IH-10 From SL 375 to Eastlake Boulevard
A Case Study

Texas Department of Transportation

September 26, 2025

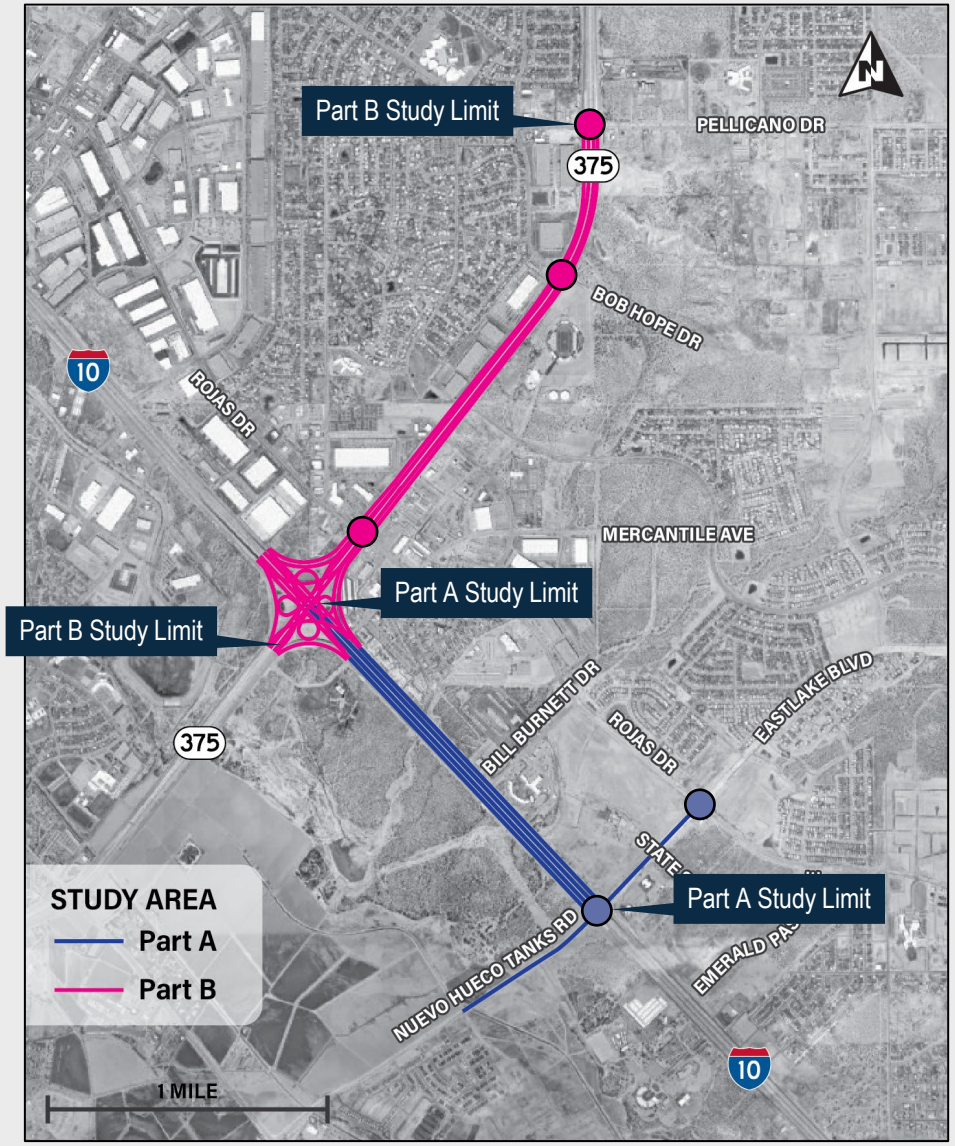
Table of Contents

Speaker Introduction

Shalini Sankaranarayanan
Assistant Vice President

Ossama E. Ramadan
Senior Vice President

Gus Sanchez
Project Manager



Project Background

WHAT

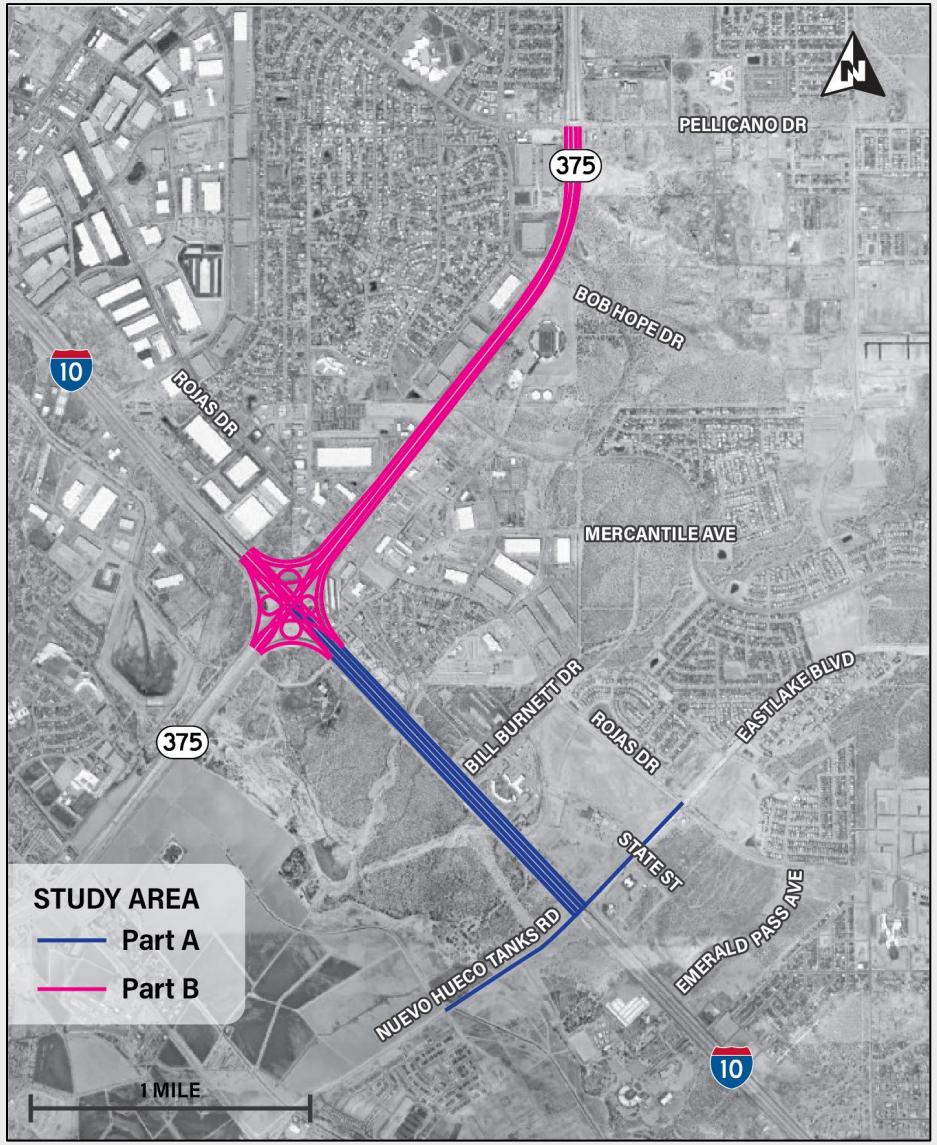
IH-10 at Eastlake Blvd and SL 375 operational and safety analysis

WHY

The analysis is needed to identify mitigation measures that could be implemented today as well as evaluate the performance of those measures in the short- (5 years), mid- (5-10 years), and long-term (10+ years) as the area experiences significant growth

HOW

Location specific safety analysis, Intersection Control Evaluation (ICE), and Microscopic (VISSIM) simulation



Existing conditions

IH-10 at Eastlake Blvd experiences heavy congestion during peak hours which extends to IH-10 mainlines

Back-to-back off ramps from IH-10 EB to Eastlake Blvd.

Significant queueing is currently observed at Rojas Dr and Pellicano Dr interchanges along SL 375

Existing Conditions Analysis Methodology

AM Peak 7:00am-8:00am
PM Peak 4:30pm-5:30pm

Existing traffic counts collected on February 24, 2022

Implemented **data fusion** using field counts, STARS II data, and location-based data

Roadway geometry was based on **field visits** and verified based on **aerial imagery**

Signal timing data provided by the City of El Paso and El Paso County is optimized using **Synchro**

Due to oversaturated traffic conditions, **VISSIM** was chosen to analyze mainlines and frontage roads concurrently

Vissim Calibration

Microsimulation Analysis & Planning → **Data Collection & Analysis** → **Base Model Development** → **Error Checking** → **Model Calibration**
- Identify Representative Days
- Prepare Variation Envelope

→ **Alternatives Analysis** → **Final Report**

Travel Time Calibration Results
(FHWA 2019 Criteria)

	% Within One Std Deviation	% Within Two Std Deviation
AM	81 (67)	96 (95)
PM	75 (67)	97 (95)

