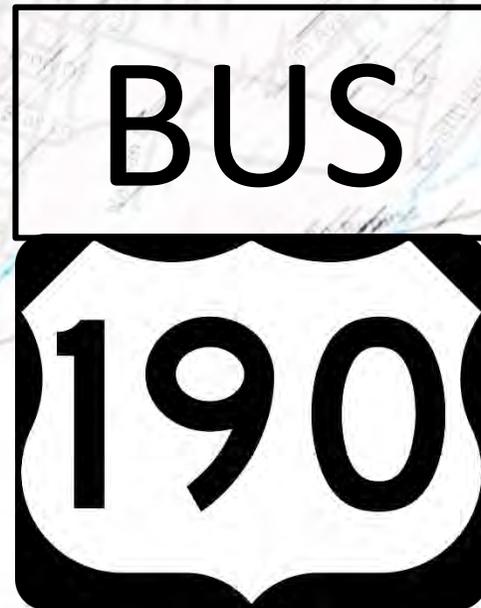




# Business US 190 Highway Median and Sidewalk Project

---



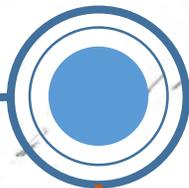
CSJ 0231-02-062  
Special City Council  
Workshop  
May 14, 2018





# History – Timeline

August 2012



City Council approved the strategic plan to “Develop overlay districts within the City within five years”

March 2013



City Council directed development of a Business US 190 Master Plan

September  
2013



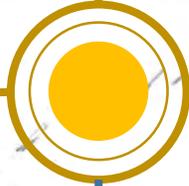
Governor’s Community Achievement Award (GCAA) to Keep Copperas Cove Beautiful, \$210,000.00.

City Council directed GCAA be used along the Business US 190 corridor and creation of the Business US 190 Workgroup.



# History – Timeline

2014



Business US 190 Workgroup formed (citizens, stakeholders, council members, planning and zoning commissioners and city staff), meets, concept proposal.

June 2014



Raised median project was proposed Constitution Drive to Dewald Street with TxDOT maintenance project. GCAA funded and designed and administered by TxDOT. The project was let for construction in March 2016, but pulled from TxDOT project because that element was over budget.



# History – Timeline

February  
2015



Concept proposal to City Council: raised, landscaped medians along the Business US 190 corridor, reducing the lanes of traffic from three in each direction to two lanes in each direction, pedestrian and bicycle mobility. Workgroup: to improve the economic potential of the area and transition to a business district.

City Council directed CM to identify a funding strategy for completion of plans.



# History – Timeline

November  
2015



City Council approved an access analysis, intersection analysis, engineering analysis, environmental surveys, geotechnical reports and testing and easement or right-of-way acquisitions for the Business US Highway 190 Master Plan.

Summer  
2016



KTMPO reprioritized projects in their MTP. City Council authorized submitting the Business US 190 project as priority project.

September  
2016

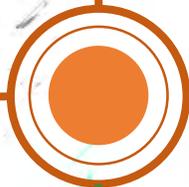


City Council declared support for the 2040 MTP (KTMPO) submission.



# History – Timeline

May 2017



KTMPO approved funding for the Business US 190 project. The project scored high, awarded \$10 million dollars for construction. Project scope is from FM 1113 (Avenue D) to Constitution Drive, a raised median and pedestrian and bicycle facilities.

August 2017



City Council authorized BSP Engineers to proceed with the design.



# History – Timeline

October  
2017



The City of Copperas Cove, BSP Engineers, and TxDOT met to discuss the status of the project and established a timeline for the project, with the primary goal being to get this project to a Public Meeting.

