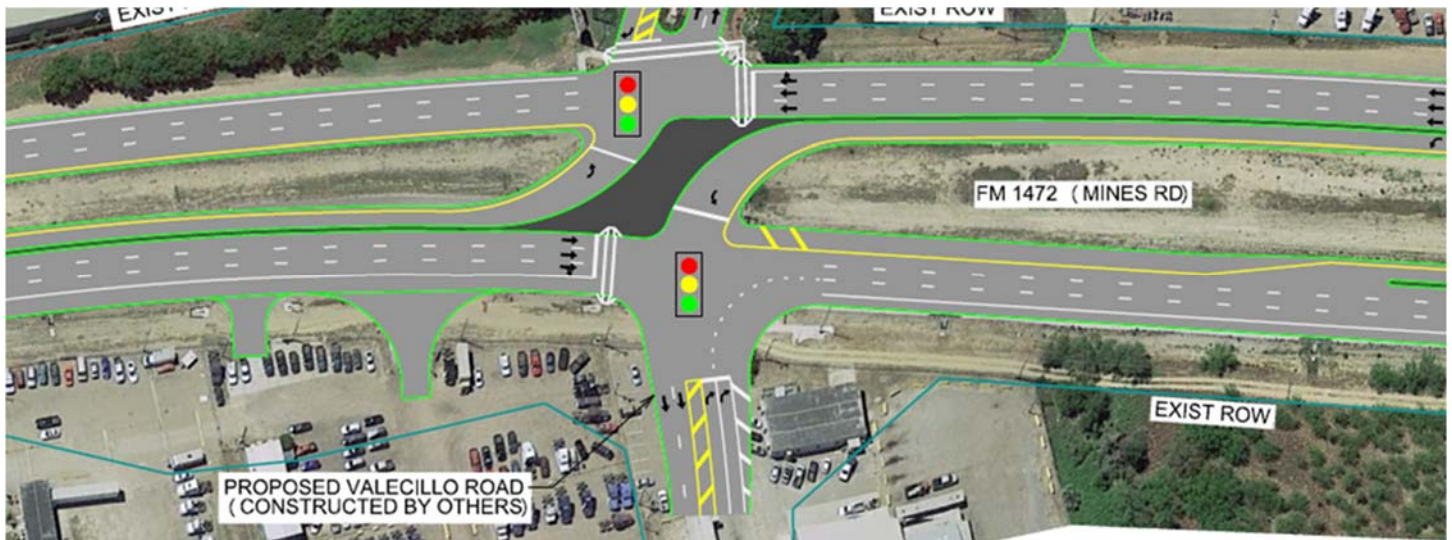


## FM 1472 Alternative Intersection Feasibility Study

TxDOT Contract 36-8IDP5039 WA #3

ISE was the prime consultant for a study to examine the feasibility of implementing alternative intersection treatments at 7 intersections on FM 1472. This corridor is located adjacent to the World Trade Bridge in Laredo which is the busiest inland port in the United States. The surrounding land use on FM 1472 is heavy industrial and warehouse space which has led to heavy traffic volumes (exceeding 40% during peaks) which is causing significant congestion in the study area. ISE used the screening methodology listed in the FHWA Publication Alternative Intersections/Interchanges Informational Report to screen all of the available alternative intersection treatments and developed a total of three (3) alternatives for further study within the corridor with different treatments at the 7 intersections based upon the feasible alternatives. VISSIM and SYNCHRO models were then developed for the corridor for the existing conditions, the future year no-build conditions, and the future year build conditions for each alternative and the alternatives which provided the best flow of traffic at each intersection were selected. The proposed improvements include the following:

- Single Point Urban Interchange with Frontage Roads (4 Phase Operations)
- Continuous Green "T"
- Median U-Turn Intersection (MUT)
- Restricted Crossing U-Turn (RCUT) Intersection or Superstreets



ISE also developed conceptual layouts of the proposed improvements and developed construction cost estimates for the improvements. The proposed improvements will allow for the cycle lengths in the corridor to be reduced up to 40% during the peak periods since many of the intersections will operate as two phase signals following implementation of the proposed improvements. Delay is projected to decrease up to 80% at several intersections and overall network delay is projected to decrease up to 40% during peak periods.

