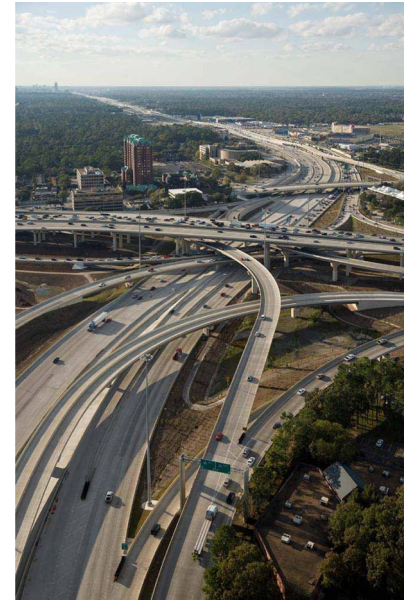




Interchange Design

Our experience in interchange design includes the award winning IH 10/IH 610 Interchange* in Houston. Considered the largest project in the state at the time with an estimated construction cost of \$263 million, IH 10/IH 610 Interchange was managed and designed by Niko Mozaffar, P.E. (Engineer of Record) and Steven Skeele, P.E. (Bridge Task Leader). Innovative design included 70 ksi trapezoidal steel girders and multi-phasing construction to avoid costly lane closures. Niko managed and led the refinement of schematic design and preparation of PS&E for this multi-level interchange that included mainlanes of IH 10, eight direct connectors, ramps, HOV/managed lanes, UPRR and N. Post Oak underpasses, and a four-phase complex traffic control plan while maintaining existing traffic of 280,000 vehicles per day.



IH 10/IH 610 Interchange

Other interchange project experience includes:

- SH 71/US 183 Interchange*
- IH 610/US 290 Interchange
- IH 35W Segments 3B and 3C

Our innovative design of SH 71/US 183 Interchange resulted in converting the interchange from five to four levels with major cost savings for TxDOT. Design services include:

- Roadway Design
- Bridge and Retaining Wall Design
- Schematic Refinement
- Public Involvement
- Traffic Control Plans
- Signing & Pavement Markings
- Illumination Plans
- Drainage Design
- Toll Collection



US 290/IH 610 Interchange, Segment 2 (TxDOT HOU) – ISE performed roadway and traffic control design services for this \$150 million four-level, fully directional interchange in the heart of Houston. The traffic control plan consisted of five phases with several steps to construct mainlanes, direct connectors, and frontage roads while maintaining existing number of lanes at all times. The project required coordination between three segments and included mainlanes, direct connectors, ramps, and frontage roads. Through innovative thinking, ISE saved TxDOT about \$5M in construction costs by widening the recently constructed direct connectors at IH 10 interchange rather than reconstruction as per the schematic design. ISE staff evaluated major changes to the construction package after 60% plans submittal and provided design analysis and recommendations that would meet limited project budget and schedule.

* denotes staff experience while with another firm



Interchange Design

Our innovative design of IH 35W Segments 3B and 3C included elevated managed lanes with post-tensioned straddle bents to avoid costly steel spans. ISE saved TxDOT \$20 million and \$65 million in construction costs for Segments 3B and 3C, respectively. The cost savings included use of existing infrastructure, ROW minimization, and rearrangement of overhead bridge signs.

IH 35W Segment 3B (TxDOT FTW) – ISE, as prime consultant, provided project management and design services for schematic refinements, drainage design, traffic control design, structural design, and ITS/Toll facilities design as part of the reconstruction of 3.5 miles of IH 35W from IH 820 to US 287/SH 81 Interchange. The project included general purpose lanes, managed lanes, 15 bridges and direct connectors, complex traffic control phasing, signing and pavement marking, signal design, high mast illumination, and public utility design and coordination. Through innovative thinking, ISE saved TxDOT about \$20M in construction costs by preserving four recently constructed bridges, frontage roads, and storm sewer systems.



IH 35W Segment 3C (TxDOT FTW) – ISE, as prime consultant, is tasked with project management and design services for schematic refinements, roadway design, traffic control design, structural design, and ITS/Toll facilities design as part of the reconstruction of 7.5 miles of IH 35W from US 287/SH 81 Interchange to Eagle Parkway including a multi-level interchange at SH 170. The project includes general purpose lanes, managed lanes, 33 bridges and direct connectors, complex traffic control phasing, signing and pavement marking, signal design, high mast and standard illumination, public utility design and coordination, and Toll infrastructure design. ISE prepared innovative design measures for construction cost savings that resulted in \$65M of cost and deferred savings. The results of cost saving measures are being implemented in the design phase of the project.