



## Report On TraxAlert™ At Grade Highway/Railroad Crossing Paramount Boulevard & Rosecrans Avenue Intersection Paramount, California



## Overview

The purpose of this project was to eliminate 29 at-grade rail crossings by creating a new shorter connection between the Alameda Corridor and an existing oil refinery located in the City of Paramount. To accomplish this a new connection was constructed between the Harbor (San Pedro) and West Santa Ana Branches of the Union Pacific Railroad Line running through 10 Cities in Los Angeles and Orange Counties without interruption to existing service. In addition to the closure of the 29 crossings, two existing crossings to remain were upgraded. These crossings and the other 29 crossing are shown in Figure 1 for reference.

Other work on the project also included installation sound walls at the refinery and a student pedestrian bridge at Paramount High School, as well as, innovative design features for handling the train and vehicle traffic at the intersection of Paramount Boulevard and Rosecrans Avenue, along with other railroad control equipment, such as, wayside horns and signals at both the Paramount Boulevard and Downey Avenue crossings and traditional gates and flashers at the Downey Avenue Crossing.

At the Paramount Boulevard and Rosecrans Avenue Crossing, the City of Paramount wanted to utilize newer technologies to provide enhanced vehicle and pedestrian safety, improve overall aesthetics, and to comply with the Americans with Disabilities Act (ADA) requirements on the adjacent sidewalks. As such, pursuant to California Public Utilities Commission (PUC) General Order 88A, the City of Paramount with the support of the Union Pacific Railroad Company requested PUC authorization to improve the non-standard warning devices at the existing crossing, shown in Figure 2. Specifically, the City requested that the PUC allow the City of Paramount to control the rail crossing with the City's traffic signal as an alternative railroad control system. While recognizing that this concept was somewhat new and innovative, the City felt that the overall operation and safety of the crossing could be enhanced by upgrading the crossing to newer technology, and providing more positive control of the vehicular, pedestrian, and rail traffic at the intersection. This proposed operation was presented to the Union Pacific Railroad Company who reviewed and approved the.

During this process, the City evaluated other traditional standard warning devices that could replace the existing Type 8-A signals, however, due to the diagonal configuration of the crossing, and since the street right-of-way was not sufficient to allow widening for the placement of any devices on the median islands, it would have been difficult to provide the minimum number of lights per lane required by the PUC, without the construction of signal bridges across each approach to the intersection. Unfortunately, not only would these have been unsightly and potentially confusing, but also would have greatly outweighed the public benefit that would be gained, since there would only be two low speed (5 miles per hour or less) crossings per day. Additionally, due to the sidewalk and right-of-way restrictions, these structures would have presented impediments to pedestrians and would have created difficulty in complying with ADA requirements.

With these factors in mind, and with the PUC approval, the traffic signal was modified to provide a minimum of one traffic signal indication for each of the approach lanes to the intersection, plus two additional indications per approach. This was accomplished utilizing both mast arm indications, as well as both far and near side pole mounted indications. To augment these indications the City also employed a number of new technologies, including, but not limited to, red "in-pavement" internally illuminated markers placed along the edge of the tracks to highlight the train crossing, and wayside horns to alert motor vehicles and pedestrians of the approaching train. The "in-pavement" markers were placed approximately 10 feet from the tracks and faced toward on-coming vehicle traffic in each direction. Since these markers had not yet been approved for use, the City, in conjunction with the PUC and the City of Santa Barbara (who also wanted to try the markers in other applications) requested Federal Highway Administration and California Traffic Control Devices Committee approval for a demonstration project for their use. Approvals from the PUC, Federal Highway Administration and Federal Railroad Administration were also required for use of the wayside horns at this intersection, as well as the Downey Avenue crossing. These improvements, along with the other proposed improvements are shown in Figure 3 on the traffic signal modification plan and the operation further explained below.

