TEXAS CORRIDOR STUDY

SAFETY ANALYSIS SYNOPSIS

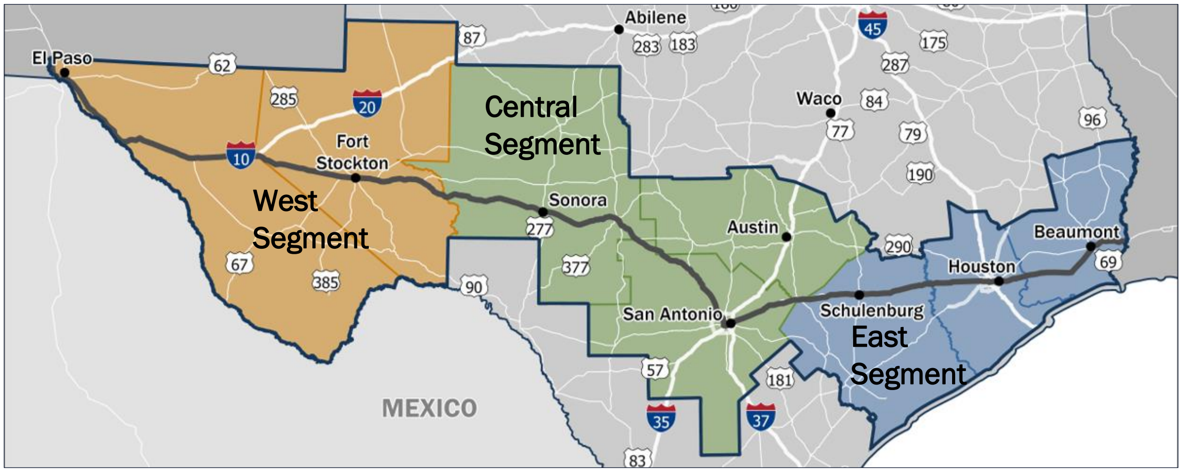
Texas Department of Transportation

I-10 Texas Corridor Study Purpose:
Identify transportation needs and prioritize plans, policies, programs, and projects to improve safety, connectivity, and mobility along the I-10 corridor.

I-10 TEXAS CORRIDOR-WIDE TRENDS

The I-10 Texas Corridor safety analysis was conducted using the Texas Department of Transportation's (TxDOT) Crash Records Information System (C.R.I.S.) data from 2015-2021 and reviews pre- and post-pandemic trends. The analysis covers three geographic areas based on the I-10 Texas Corridor Study segments (West, Central, and East). Crash attribute data from 2019 was used due to the COVID-19 outbreak and recovery period, which began in early 2020.

I-10 TEXAS STUDY SEGMENTS



CRASH FREQUENCY

Between 2015 and 2021, there were 147,496 total crashes on I-10 in Texas across the three segments. The East Segment experienced nearly half (49%) of the crashes, followed by Central (30%), and West (21%). The majority of crashes involved passenger vehicles.

On average, I-10 had more than **21,000** crashes per year.

I-10 TEXAS CRASHES (2015-2021)

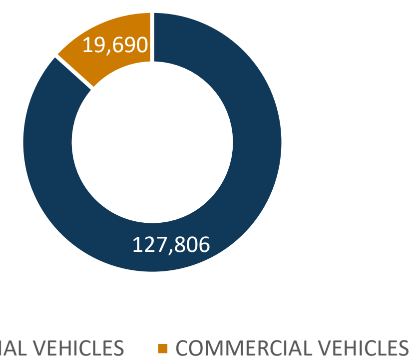
2015 - 2021	West	Central	East	Total
Total Crashes	31,489 (21%)	43,737 (30%)	72,270 (49%)	147,496
Passenger Vehicle Crashes	84%	88%	85%	127,806
Commercial Vehicle Crashes	16%	12%	15%	19,690

COMMERCIAL MOTOR VEHICLE CRASHES

There were 19,690 commercial motor vehicle (CMV) crashes on I-10 in Texas between 2015 to 2021. This accounted for approximately 15% of all crashes along the I-10 Texas corridor.

For this period, the West Segment had the highest CMV crash rate at 16%, followed by the East (15%), then Central (12%).

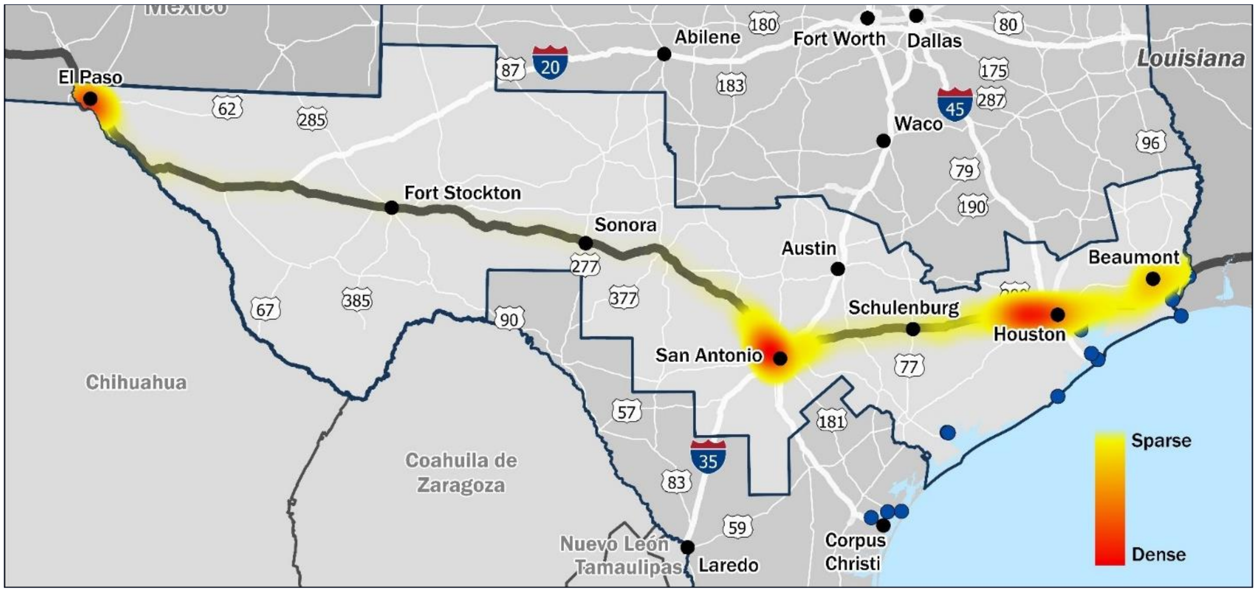
I-10 TEXAS CRASHES BY VEHICLE TYPE (2015-2021)



