) indicate that while accidents occurred within the same segment as the proposed projects, they did not occur within the actual area proposed for construction.

<i>Route</i>	<i>County</i>	<i>Post Miles</i>	<i>Number of Fatal Accidents</i>	<i>Approximate Location</i>
US-101	Humboldt	30-35	6	Weott
SR-20	Lake	30-35	5	Junction with SR-53
SR-29	Lake	30-35	5	South Kelseyville
US-101	Mendocino	45-50	5	Willits
US-101	Mendocino	50-55	5	North of Willits
SR-20	Lake	25-30	4	Clearlake Oaks
SR-29	Lake	5-10	4	South of Hidden Valley Lake
SR-29	Lake	20-25	4	Lower Lake
US-101	Del Norte	15-20	4	North of Last Chance Grade
US-101	Humboldt	55-60	4	Rio Dell-Fortuna
US-101	Humboldt	60-65	4	Fortuna-Loleta
US-101	Humboldt	85-90	4	Arcata
US-101	Mendocino	65-70	4	Laytonville
<i>US-199</i>	<i>Del Norte</i>	<i>25-30</i>	<i>4*</i>	<i>Highway 197/199 project</i>
<i>US-101</i>	<i>Humboldt</i>	<i>0-5</i>	<i>1*</i>	<i>Richardson Grove project</i>
<i>US-197</i>	<i>Del Norte</i>	<i>0-5</i>	<i>0</i>	<i>Highway 197/199 project</i>
<i>US-199</i>	<i>Del Norte</i>	<i>20-25</i>	<i>0</i>	<i>Highway 197/199 project</i>

Notably, of the four segments containing proposed modifications from the Richardson Grove and Highways 197/199 projects, only one substantially exceeded the district’s average fatal accident rate. Furthermore, none of the proposed projects would modify the roadway at the precise locations of any of the fatal accidents.

Prioritizing True Safety Projects

A review of the current Caltrans District 1 project page¹² and the 2010, 2012 and 2014 State Transportation Improvement Programs (STIP)¹³ and State Highway Operation and Protection Programs (SHOPP)¹⁴ reveals few safety-related projects within any of the hazardous road segments shown in Table 2. The only exceptions include several modifications to US-101 in Arcata (cable median barrier installation, metal beam guardrail upgrade, and high-friction road surface treatment); a median barrier installation on US-101 in the Rio Dell area; and a shoulder widening on part of the PM 25-30 segment of US-199.