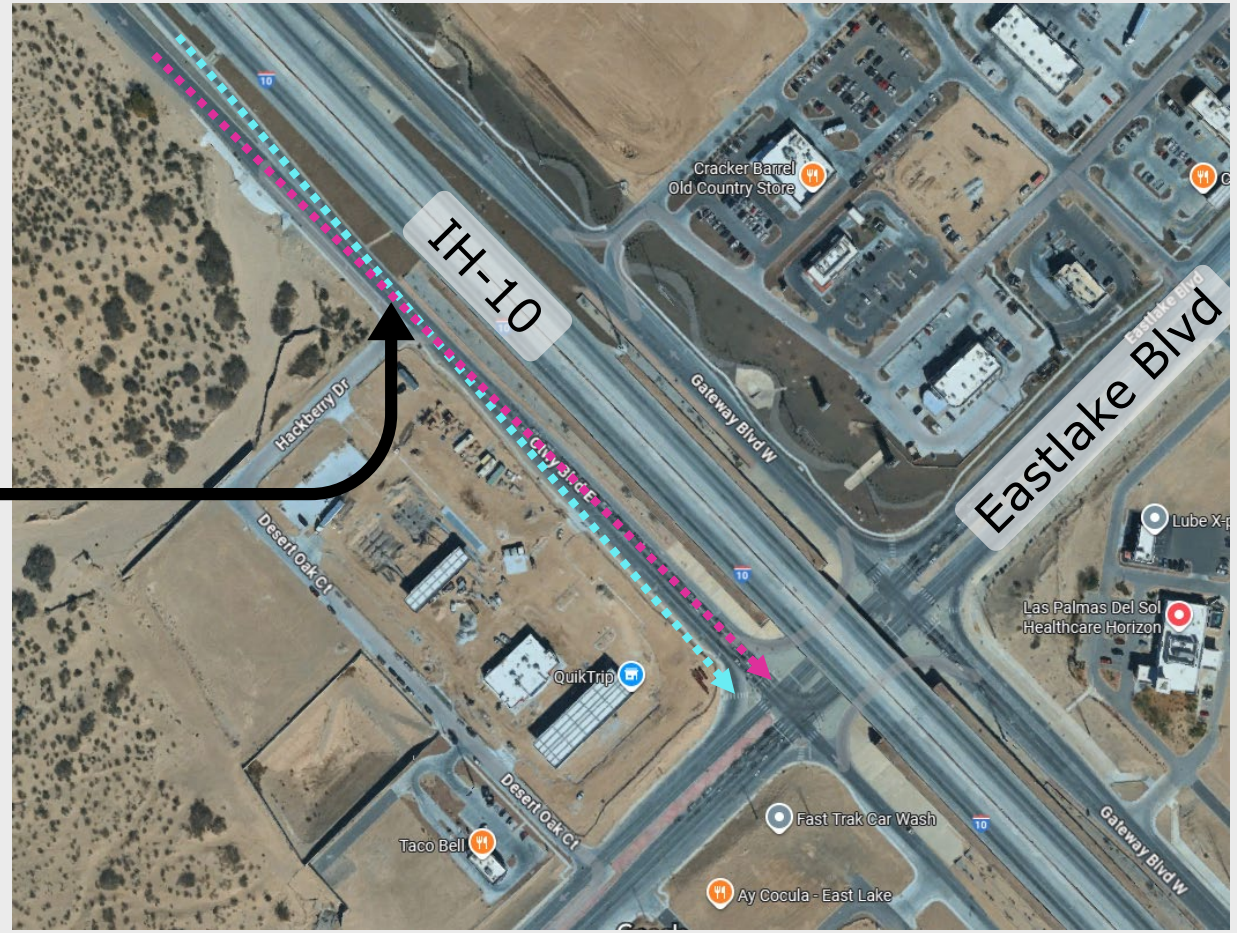
Throughput Calibration Results
(Based on GEH Statistic - FHWA 2004 Criteria)

	% of Locations with GEH < 5
AM	92 (85)
PM	93 (85)