I-10 TEXAS CORRIDOR-WIDE TRENDS

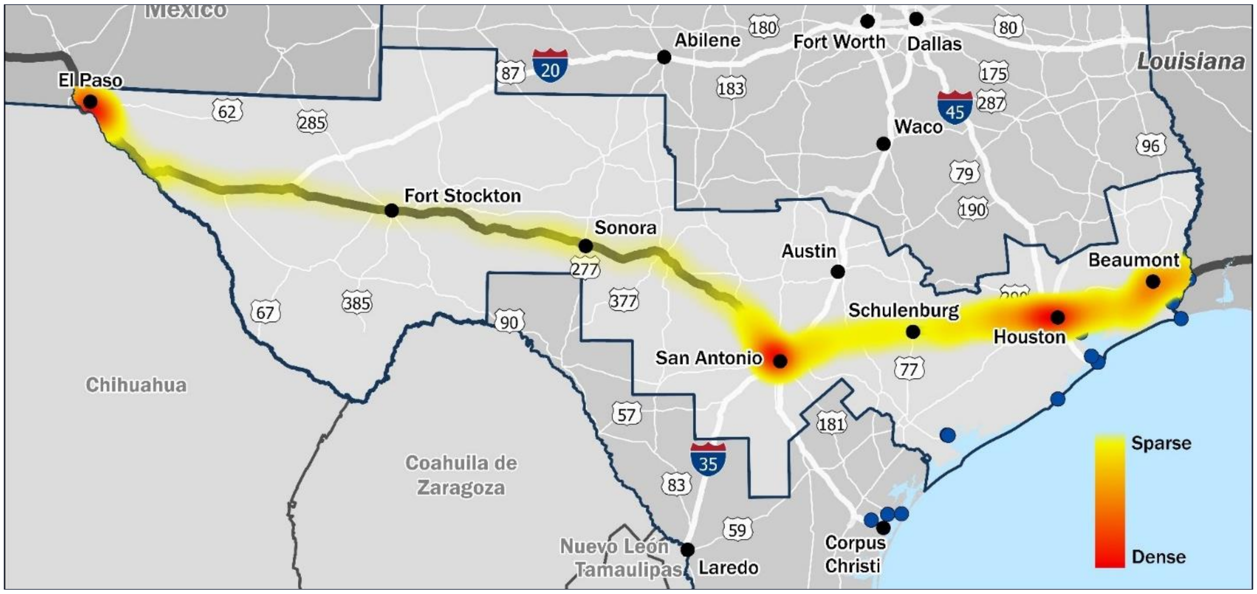
The heat map below displays crash frequency along the I-10 corridor in Texas during 2021. The highest frequencies were in the urban areas including El Paso, San Antonio, Houston, and Beaumont.

CRASH FREQUENCY ON I-10 TEXAS (2021)



Although the urban areas also experienced the highest concentrations of CMV crashes (shown below), these types of crashes were more geographically distributed throughout the corridor than the total crash frequency shown in the above illustration.

CMV CRASH FREQUENCY ON I-10 TEXAS (2021)



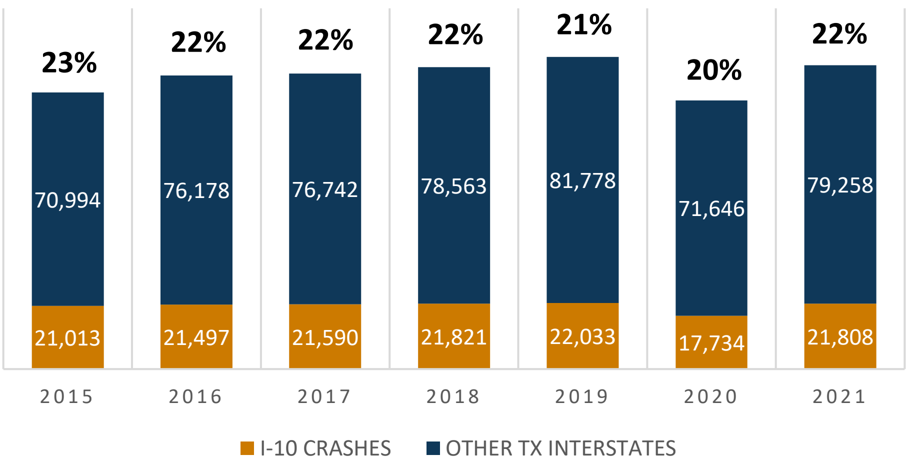
I-10 TEXAS CORRIDOR-WIDE TRENDS

PERCENT CHANGE IN TOTAL CRASHES AND DAILY VEHICLE MILES TRAVELED

Between 2015 and 2021, the total number of crashes on I-10 consistently represented approximately 22% of all interstate crashes in Texas. There was a slight dip to 20% in 2020.