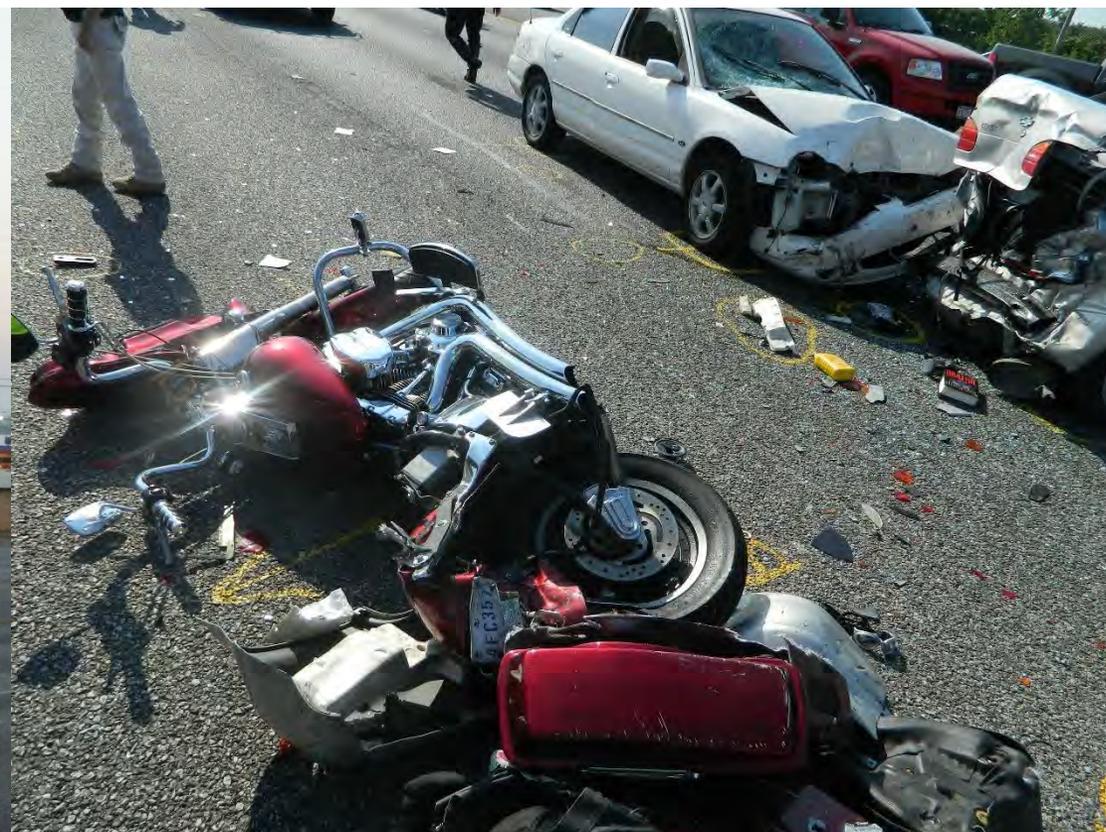
January  
2018



Begin bi-weekly meetings to discuss progress on the project and identify any issues with the project related to design, utilities, ROW, and environmental impact.

# Safety -

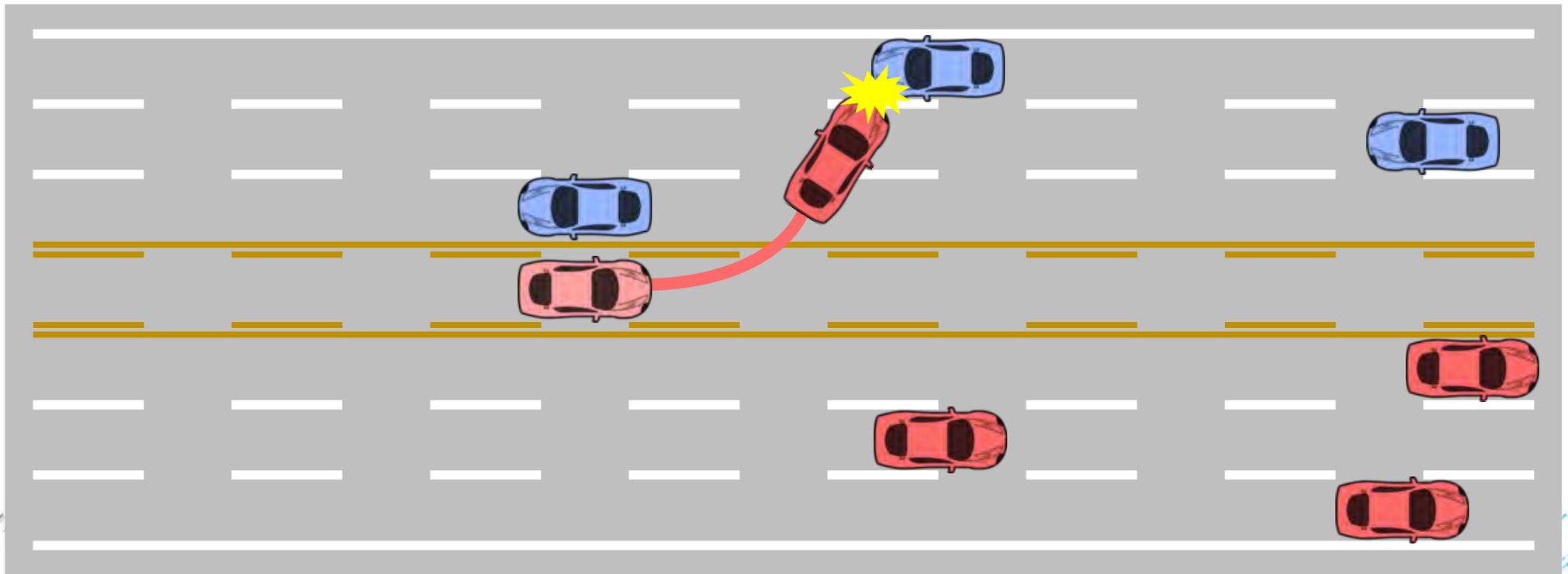
- Accidents from 2017 along the proposed 1.2 miles of 190.





