



## **LONG BEACH FREEWAY (Interstate 710) PAVEMENT REHABILITATION PROJECT**

**WHAT:** A \$120 million pavement replacement project on the Long Beach Freeway (Interstate 710) from the Los Angeles River Bridge to the San Bernardino Freeway (Interstate 10). The project is installing precast concrete panels as well as concrete slabs in various traffic lanes and locations, upgrading the median barrier and constructing maintenance pullouts along the route to enhance safety for maintenance crews.

Shimmick Construction is the contractor on the project, which also will include widening shoulders and installing fiber optic lines for various traffic management technologies.

**WHEN:** Construction began in August, 2012 and will complete in late 2015.

**BACKGROUND:** The 23-mile Long Beach Freeway runs from the city of Alhambra, near Pasadena, to the Long Beach Harbor. Along with some 230,000 vehicles a day in some spots, it carries the majority of goods coming into and out of the ports of Los Angeles and Long Beach on the largest concentration of trucks in Los Angeles County.

Trucks account for nearly 20 percent of the traffic, which is roughly four times the amount envisioned when the freeway was built. The majority of the current freeway was built in sections between the early 1950s and mid 1970s. The California Department of Transportation (Caltrans) began a pavement overhaul project on I-710 in 2001, beginning with a 2.5 mile section in Long Beach. Known as the Long Life Pavement Rehabilitation project, the work has moved up the freeway in stages, of which the current project is number five. So far, 18 miles of freeway in both directions have been reconstructed.

The project marked the first use on a California freeway of a new, highly-engineered, more durable and more flexible asphalt mix, jointly developed by Caltrans, the asphalt industry and pavement scientists.

**PRECAST/PRESTRESSED CONCRETE PANELS:** Now the I-710 paving project will be the site of another innovation in pavement rehabilitation: the largest use of precast/prestressed concrete panels (PPCP) on any road renovation in the United States. The 9.2-mile job calls for more than 4,100 panels to be placed in the Numbers 3 and 4 lanes. The Numbers 1 and 2 lanes will be resurfaced via slab replacement.

The benefits are clear: Precast panels install quickly in any weather with no special materials needed and they can be driven on immediately. On a high-volume route like I-710, that is a critical factor because closing the road for any length of time would impact not only motorists but also goods movement.

Precast concrete has been in use in building bridges for decades—now its time in roadway reconstruction apparently has come. The I-710 project involves 36 lane miles of concrete panels, equivalent to 831,000 square feet or 27,700 cubic yards. Among the application's various challenges is the fact that, because of the roadway's geography, the panels taper in width from 26 feet on one end to 36 feet on the other

And each panel requires a shop drawing and each drawing has to be approved by Caltrans. Four design engineers have been assigned to work exclusively on reviewing the panels with the expectation that they each will be able to review five a day, or 60 per week. Once 60 drawings are approved, the fabricator, Mid-State Precast of Corcoran, Calif., will begin production. Set upon fully engineered sub-grade surfaces, the panels are interlocking through post tensioning and set by grouting. This system allows for continuous and intermittent replacement of the previously existing pavement.

Precast work is expected to be completed in September 2014. Initial installation could begin before the end of the year. At that time, Caltrans will initiate a series of 36 full freeway weekend closures in which the freeway is closed in one direction at a time, shifting two-way traffic onto the open side. This traffic control method has been used in every segment of the I-710 freeway pavement rehabilitation project to date and Caltrans is confident it can be implemented with minimal impact to motorists.

**PROJECT BENEFITS:** This roadway rehabilitation will result in better ride quality and will reduce the need for maintenance. Existing median barriers will be upgraded to concrete barriers, therefore reducing the risk of vehicle crossovers. Construction of maintenance pullouts will also reduce exposure of maintenance personnel to traffic and enhance safety.