From 2015 to 2019, crashes on the other Texas interstates increased by 15.2%, while I-10 crashes increased by 4.8%. Overall crash rates in 2020 and 2021 were lower than 2019 rates.

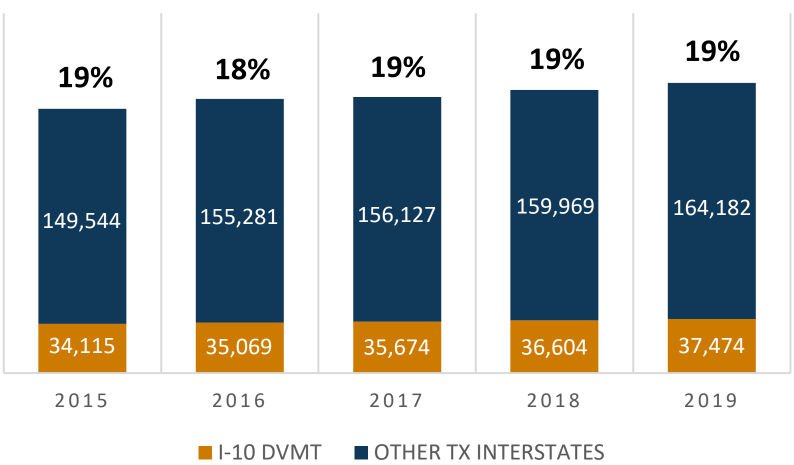
I-10 TEXAS CRASHES (2015-2021): COMPARISON



When compared to other Texas interstates, the daily vehicle miles of travel (DVMT) on I-10 between 2015 and 2019 made up 18.5% of all interstate travel in Texas. Because crash frequency is related to total traffic, DVMT is reported as a comparison with crash trends.

Travel demand on I-10 as well as all other interstates increased by 10% during this time. As traffic increases, it is typical to see crash rates increase.

I-10 TEXAS DVMT (2015-2019): COMPARISON



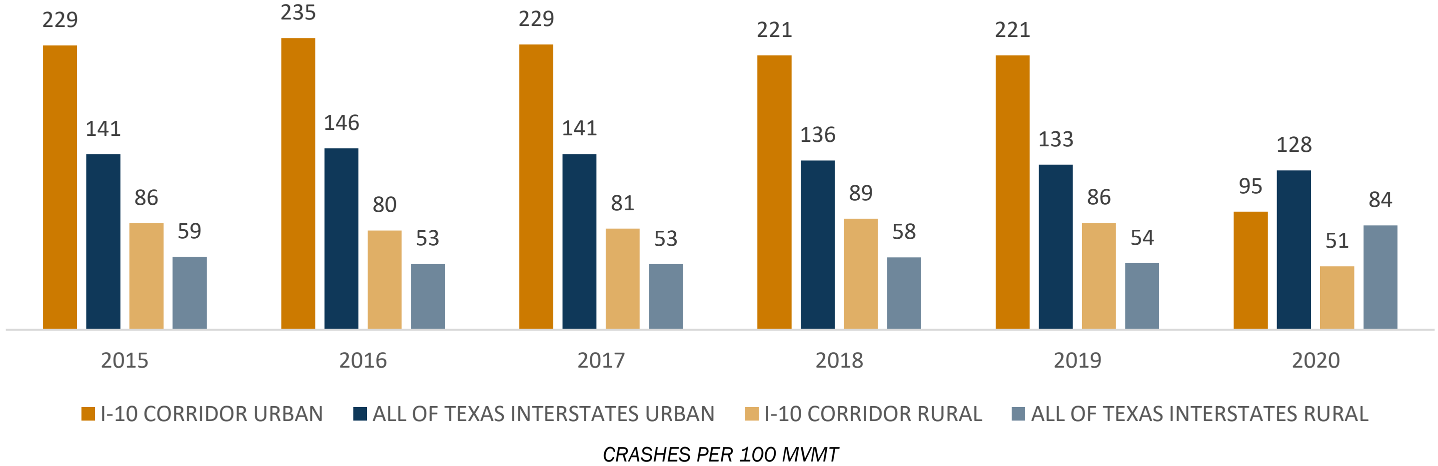
x1000 Vehicle Miles Travelled

SUMMARY OF FINDINGS: I-10 TEXAS CORRIDOR-WIDE TRENDS

- There were approximately 21,000 crashes per year along the I-10 corridor in Texas.
- Of all crashes along I-10 each year, approximately 15% involved a CMV.
- Between 2015 and 2019, there was nearly a 5% increase in crashes along I-10 in Texas.
- I-10 experienced approximately 10% growth in traffic demand between 2015 and 2019, which is keeping pace with all other Texas interstates.

I-10 TEXAS CRASH RATES

I-10 TEXAS CRASH RATES COMPARED TO THE STATEWIDE INTERSTATE AVERAGE (2015-2020)



The I-10 Texas corridor crash rates were calculated for mainlanes in urban and rural portions of the corridor using 2020's million vehicle miles of travel (MVMT) data and 2015–2020 total crash counts. The graphic above compares rural and urban crash rates for 2015-2020.