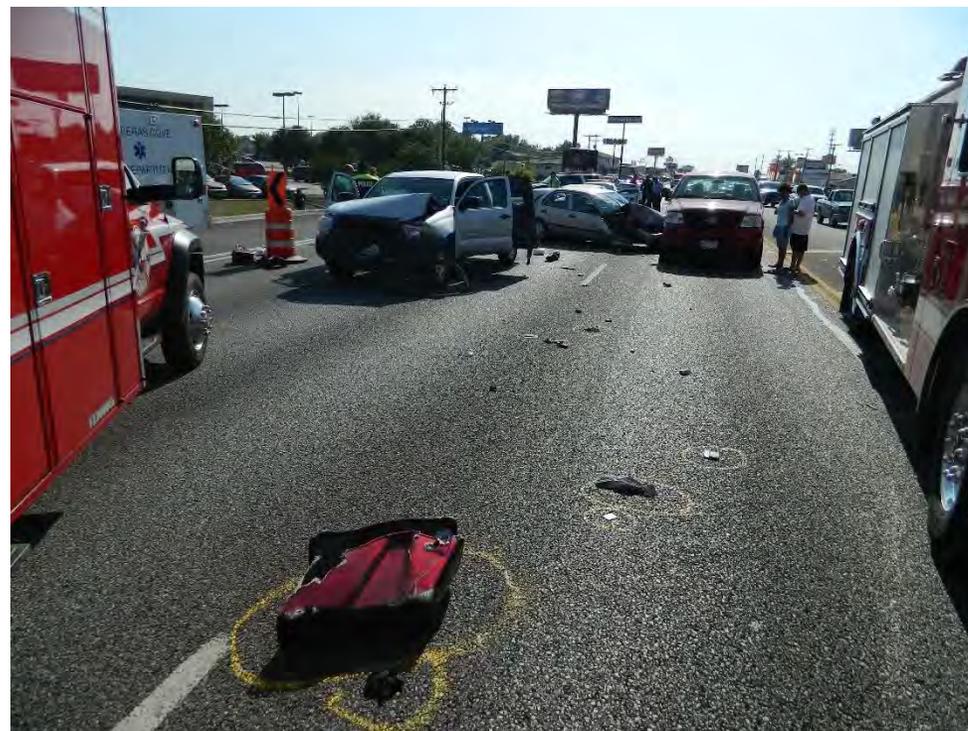
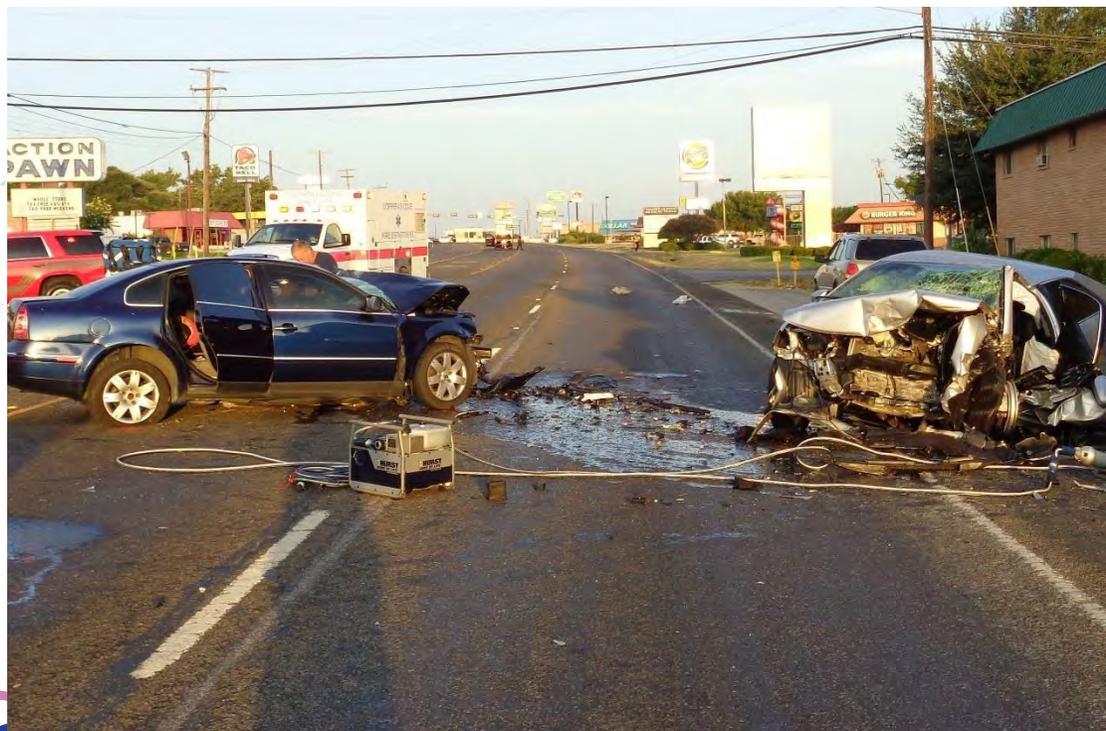
# Safety -