Specifically, the train is treated in the same manner as any other vehicle at the intersection, and sometimes has to stop to receive a green light before proceeding. Wayside signals to control the trains are located along the tracks in the head-on position and are red at all times except when the train has approached the intersection and then been given a green light after all motor vehicle and pedestrian traffic has cleared the intersection. At the time the train receives a green light all of the warning devices are activated in addition to the all solid red motor vehicle and pedestrian indications. These devices include the internally illuminated right turn restriction indications, both the signs and the red arrow signals, the flashing red "in-pavement" illuminated markers, solid "TRAIN APPROACHING" signs on the traffic signal mastarms, and the wayside horns. Once the train has cleared the intersection, the traffic signal resumes control of motor vehicle and pedestrian traffic until the next rail crossing occurs.

FIGURE 1

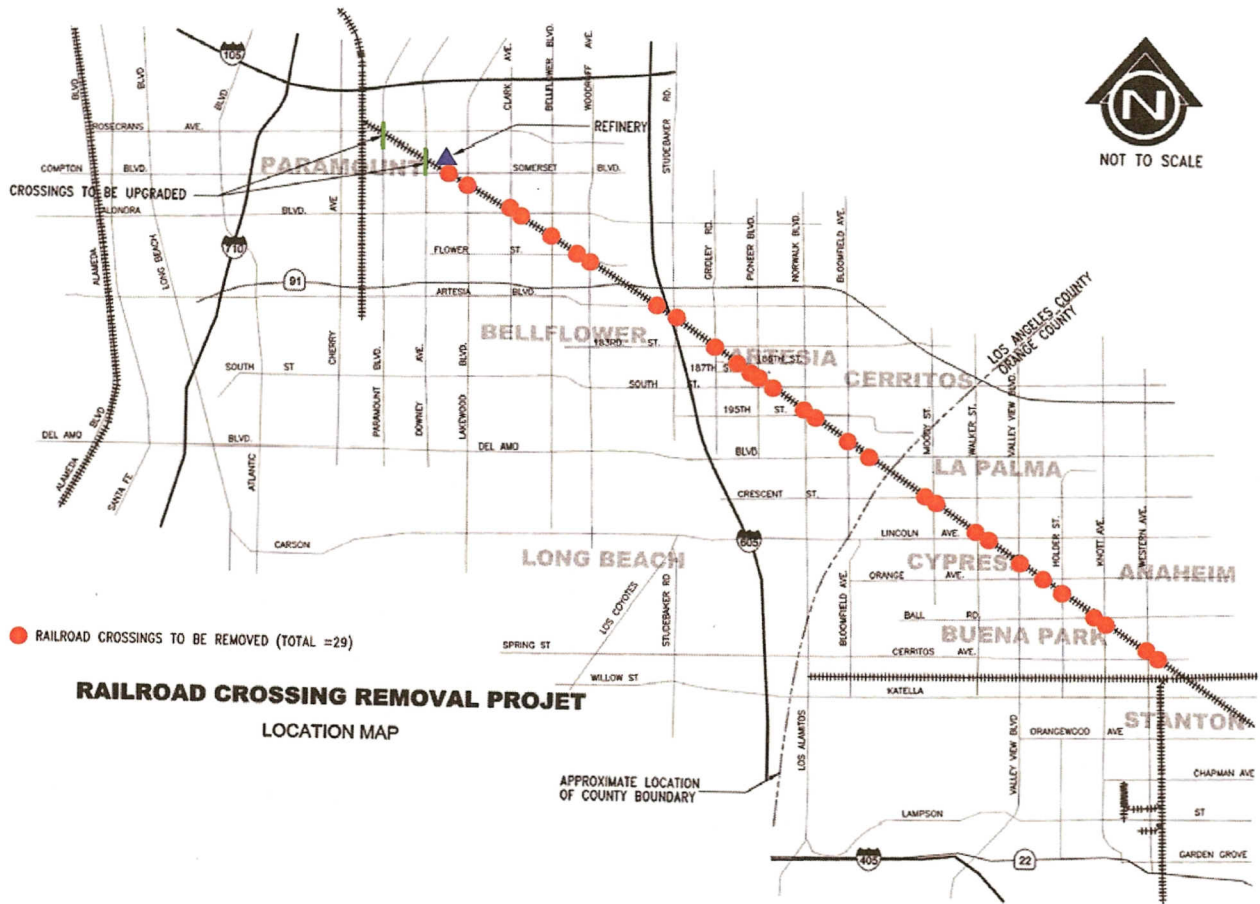
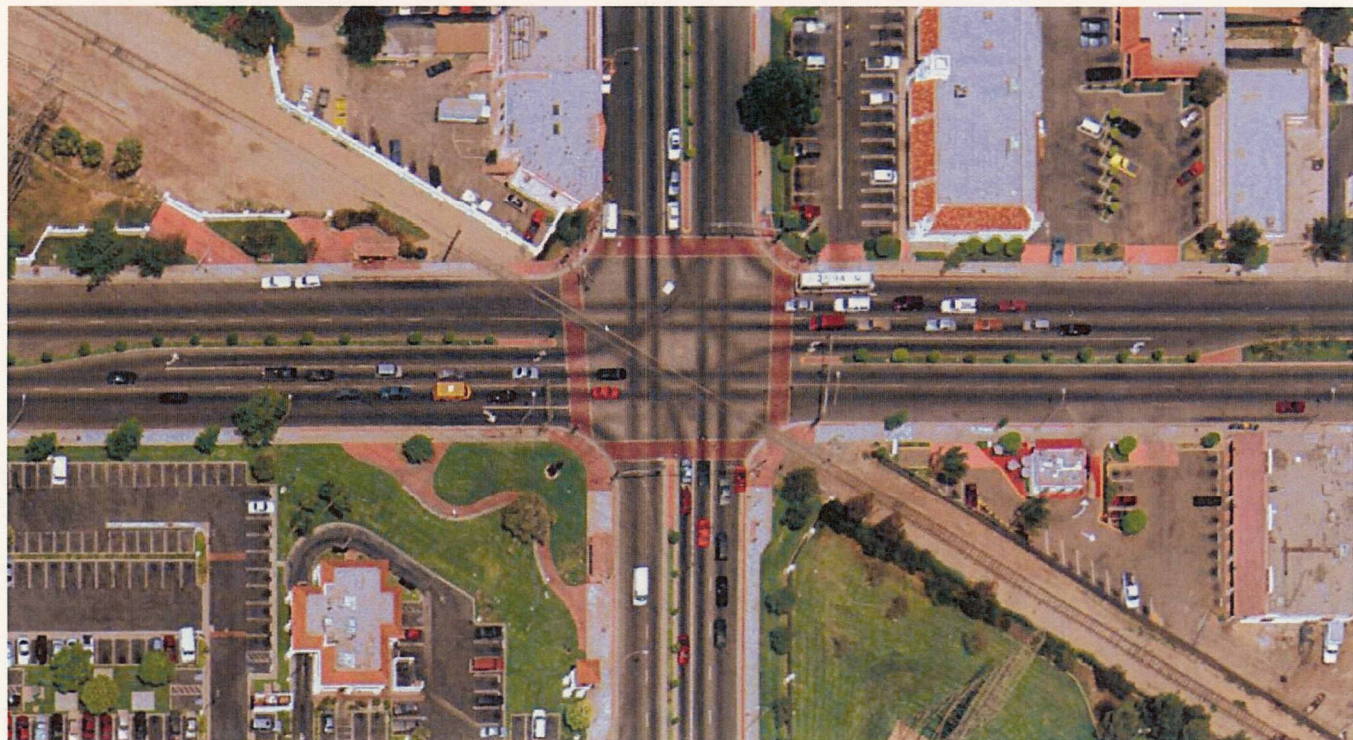
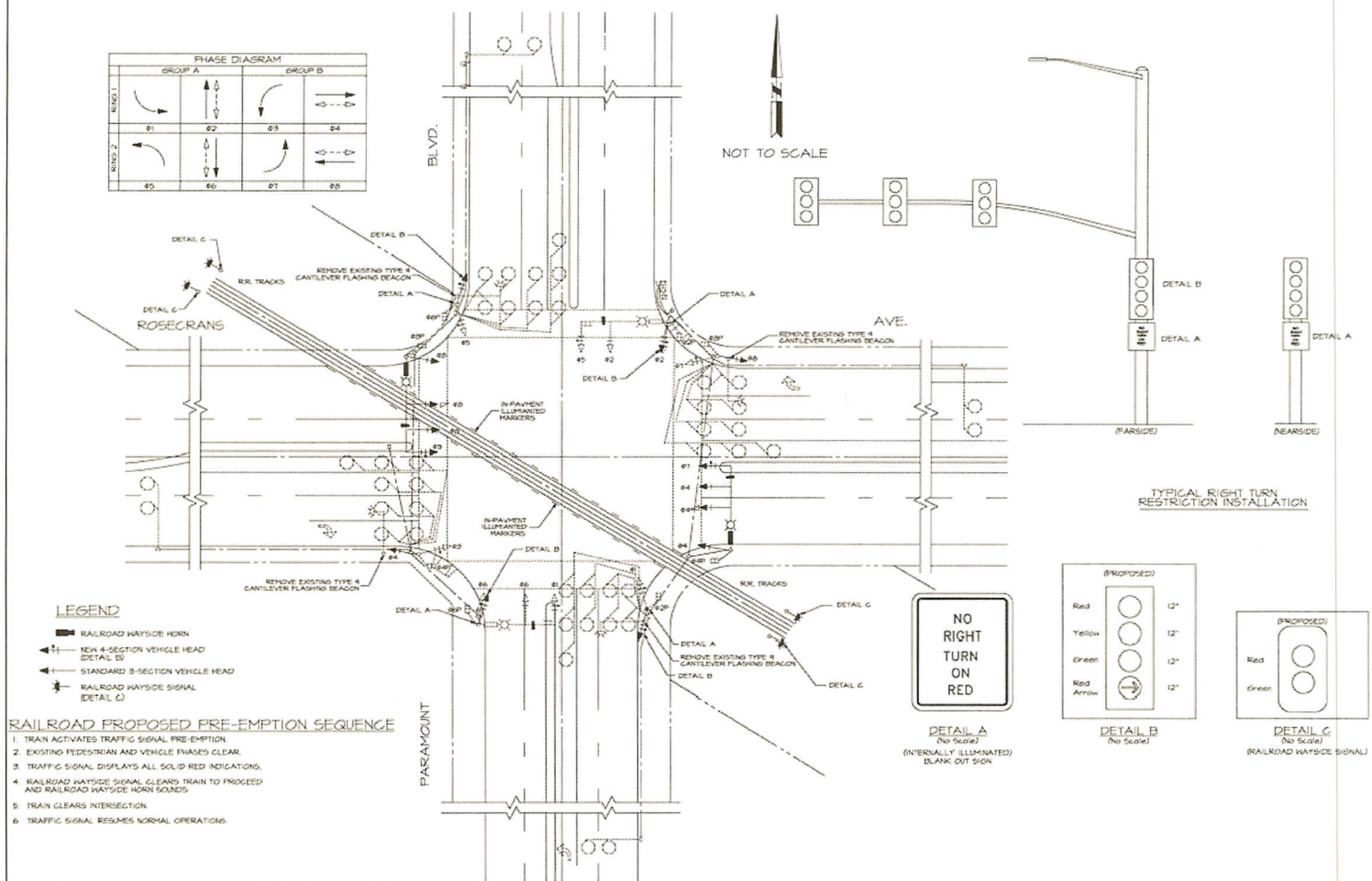


FIGURE 2



### FIGURE 3



Google Maps Street View — Paramount Blvd Facing South



TraxAlert™ In-Pavement Signal Lights



TraxAlert™ In-Pavement Signal Lights

Google Maps Street View — Rosecrans Avenue Facing East