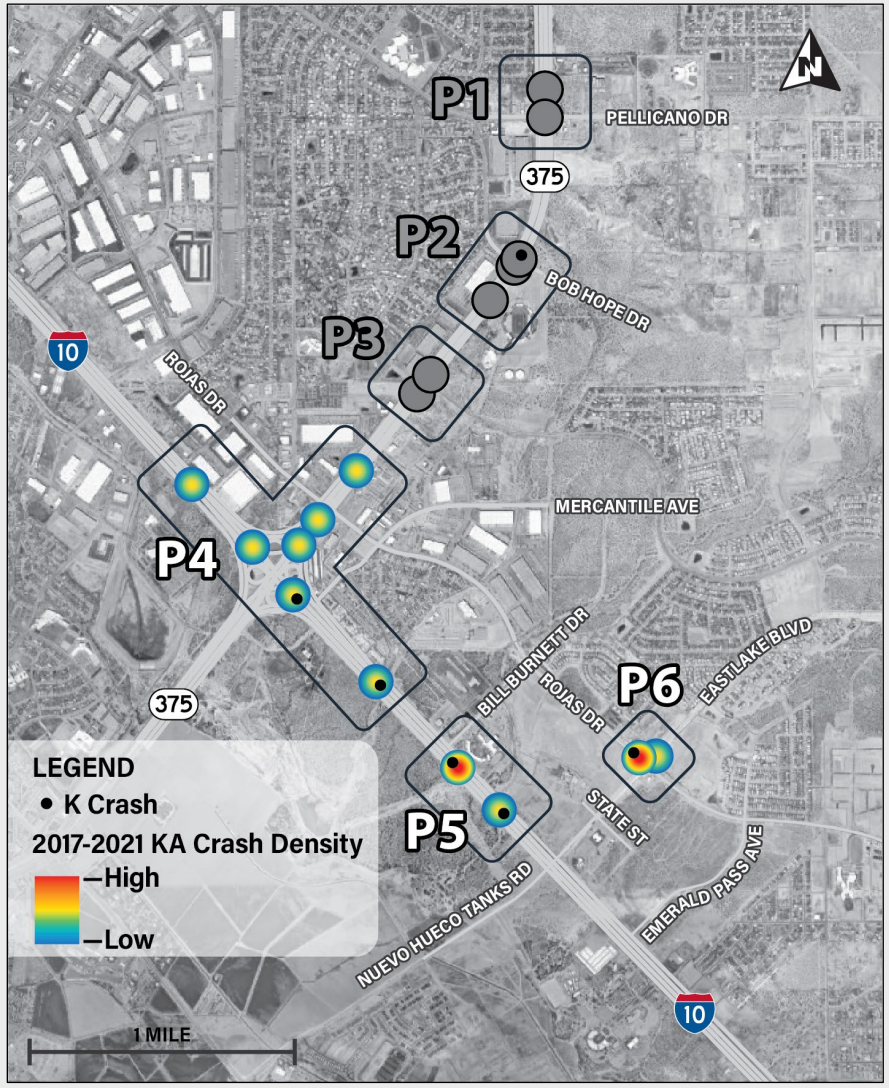
IH-10 Frontage Rd Weaving Analysis

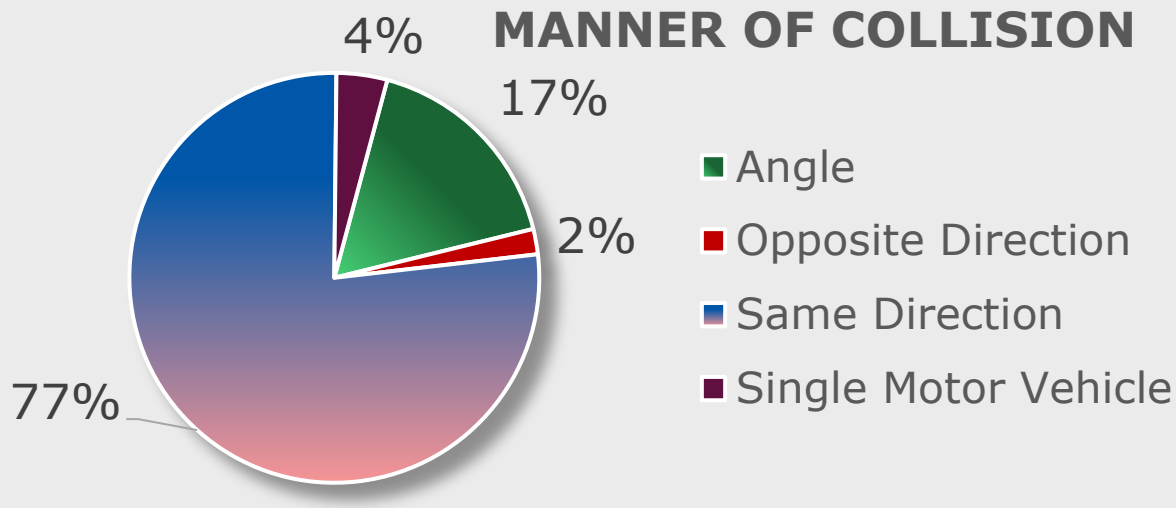
IH-10 Frontage Rd weaving analysis was performed using **Vissim**

Account for weaving related delay caused by lane changes



Existing (2022) Safety Analysis (Part A)