## **Pharr District Operational Studies**

*TxDOT Contract 36-8IDP5039 WA #4*

ISE was the prime consultant for the development of 13 traffic signal warrant studies and the updating of 41 strip maps throughout the Pharr District. ISE conducted traffic data collection at each of the intersections and then performed traffic signal warrant analyses in accordance with the TxDOT Traffic Signal Manual and the TMUTCD. A separate report was created for each of the intersections which included the evaluation of the eight hour warrant, the four hour warrant, the peak hour warrant, the pedestrian and school crossing warrants where applicable, the crash experience warrant, and the crossing near a railroad where applicable.

ISE also managed the collection of speed data for the 41 corridors including the management of multiple stops and starts to data collection due to lower traffic volumes than normal due to the COVID-19 pandemic which was particularly challenging. ISE managed the development of updated and new strip maps for each of the corridors. The majority of the maps were being updated from previous maps prepared 10-15 years in the past and also included new sections of maps which needed to be created based on new location roadways which were constructed recently in the district.

## **Pharr District Traffic Signal Upgrades**

*TxDOT Contract 36-8IDP5039 WA #1*

ISE was the prime consultant for the development of construction plans for two new traffic signals, and upgrading existing traffic signal equipment at a total of 27 intersections including new traffic signals, pedestrian signals and buttons, new wiring, traffic signal signs, and pavement markings on all approaches to the intersections. In addition to the PS&E package which was developed, the project included the development of new traffic signal timings for two corridors (FM 676 and SH 345) which will be implemented as part of the proposed construction of the traffic signal plans and will then be fine-tuned following the completion of the proposed traffic signal upgrades. The development of the traffic signal timing plans included the collection of the existing timing plans in place, travel time runs for the calibration of the SYNCHRO modeling, and the development of new timing plans for the AM, Mid-Day, PM, and Saturday Peak Periods within the two corridors.

## **SH 36 Segment 12 CTMS Design**

*TxDOT Houston District*

ISE developed plans for the installation of CTMS infrastructure along 4.5 miles of SH 36. The proposed ITS design includes six (6) proposed ITS poles with CCTV cameras, Bluetooth readers, and RVSD equipment, one proposed Dynamic Message Sign (DMS) mounted on a balanced TEE structure, and tying traffic signals to the CTMS network. The communication plan included laying 144 strand SM FOC backbone throughout the limits of the project and then also running 12 strand SM FOC to each ITS device. All of the proposed SM FOC Cable was run to a HUB Building located at the interface between Segment 11 and Segment 12 of the proposed roadway improvements.

## **FM 1960 Signal Design**

*TxDOT Houston District*

Developed traffic signal plans for 9 new traffic signals and temporary traffic signal plans for 8 intersections within the limits of a proposed roadway expansion project. As part of the project a main lane bypass bridge was designed for thru traffic on FM 1960 to bypass three (3) congested intersections. The proposed signal plans for these intersections were designed to operate as Single Point Urban Interchanges with thru movements from the frontage roads for local access. At two of the intersections, signal engineers from ISE coordinated with the bridge designers to hang the proposed traffic signals from the proposed bridge structure including running a conduit for the proposed signal wiring.

## **IH 10 and SH 146 Ramp Relocation Interstate Access Justification Report**

*TxDOT Beaumont District*

ISE developed an Interstate Access Justification Report for the proposed relocation of the existing eastbound exit ramp to SH 146 along IH 10 to the west approximately 1000 feet. The IAJR which was prepared in accordance with FHWA requirements included an analysis of the existing and proposed conditions with the existing traffic volumes as well as the projected traffic volumes in the study area including the basic freeway segments, the existing and proposed ramp junctions, and weaving segments within the study area. In addition, each of the FHWA eight policy points for interstate access approval was addressed in the IAJR.