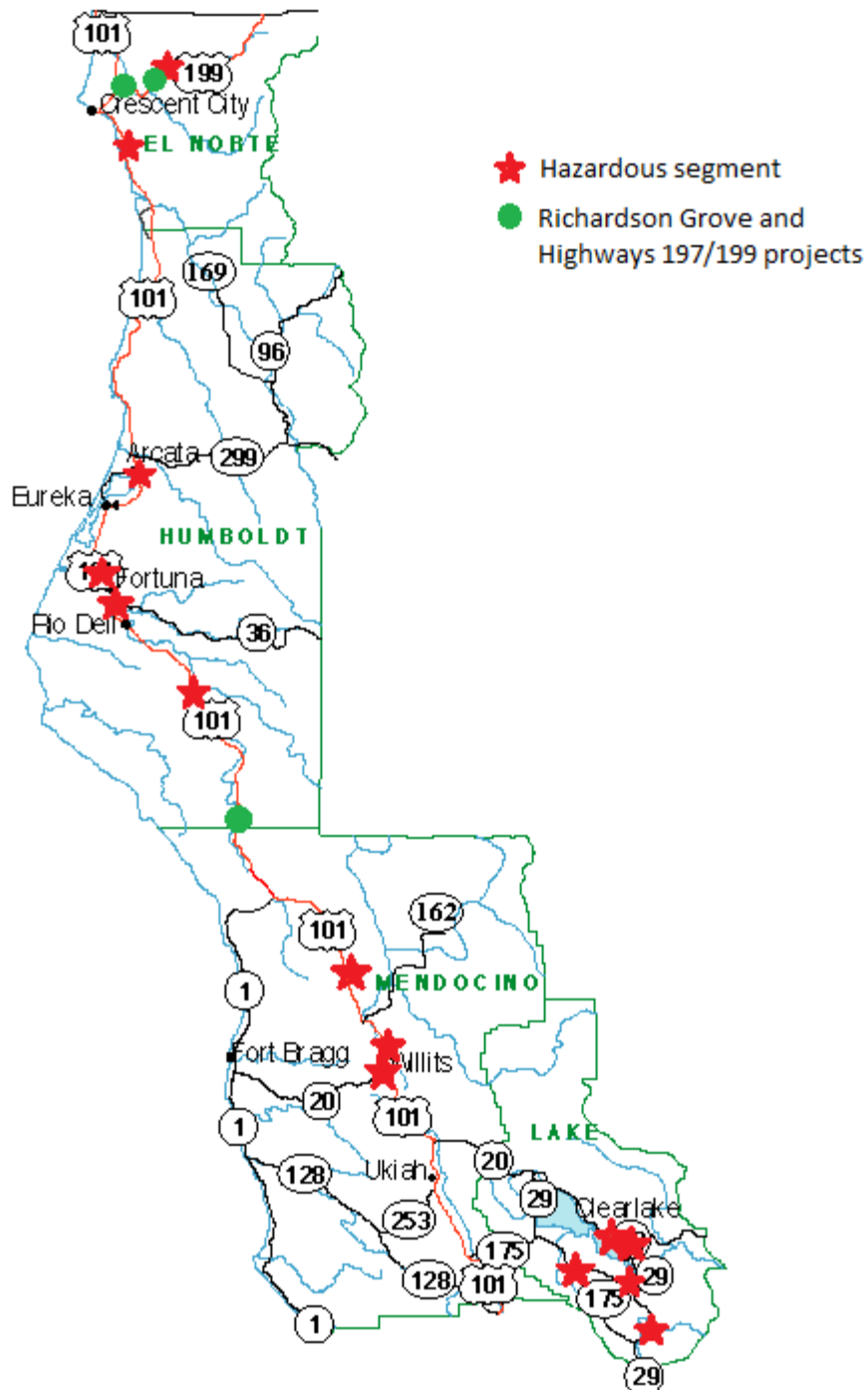


Figure 1: Approximate Locations of 5-Mile Road Segments on the State Highway System Exceeding the Average Number of Fatal Accidents in Caltrans District 1 by 400% or More, 2010-2013. Approximate locations of Richardson Grove and Highways 197/199 projects are shown for reference. Modified from Caltrans District 1 Area Map at <http://www.dot.ca.gov/hq/roadinfo/do1map.htm>.

Two major projects intended to increase road capacity and relieve congestion—the “Lake 29 Improvement Project” and the Willits bypass project—also overlap with hazardous segments identified in this report. Both have been secondarily justified on the basis of safety.¹⁵ Just as with the Richardson Grove and Highways 197/199 projects, however, these claims of safety improvement deserve to be treated with skepticism. Such big, costly highway expansion projects are not the result of a process which holds improved safety as the number one priority. They are almost certainly not the most effective nor the most cost-effective way to improve road safety, if they can be said to truly achieve that goal at all.

We call on Caltrans District 1 to cancel projects such as those at Richardson Grove and Highways 197/199 which, as discussed above, are likely to affect safety negatively rather than positively, and to stop justifying projects designed for other purposes with dubious claims of increased safety. Further, we challenge District 1 to analyze the state highway system under its jurisdiction as we have done and to design and prioritize projects to effectively decrease the incidence of serious collisions on particularly hazardous segments, such as those identified in this report.

We recognize that Caltrans districts do not control the project funding process. However, they do initiate most projects and have a very strong influence on which projects are completed. We also recognize that there are many important transportation infrastructure needs unrelated to safety, such as improving multimodal infrastructure, replacing unstable bridges and repairing road damage. However, we believe strongly that safety, not highway expansion, should be a high priority for District 1 planners. Finally, Caltrans should not attempt to justify highway expansion projects with disingenuous safety claims—especially when those projects, like the two discussed in this report, are likely to actually decrease safety by putting more hazardous vehicles on substandard roadways.

¹ Caltrans. May 2010. Richardson Grove Operational Improvement Project: Final Environmental Impact Report/Environmental Assessment and Programmatic Section 4(f) Evaluation: p.i. Also: Caltrans. April 2013. 197/199 Safe STAA Access Project: Final Environmental Impact Report/Environmental Assessment and Programmatic Section 4(f) Evaluation: p.i.

² See for example: Caltrans May 2010: p.i; Caltrans April 2013: p.ii.

³ Caltrans April 2013: p.1-10.

⁴ Caltrans April 2013: pp.1-7 – 1-9.

⁵ Insurance Institute for Highway Safety. 2015. Large Trucks: Q&As. Online at <http://www.iihs.org/iihs/topics/t/large-trucks/qanda>. Accessed 22 October 2015.

⁶ Caltrans May 2010: p.21. Caltrans April 2013: p.1-14, 1-18. See Also: Smith Engineering & Management. November 2012. Letter to Jason Meyer at Caltrans reviewing 197/199 Safe STAA Access Project.

⁷ California State Budget 2015-16: May Revision: p.69. Online at <http://www.ebudget.ca.gov/2015-16/pdf/Revised/BudgetSummary/Transportation.pdf>. Accessed 22 October 2015.

⁸ Caltrans April 2013: p.1-7.

⁹ National Highway Traffic Safety Administration. Fatal Accident Reporting System. Online at <http://www.nhtsa.gov/FARS>. Accessed 15 October 2015.

¹⁰ We used District 1’s Transportation Concept Reports for state highways, available at <http://www.dot.ca.gov/dist1/d1transplan/tcr.htm>, to determine approximate mileage of state highways in the District.

¹¹ The last segment of many roads analyzed is less than 5 miles, as the total length of most roads within District 1 is not a perfect multiple of 5.

¹² See <http://www1.dot.ca.gov/dist1/d1projects/>. Accessed 24 October 2015.

¹³ Available at <http://www.catc.ca.gov/programs/stip.htm> and <http://www.catc.ca.gov/programs/STIP/historical.htm>. Accessed 24 October 2015.

¹⁴ Available at <http://www.dot.ca.gov/hq/transprog/shopp.htm> and http://www.dot.ca.gov/hq/transprog/SHOPP/shopp_prior_doc.htm. Accessed 24 October 2015.

¹⁵ Caltrans. June 2007. Lake 29 Improvement Project: Draft Environmental Impact Report/Environmental Assessment. Available at http://www.dot.ca.gov/dist1/d1projects/lake29/final_lake_29_draft_eir-ea.pdf. Also: Caltrans. October 2006. Willits Bypass: Final Environmental Impact Statement/Environmental Impact Report. Available at <http://www.dot.ca.gov/dist1/d1projects/willits/reports.feir.htm>.