

PARSONS has recently completed the DBIA award-winning Garden Grove Freeway, State Route 22 transportation corridor design-build effort.



Project Location:

Orange County, California
United States

Client:

Orange County Transportation Authority (OCTA)

Contract Value: \$550 million

The Garden Grove Freeway, State Route 22 is a major 12-mile east–west transportation corridor in Orange County, California, that provides connections to all major north-south freeways, including I-605, I-405, I-5, SR-57, and SR-55, as well as crossing most of the major north–south arterial corridors in Orange County, making it a vital link to residents, businesses, and visitors. No major improvements had been made to the corridor since it was built in the early 1960s when it was designed to handle a maximum of 115,000 cars per day. Currently, SR-22 carries more than 200,000 cars daily, and its volume is expected to reach 250,000 by 2020. SR-22 was the last remaining freeway in Orange County not providing high occupancy vehicle (HOV) lanes. The SR-22 project’s substantial completion in 2006 marked the effective completion of the region’s comprehensive HOV transportation network with only connector ramps and HOV interchange ramps remaining.

SR-22 was the largest highway contract under construction in the state of California. The project's main feature is widening the existing six-lane facility by adding 12 miles of HOV lanes in each direction between SR-55 and Valley View Street. In addition, six miles of general-purpose lanes are being constructed in each direction between I-5 and Beach Boulevard. Other features include interchange improvements at the intersections of SR-22, SR-57, and I-5—known locally as the “Orange Crush,” which *Guinness World Records 2002* listed as the most complicated interchange—and construction of braided ramps separating the southbound SR-57 connector and The City Drive ramps on westbound SR-22. The Project also includes widening and reconfiguring existing ramps, constructing 11 new bridges, widening 23 existing bridges, seismic retrofitting of existing bridges, new sound walls, new retaining walls, architectural treatment and landscaping, drainage improvements, and a state-of-the-art Traffic Management System—linked to Caltrans and California Highway Patrol Traffic Management Center—that monitors conditions on 400+ miles of Southern California freeways.

Project Highlights:

- 810 calendar days from NTP to all lanes open to traffic
- Best value selection saved \$150 million and three years on schedule
- State-of-the-art intelligent transportation system
- Freeway will accommodate 250,000 vehicles per day by 2020
- \$20 million average monthly billings
- More than 15 miles of retaining walls and 10 miles of soundwalls
- 23 bridge widenings, 9 bridge replacements and 3 new bridges
- Nearly 7,000 driven concrete and steel piles
- 150,000 cubic yards of concrete pavement
- 200+ engineers and 800+ laborers working daily on the project
(Approximately 4 million total man-hours)

Unique Characteristics, Challenges and Team 22:

On September 22, 2004, Orange County Transportation Authority (OCTA), in partnership with California Department of Transportation (Caltrans) and Federal Highway Administration (FHWA), began design and construction of the \$550 million project to increase SR-22's capacity. This project was the first design-build contract on an operating freeway in the state of California. The project design and construction was completed on schedule and on budget in an aggressive 810 days.

The design-build contractor was selected by their "best-value" proposal which allowed bidding contractors flexibility in their approach to traffic staging and overall schedule. The best-value selected bid saved more than \$150 million and brought the project to completion in more than three years ahead of schedule.

OCTA, Caltrans, Parsons and the design-build contractor called themselves Team 22, and they were co-located in a project office to facilitate open communications and to expedite design reviews. This unified team approach facilitated early issue resolution and minimized potential cost and schedule impacts and promoted a "can-do" team spirit among all partners. This approach was put to the test shortly after the notice to proceed was received. The project's seismic design requirements changed coupled with the second wettest winter season in southern California history impacted the original critical path schedule and caused over a 100-day delay. Parsons helped develop a plan to revise the maintenance of traffic plans and requirements, which allowed the design-build team to develop a new critical path with very minor impact to the project's completion.

To further test Team 22, additional funding from the Federal Transportation Bill came available to replace an overpass in lieu of the widening included in the contract scope. This change was made half way into the project. It significantly impacted the maintenance of traffic requirements and structural redesign. The critical path was more than six months, Parsons again worked with the team to revise the plans and contract requirements so that this work is completed in less than 150 days of the substantial completion date.

Commuters in Orange County are benefiting from this fast-paced project which was completed after an aggressive schedule. The on-time and on-schedule success of the design-build approach to SR-22 has attracted national attention and is being considered as the delivery method for future quick turn-around freeway system projects in California.

Parsons was selected and awarded the contract for program management services by OCTA based on a Statement of Qualifications (SOQ). The program management services were divided into two major phases, 1) the Request for Proposal (RFP) and procurement phase, and 2) the design-build phase. SR-22 has been successfully completed.

Parsons services during the procurement phase included but were not limited to, project administration and project controls; completion of the preliminary

engineering; preparation and completion of the environmental documents; community outreach; geotechnical investigation and evaluations; noise studies and noise mitigation including defining soundwall limits; preparation of technical provisions and contract documents; preparation of landscape and aesthetics guidelines; preparation of engineer's estimate and procurement assistance.

Parsons services during the design-build phase of this project included but were not limited to, contract administration and controls, design and construction oversight, design and construction quality assurance including inspecting and testing and safety monitoring.

To date, the SR-22 Design-Build Project has been selected for the Orange County, Los Angeles area and California Regions of the American Society of Civil Engineer (ASCE) Project of the Year awards; the Orange County Engineering Council (OCEC) Project of the Year award; the Consulting Engineers, Land Surveyors of California (CELSOC) Project of the Year award; and California Transportation Foundation (TRANNY Awards) Freeway Project of the Year. Additionally, OCTA was selected as the Owner of the Year at the Design Build Institute of America's (DBIA) 2007 Transportation Conference.