- Accidents from 2017 along the proposed 1.2 miles of 190.
- Accidents involving turning movements 25



# Safety -

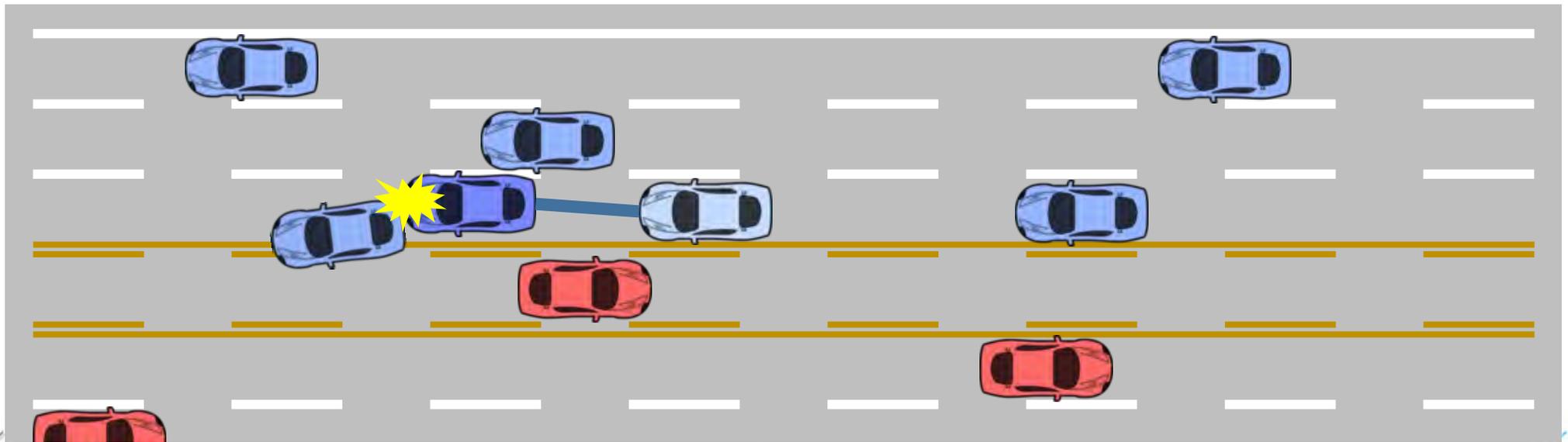
- Accidents from 2017 along the proposed 1.2 miles of 190.
- Accidents involving turning movements 25





