

CPR – REBUILT TO LAST



>>> DIAMOND GRINDING

ROUTE 85 NEAR SAN JOSE, CALIF. has a high level of traffic. As such, noise is a major concern for local residents. With a truck ban in effect for Route 85, the main traffic noise source is from the interaction between tires and the pavement surface. Parts of Route 85 are depressed and there are sound walls along the roadway. Previous noise studies have indicated that raising the height of the existing sound walls would not be effective in further reducing the noise levels.

In response to these issues and complaints from the local citizens, a .88 mile diamond grinding test section was constructed between DeAnza Blvd. and Saratoga Ave. The Santa Clara citizens responded favorably to the test section and in June 2005, Caltrans contracted with Illingworth and Rodkin, Inc. to conduct tire pavement noise evaluations of the existing longitudinal tined surface and the diamond ground texture.

The tire pavement noise evaluations found that the diamond ground surface was almost 2.5 dBA lower in overall noise level and exhibited significantly less variability. The frequency content of the experimental texture was superior to all others, particularly in the 800 to 1,250 hertz range where human hearing

is particularly sensitive to these frequencies. According to the Valley Transit Authority (VTA) project report, “diamond grinding caused a downward shift in the tonal characteristics of the sound and decibel reductions at frequencies that are easily heard by human ears.”

The public responded favorably to the test section and as a result, the VTA constructed a full-scale diamond grinding and grooving project on Route 85 between I-280 and Highway 87 in 2005. The goal of the project was to remove the roadway’s existing longitudinal tining that was creating the offending sound. For the safety of the public and construction workers, traffic control measures including temporary lane closures and detours were used when needed. The cost of the project, which began in mid-2005 and was completed in mid-2006, was \$9 million.

The result for the citizens who had complained of noise from the highway before the changes is a quiet highway that has significant reduction in decibels and improvement in tonal qualities. The result for taxpayers is a low-noise highway surface that will last for the next 15 years.

TEAM MEMBERS

- Santa Clara Transit Authority, Valley Transit Authority (Owner)
- Caltrans and Illingworth and Rodkin, Inc. (Testing of diamond ground pavement)