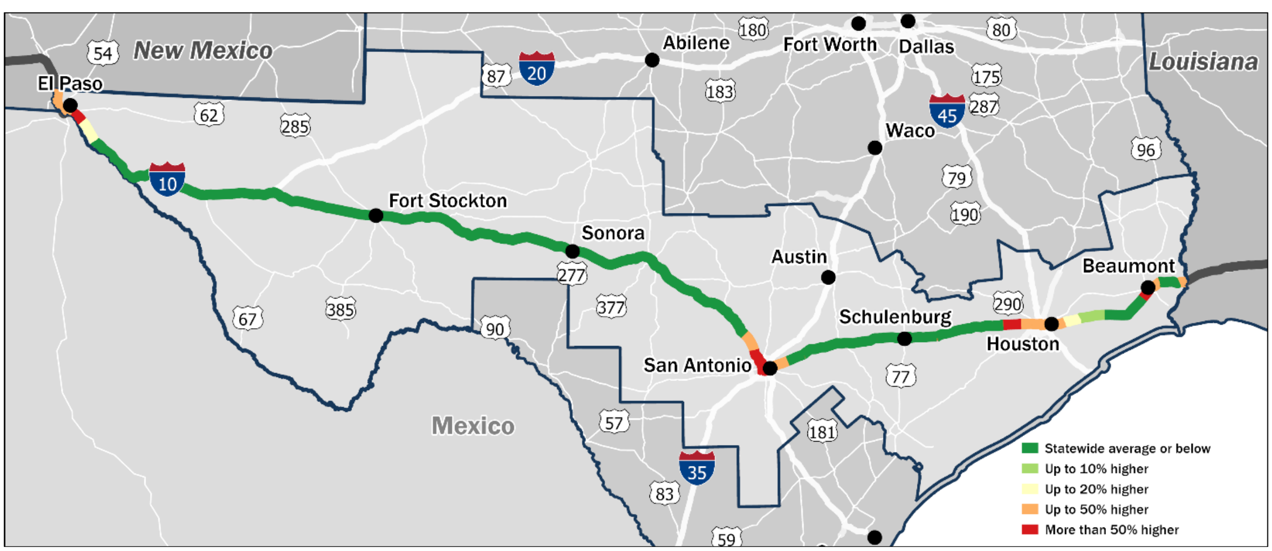
I-10 had significantly higher urban and rural crash rates than the average of all Texas interstate crash rates in 2015-2020. In 2019, I-10's average crash rates for both urban and rural segments were just over **1.5 times** the average crash rate for Texas interstates. Segments of I-10 in Texas with crash rates above the statewide interstate average were considered areas of concern for further analysis. Data for 2020 shows a significant decrease in crash rates, particularly in the urban areas.

ALL OF TEXAS INTERSTATES CRASH AVERAGES

URBAN	139 CRASHES/100 MVMT	2015-2019	URBAN	128 CRASHES/100 MVMT	2020
RURAL	55 CRASHES/100 MVMT		RURAL	49 CRASHES/100 MVMT	

I-10 TEXAS CORRIDOR CRASH AVERAGES

URBAN	227 CRASHES/100 MVMT	2015-2019	URBAN	95 CRASHES/100 MVMT	2020
RURAL	84 CRASHES/100 MVMT		RURAL	51 CRASHES/100 MVMT	



I-10 TEXAS CRASH RATES

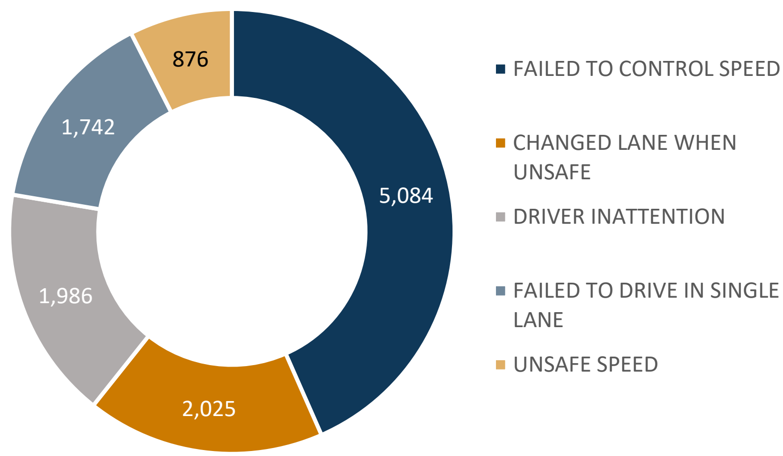
I-10 TEXAS CRASH CONTRIBUTING FACTORS

In 2021, speed-related factors were the foremost contributing factors for crashes on I-10. The chart to the right shows that 5,960 crashes, or 51%, were related to speed, including “Failed to control speed” and “Unsafe Speed” factors.

Unsafe lane changes and distracted driving were the second and third top contributing factors, respectively.

These crashes relate to driver behavior and may be preventable.

TOP 5 CRASH CONTRIBUTING FACTORS FOR CRASHES ON I-10 TEXAS (2021)

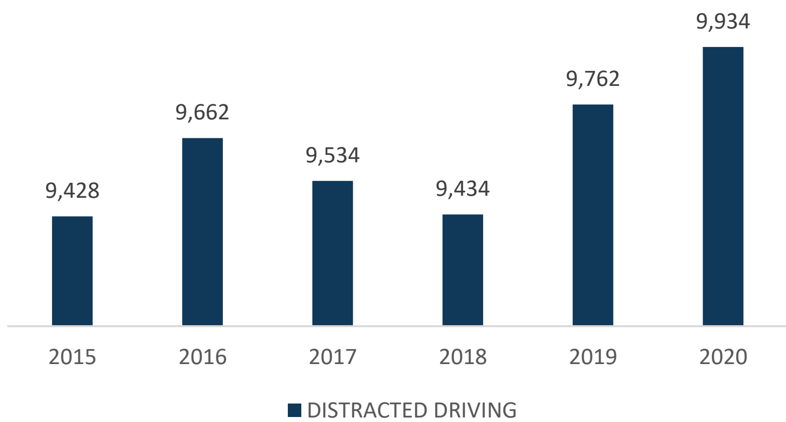


DISTRACTED DRIVERS

The number of distracted driving crashes continue to climb, as shown in the chart to the right.