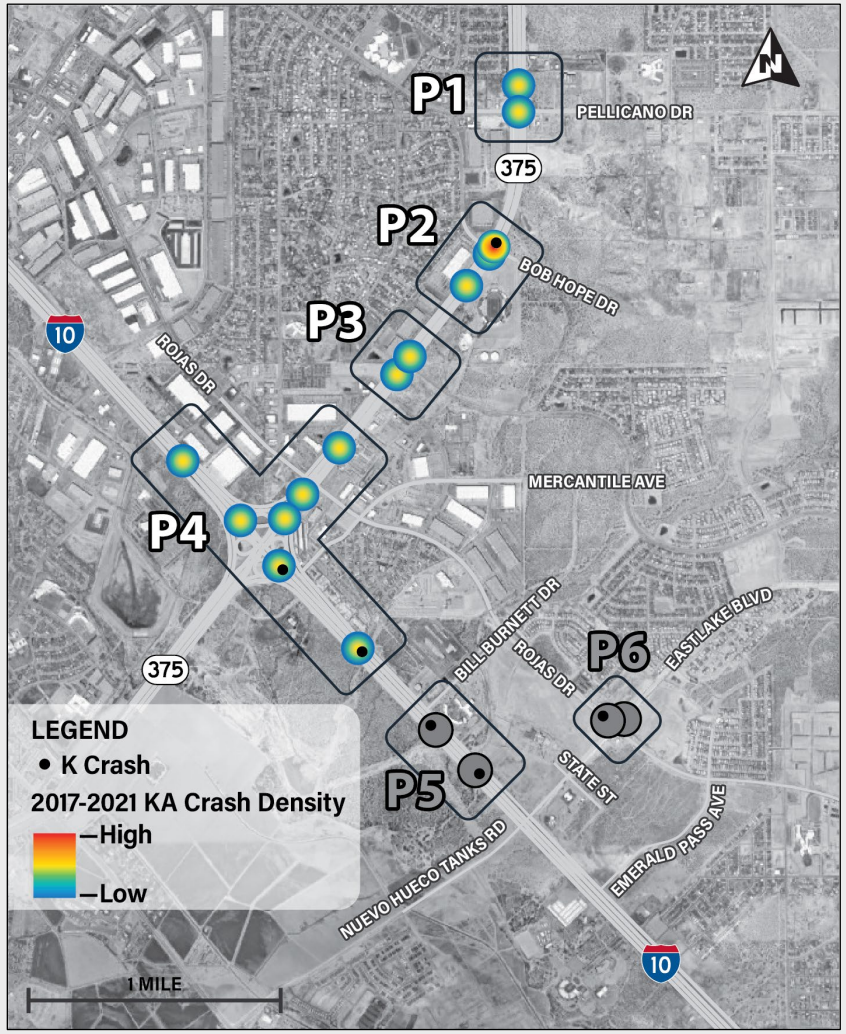


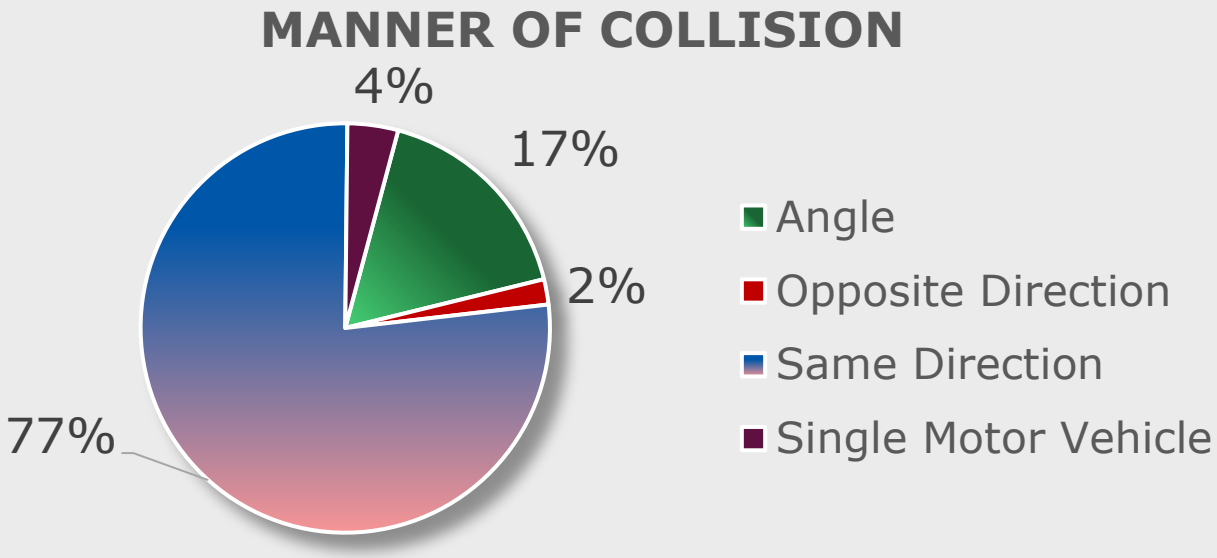
P4 Crashes occurred either due to unsafe speed or driving under influence resulting in two fatal and five serious injury crashes.

P5 Crashes occurred when vehicles hit a fixed object when it was dark resulting in fatality or serious injury.

P6 Crashes that occurred at this intersection were caused due to distracted driving and the driver failed to control speed.

Existing (2022) Safety Analysis (Part B)



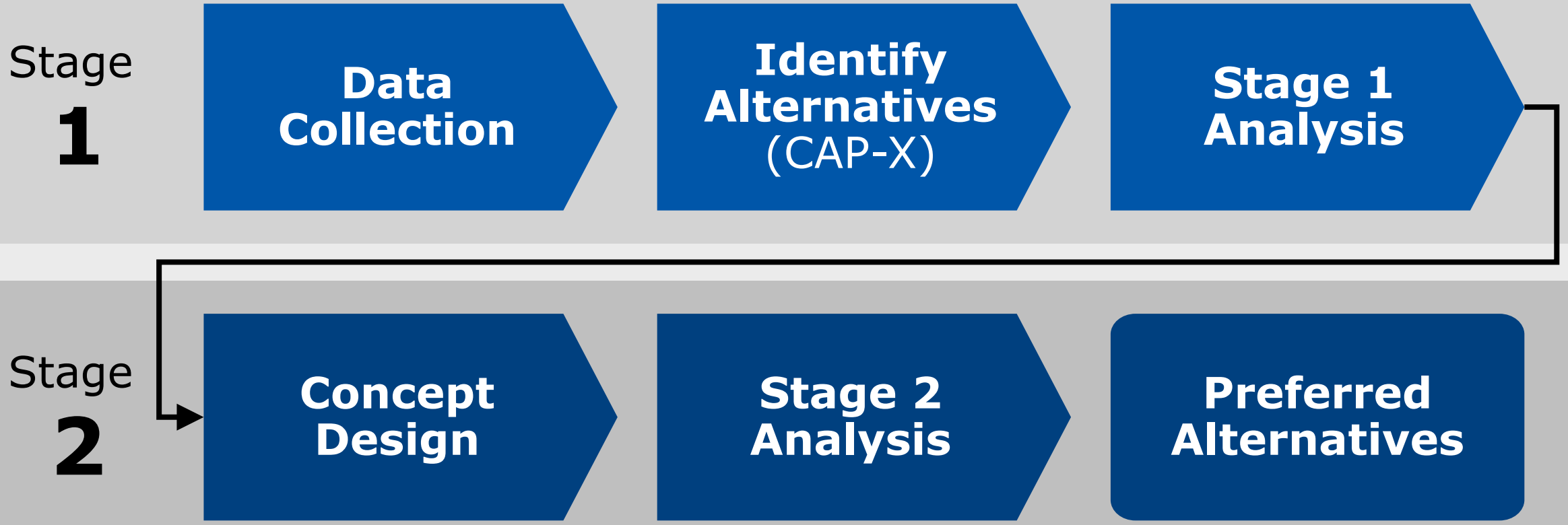


P1 Crashes at this location were due to drivers hitting a fixed object resulting in serious injury.

