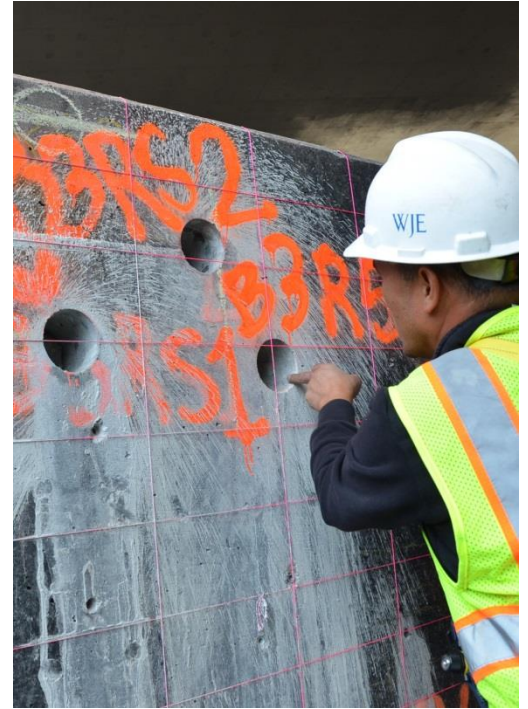




PROJECT PROFILE

State Route 2/Interstate 5 Connector

Investigation of Fire Damage | Los Angeles, CA



CLIENT

Alta Vista Solutions/Caltrans

BACKGROUND

On the morning of July 13, 2013, the Los Angeles Fire Department responded to reports of a brush fire along the northbound I-5 Freeway near Dodger Stadium. Arriving on the scene, crews discovered the source of the blaze—a fuel tanker truck and trailer carrying 8,500 gallons of gasoline had collided with the east wall of an underpass connecting SR-2 to the I-5 Freeway. Overturned and on fire, it took nearly two hundred firefighters over six hours to extinguish the flames.

Though no injuries resulted from the accident, I-5, the main north-south freeway in California, remained closed until emergency crews could install shoring to support the damaged underpass. Concerned about the structural integrity of the underpass, Caltrans retained WJE to evaluate the structure, which consisted of cast-in-place, mild-steel-reinforced concrete members.



SOLUTION

WJE's investigation consisted of two phases. During Phase 1, the structure was visually inspected, and core samples were removed from the walls, soffit, beams, and columns in areas exhibiting a range of conditions. In Phase 2, the structural elements were subjected to impact-echo (IE) testing to detect delaminations and locate internal cracks. Inspection core holes were used to calibrate and verify impact-echo results.



The investigation determined that the walls and soffit of the underpass exhibited significant visible damage from the fire, consisting of spalling up to 4 inches deep. The two columns within the underpass also suffered a significant amount of visible spalling, exposing reinforcing steel at a few areas. IE testing and observations at core holes identified possible delaminations and heat damage. The upper deck had only minor fire damage with small areas of shallow spalling and material damage. However, compressive strength results indicated that the undamaged concrete appeared to significantly exceed the original design strength requirement.

For the areas of damaged concrete, WJE provided general repair recommendations, including removal of damaged concrete by water-blasting or chipping and replacement with a cementitious structural-repair mortar, concrete, or shotcrete, as appropriate.