Distracted driving increased significantly from 2015 to 2016 but dropped the following two years before taking another jump in 2019 and 2020. In 2020, distracted driving contributed to 9,934 crashes on I-10, which was the highest rate in the six-year period.

I-10 TEXAS CRASHES: DISTRACTED DRIVERS

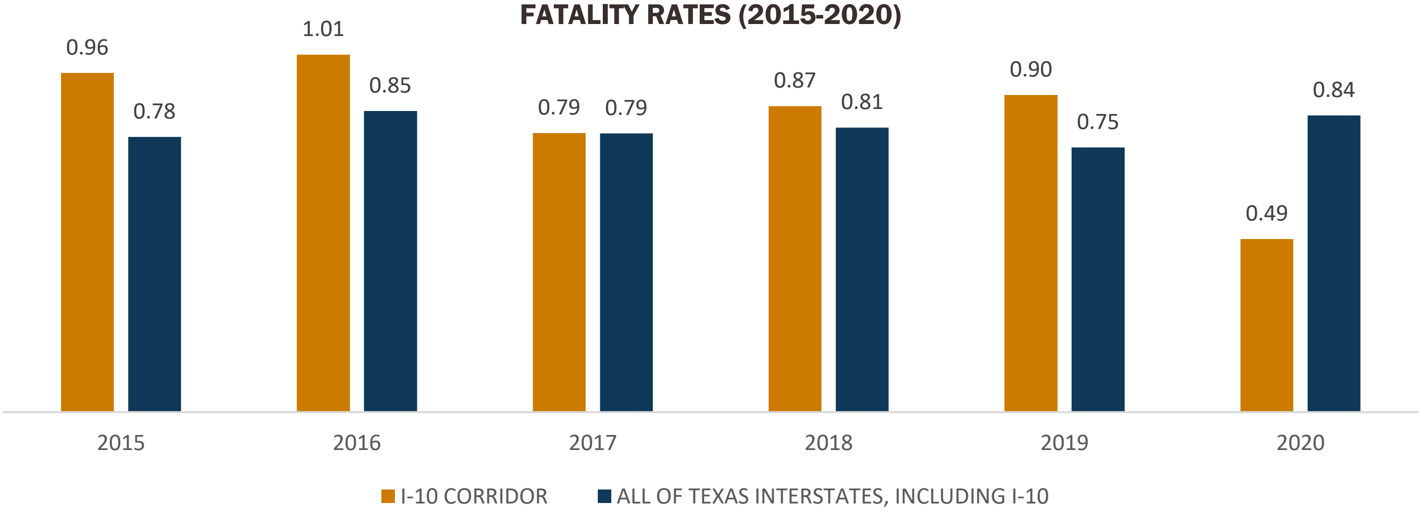


SUMMARY OF FINDINGS: I-10 TEXAS CRASH RATES

- In 2021, speed-related factors contributed to 51% of crashes on I-10, making them the number one contributor.
- In 2021, the top three factors contributing to crashes included speeding, unsafe lane changes, and distracted driving. These factors may be preventable.
- Between 2015 and 2020, the number of distracted driver crashes were the highest in 2020 after dropping in 2017 and 2018.
- In 2020, distracted driving crashes on I-10 in Texas contributed to 9,934 crashes.

I-10 TEXAS FATALITIES

FATALITY RATES AND NUMBER OF FATALITIES



Fatalities per 100 MVMT
Source: Crashes from CRIS (where # of Deaths > 0); Daily VMT from TxDOT Annual Reports

Between 2015 and 2019, the number of fatalities on I-10 in Texas fluctuated but decreased slightly overall, which corresponded with a similar overall decrease in fatalities statewide. In 2015, the I-10 fatality rate was 0.96 per MVMT, dipped to 0.79 per MVMT in 2017, and then increased over the next two years. In 2019, the rate was still lower than 2015 at 0.90 per MVMT.

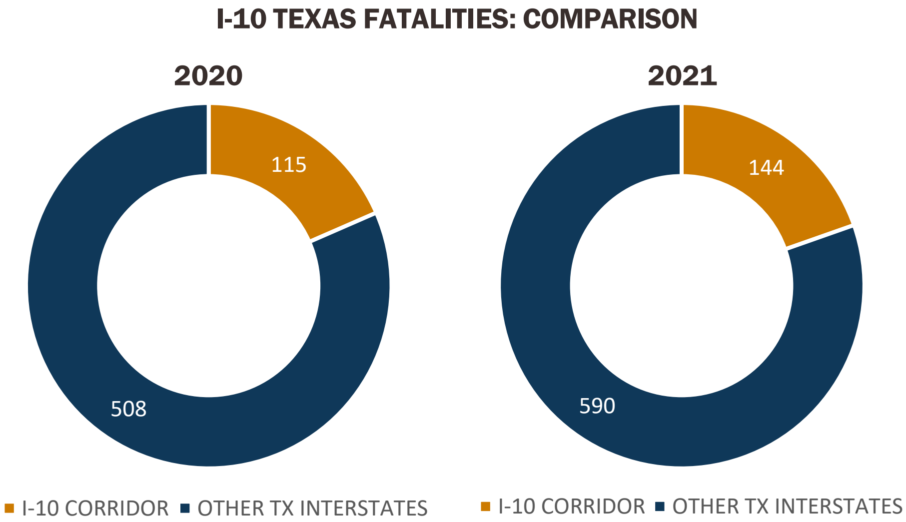
During the same period (2015 to 2019), the fatality rate on I-10 remained higher than the statewide interstate average. The statewide fatality rate increased in 2016, but the rate has been slowly decreasing each subsequent year. In 2015, the fatality rate was 1.39 per MVMT and dropped to 1.26 by 2019.

In 2020, the I-10 fatality rate dropped significantly to 0.49 MVMT, however the statewide interstate average nearly hit a six-year high at 0.84 per MVMT.