P2 Crashes at this location were due to drivers hitting a fixed object resulting in serious injury.

P3 Crashes at this intersection were caused due to distracted driving and the driver failing to control speed.

Intersection Control Evaluation



IH-10 at Eastlake Blvd Analysis Summary

Concept	ROW	Structure	Environmental	Additional Load	Retaining Walls	Bridge Widening	CAP-X Results v/c 2045 AM (PM)
SPUI	Additional ROW needed.	Bridge Columns severely impact.	Gas Stations may warrant NEPA study.	No additional loading to bridge structures.	No additional retaining walls needed.	No additional bridge widening needed.	0.89 (1.47)
DDI		No bridge structure impact.	No environmental studies needed.				1.17 (1.60)
Contraflow Left Interchange							1.69 (1.52)

- Minimal impact
- Moderate impact that **CAN be mitigated**
- Severe impact that **CAN NOT be mitigated**

Recommendation: Proceed further analysis on SPUI option for IH-10 at Eastlake Blvd Interchange.

IH-10 at Eastlake Blvd Peak Hour MOE (Year 2045)

	AM Peak Hour		PM Peak Hour	
	ETT* (sec/veh)	LOS	ETT* (sec/veh)	LOS
IH-10 at Eastlake Blvd (No Build)	79.5	D	116.6	E
IH-10 at Eastlake Blvd (DDI)	52 ↓ 35%	C ↓ 56%	51.5	C
IH-10 at Eastlake Blvd (SPUI)	45.5 ↓ 43%	C ↓ 64%	42.1	C

XX% = % Reduction of ETT compared to the No-Build (Texas Diamond) alternative

**ETT = Experienced Travel Time, Exhibit 23-10, Chapter 23, HCM 7th Edition*

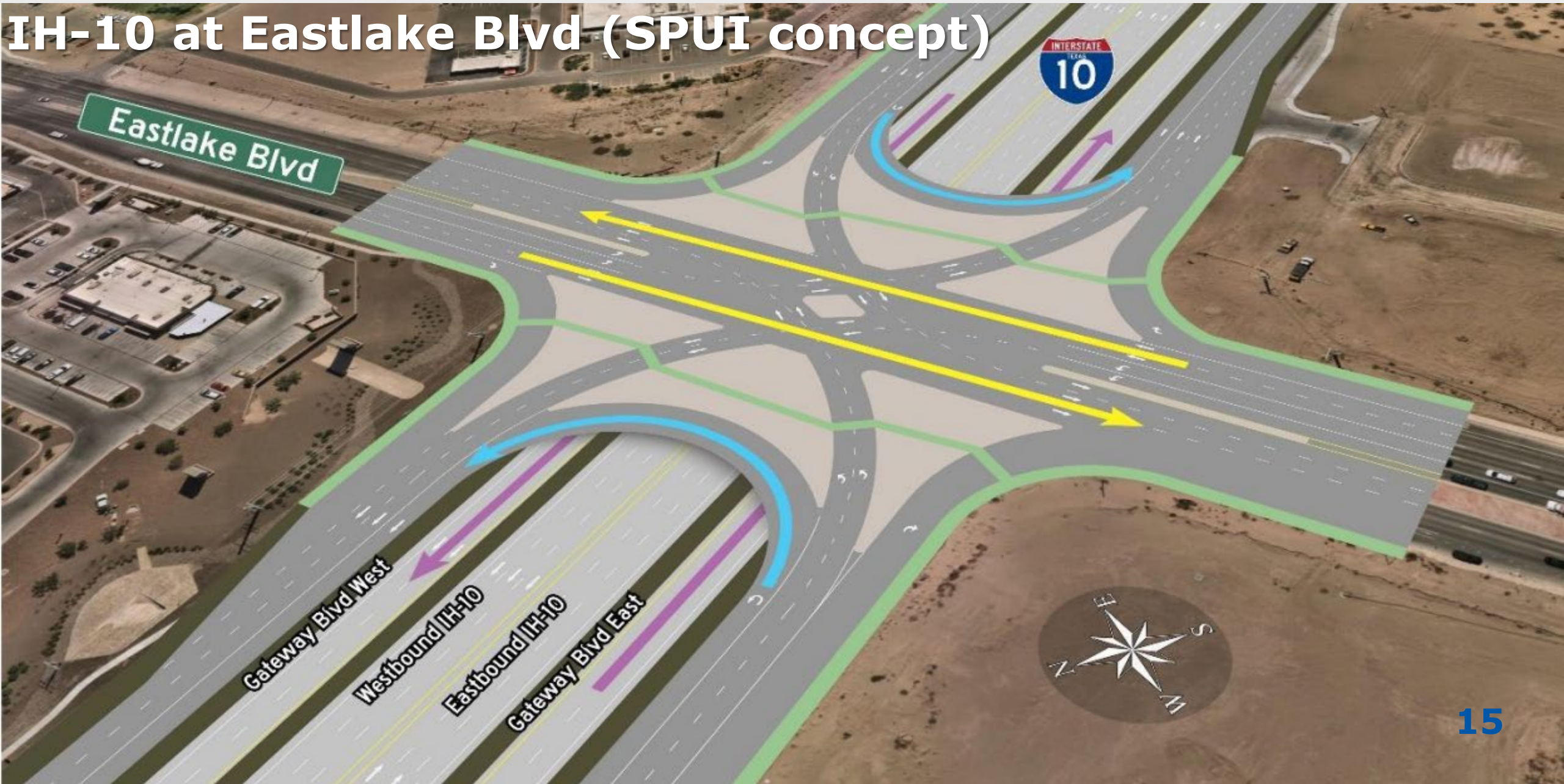
Peak Hour MOE of Interchanges along SL 375 (Year 2027)