I-10 makes up approximately 27% of total interstate miles in Texas.

In 2021, I-10 accounted for approximately 24% of all interstate fatalities across Texas.

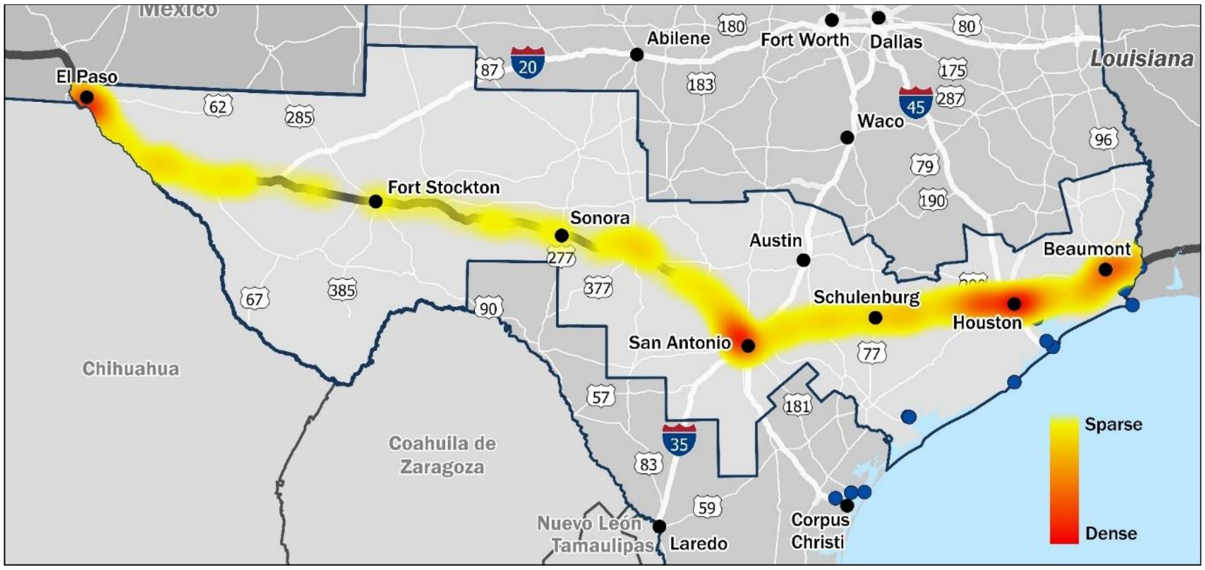
Despite decreased traffic due to the pandemic, fatal crashes on I-10 increased during 2020, and the trend continued in 2021.



I-10 TEXAS FATALITIES

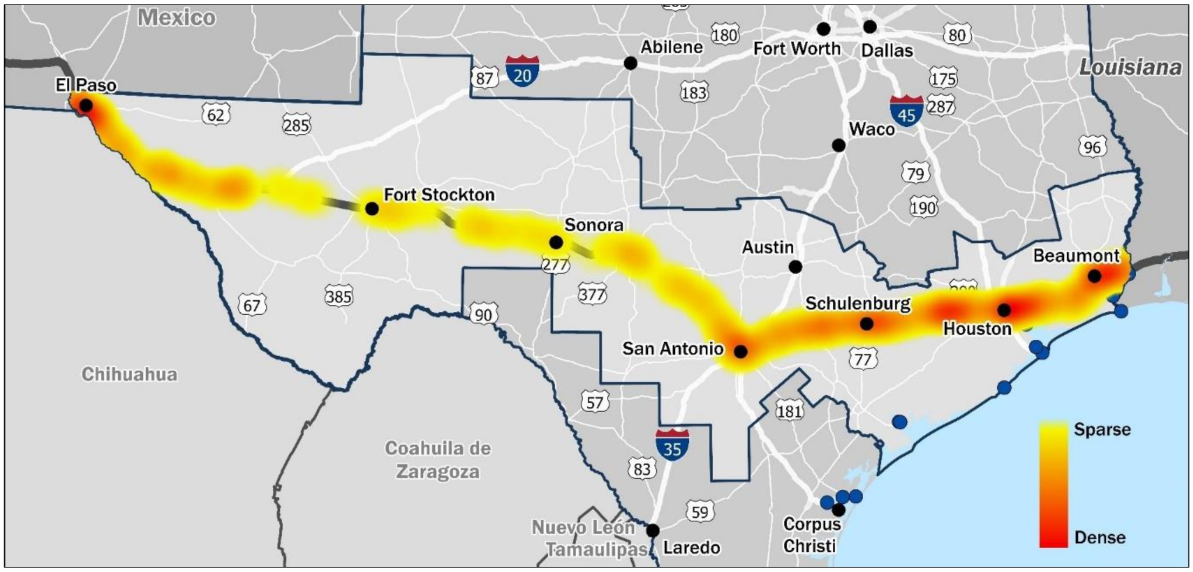
There was a total of **144** crash fatalities on I-10 in 2021. These crashes were concentrated in urban and metropolitan areas as shown in the heat map below.

FATAL CRASH HOT SPOTS ON I-10 TEXAS (2021)



The map below provides the 2021 location and density of CMV fatal crash spots. These crashes were dispersed across the corridor with heavy concentrations in urban/metropolitan areas between Beaumont and San Antonio.

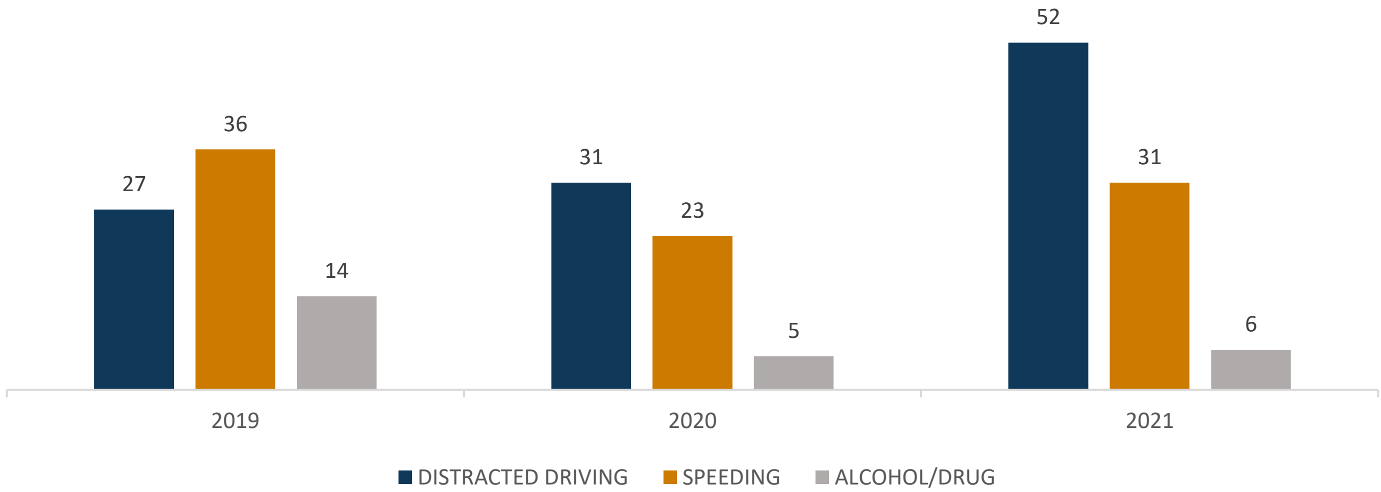
FATAL CMV CRASH HOT SPOTS ON I-10 TX (2021)



CONTRIBUTING FACTORS FOR I-10 FATAL CRASHES

TxDOT examined the contributing factors for fatal crashes on I-10 between 2019 and 2021. While "Distracted Driving" was by far the top contributing factor in 2021, it was followed by "Speeding" and "Alcohol-Drug Related" crashes. The rise in numbers may be due to increased traffic volumes.

CONTRIBUTING FACTORS FOR FATAL CRASHES (2019- 2021)



Fatalities per 100 MVMT
Source: Crashes from CRIS (where # of Deaths > 0); Daily VMT from TxDOT Annual Reports

DISTRACTED DRIVING includes the following contributing factors: distraction in vehicle, cell/mobile device use, and driver inattention. In 2021, the number of distracted driving fatalities rose considerably from the previous years.

SPEEDING includes the following contributing factors: failure to control speed, unsafe speed, and speeding over the limit. In 2021, speeding was the number two contributing factor toward fatal crashes. The number of crashes increased from 2020, but was lower than in 2019, when it was the number one contributor.

ALCOHOL-DRUG RELATED includes the following contributing factors: had been drinking, under influence-alcohol, under influence-drug. From 2019 to 2021, this was the third most frequent contributing factor toward fatal crashes. While the number increased from 2020, it was lower than 2019.

SUMMARY OF FINDINGS: I-10 TEXAS FATAL CRASHES

- In 2019, I-10 crash rates (both rural and urban) were just over **1.5 times** the average crash rate for Texas interstates.
- In 2021, nearly 24% of Texas interstate fatalities occurred on I-10.
- **Distracted Driving** was the **number ONE contributor** to fatalities on I-10 in 2021, followed by Speeding and Alcohol-Drug Related factors.
- Fatalities involving a commercial vehicle had a heavy concentration in urban/metropolitan areas between Beaumont and San Antonio.

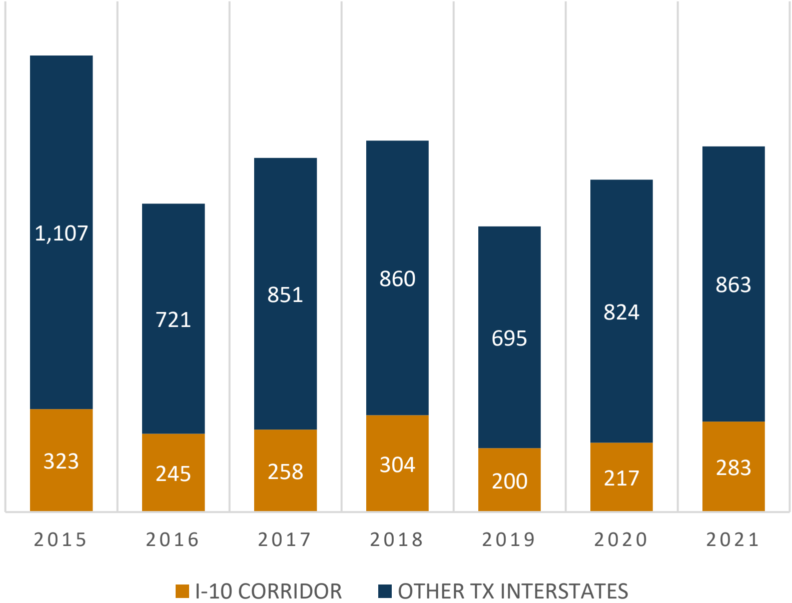
I-10 TEXAS BRIDGE STRIKES

Between 2015 and 2021, bridge strikes on I-10 made up approximately 23% of all bridge strike crashes on Texas interstates.