Interchange	AM Peak Hour		PM Peak Hour	
	Texas Diamond ETT* (veh/sec)	**Contraflow Left Interchange ETT** (veh/sec)	**Texas Diamond ETT** (veh/sec)	**Contraflow Left Interchange ETT** (veh/sec)
SL 375 at Pellicano Dr	51 (E)	34 (C) ↓33%	65 (E)	40 (D) ↓38%
SL 375 at Bob Hope Dr	49 (D)	34 (C) ↓31%	39 (D)	25 (C) ↓36%
SL 375 at Rojas Dr	62 (E)	39 (D) ↓37%	70 (E)	48 (D) ↓31%

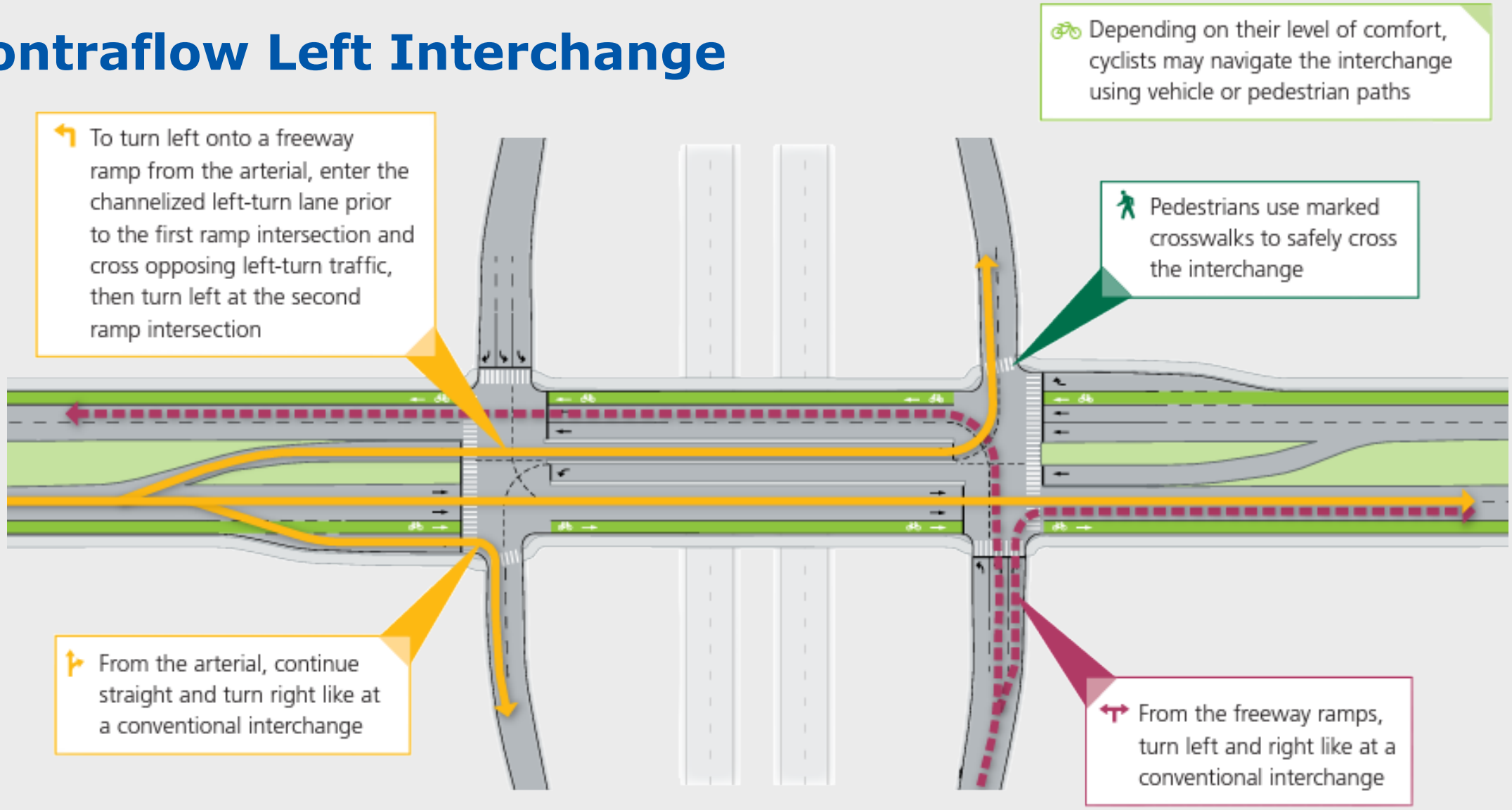
XX% = % Reduction of ETT compared to the No-Build (Texas Diamond) alternative

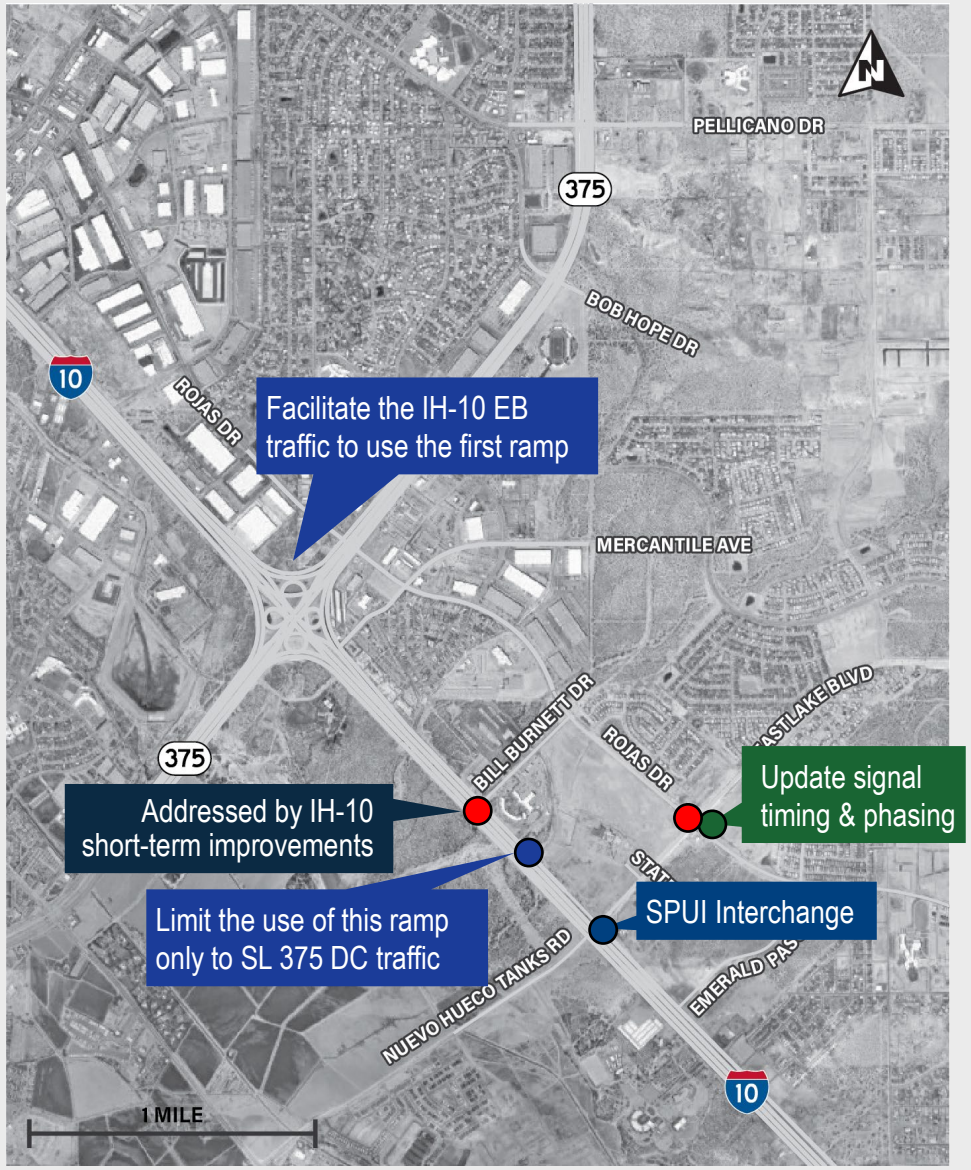
**ETT = Experienced Travel Time, Exhibit 23-10, Chapter 23, HCM 7th Edition*

IH-10 at Eastlake Blvd (SPUI concept)



Contraflow Left Interchange





Recommended Part A Improvements

Short-Term (5 year) Improvements

Mid-Term (5-10 year) Improvements

Long-Term (10+) Improvements

LEGEND

- Interchange Improvements along IH-10
- Safety Improvements
- Operational Improvements
- Interchange Reconfiguration

Recommended Part B Improvements

Mid-Term (5-10 years) Improvements

Long-Term (10+ years) Improvements

LEGEND

- Mid-Term Safety Improvements
- Long-Term Interchange Reconfiguration

Conclusion

- Existing traffic operations and safety conditions analyzed
- Vissim was utilized to analyze oversaturated conditions and analyze the study limits as a system
- ICE was instrumental in identifying the preferred alternatives
- Advance preferred alternatives for funding applications and design
- Short-term improvements were implemented on the Southbound Right from Eastlake Blvd to IH-10 Westbound through pylons based on analysis results

Questions & Discussion

Texas Department of Transportation

September 26, 2025