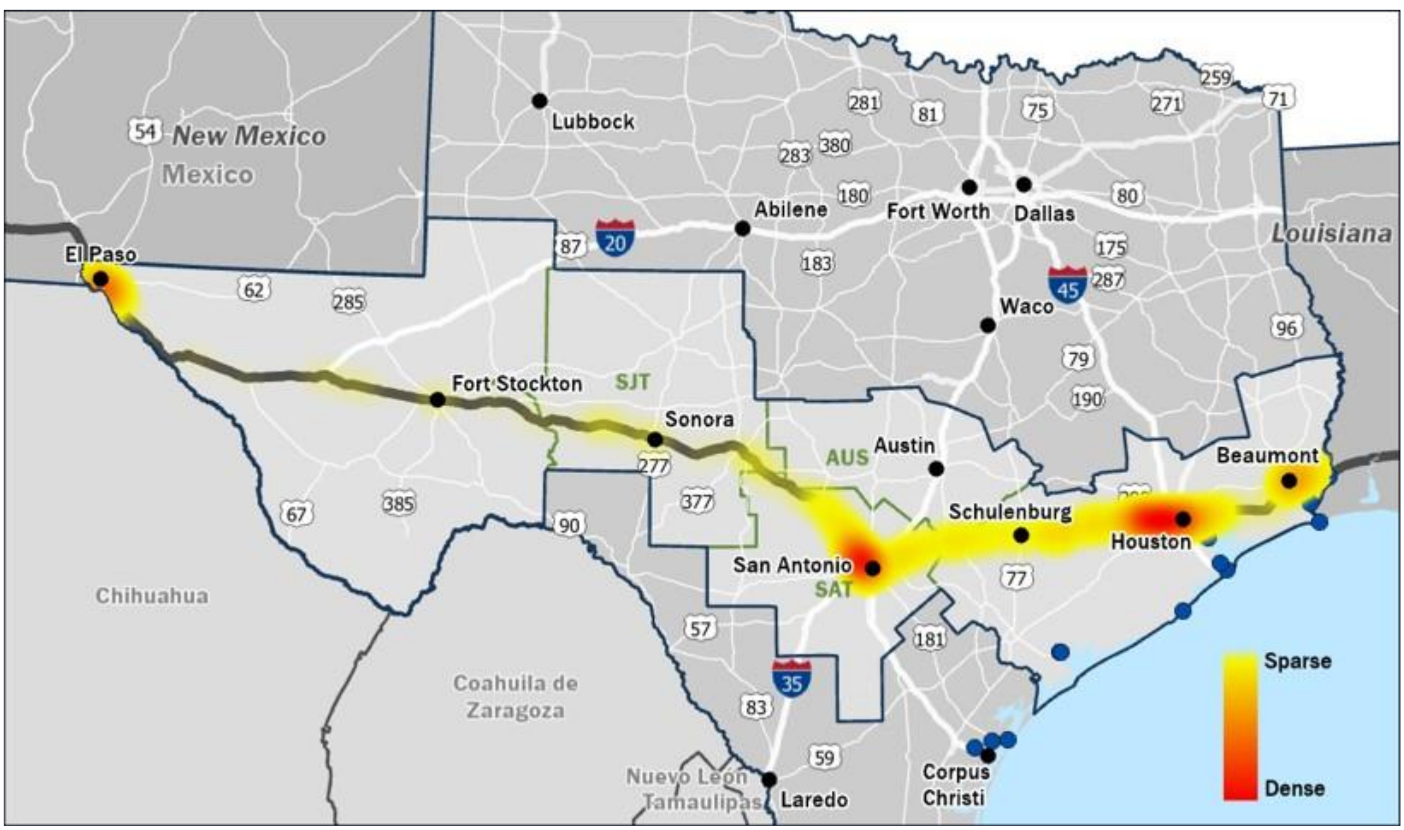
The number of bridge strikes on I-10 has decreased slightly since 2015. In 2015, there were 323 bridge strikes. This decreased to 200 in 2019 and rose to 283 in 2021. One likely contributing factor toward the drop in bridge strikes is the adoption of new bridge height standards (18.5 feet) and reconstruction of some bridges to meet the higher bridge height. However, the increase in the past two years may be attributed to the increase in freight movement.

Most bridge strikes along I-10 occurred in urban areas where heavy truck volumes exist. The highest densities of bridge strikes, as indicated in red on the map below, were located between San Antonio and Houston.

I-10 TEXAS BRIDGE STRIKES: GROWTH RATE COMPARISON (2015-2021)



DENSITY OF BRIDGE STRIKES ON I-10 TEXAS (2021)



ANALYSIS ASSUMPTIONS & CONTACT

The assumptions listed below guided the data collection to conduct the I-10 Texas Corridor safety analysis synopsis presented in this document. Differences in findings are expected, depending on the methodology followed.

- A comprehensive dataset of Texas statewide crash data was downloaded from the Crash Records Information System (C.R.I.S.) by TxDOT through the website (www.cris.dot.state.tx.us).
    - Texas statewide crash data for 2015-2019 was downloaded from C.R.I.S. by TxDOT on Feb 23, 2021.
    - Texas statewide crash data for 2020-2021 was downloaded from C.R.I.S. by TxDOT on May 31, 2022.
- Texas statewide Daily Vehicle Miles Traveled (DVMT) values from 2015 to 2021 were obtained from the Roadway Inventory dataset published annually by TxDOT.
- Speeding crashes are calculated as a combination of the following contributing factors: failed to control speed, unsafe speed, and speeding over the limit.
- Distracted driving crashes are calculated as a combination of the following contributing factors: distraction in vehicle, cell/mobile device use, and driver inattention.
- Alcohol/drug related crashes are calculated as a combination of the following contributing factors: had been drinking, under influence - alcohol, under influence - drug.
- Fatalities due to unrestrained passengers were calculated as the total death count for crashes with “None” as the reported type of restraint used by each vehicle occupant.

CONTACT

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