# Safety -

- Accidents from 2017 along the proposed 1.2 miles of 190.
- Accidents involving turning movements 25
- Rear end accidents 8



# Safety -

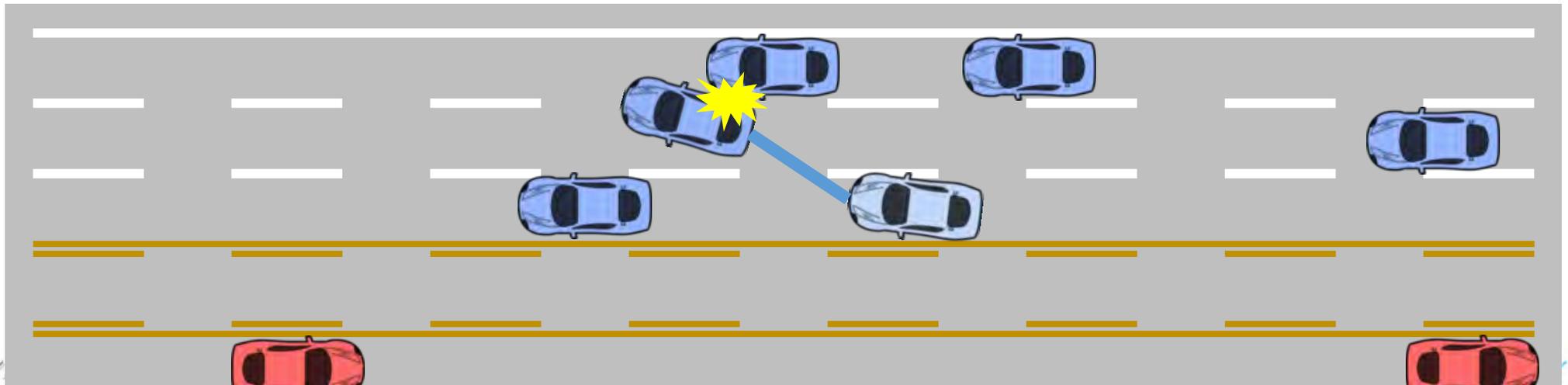
- Accidents from 2017 along the proposed 1.2 miles of 190.
- Accidents involving turning movements 25
- Rear end accidents 8





# Safety -

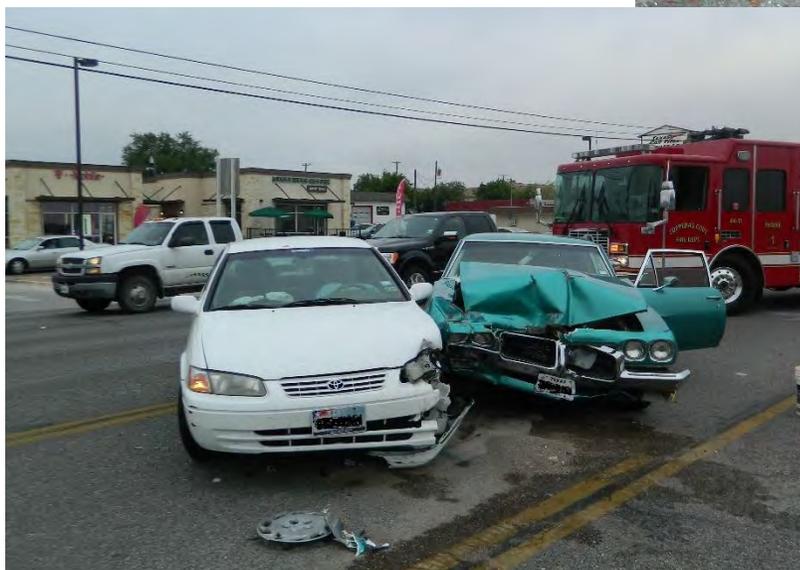
- Accidents from 2017 along the proposed 1.2 miles of 190.
- Accidents involving turning movements 25
- Rear end accidents 8
- Side swipe (lane change) 2





# Safety -

- Accidents from 2017 along the proposed 1.2 miles of 190.
- Accidents involving turning movements 25
- Rear end accidents 8
- Side swipe (lane change) 2





# Safety -

- Accidents from 2017 along the proposed 1.2 miles of 190.
- Accidents involving turning movements 25
- Rear end accidents 8
- Side swipe (lane change) 2

---

Over 70 access points along the corridor = safety concerns  
Controlled turning movements = greater safety

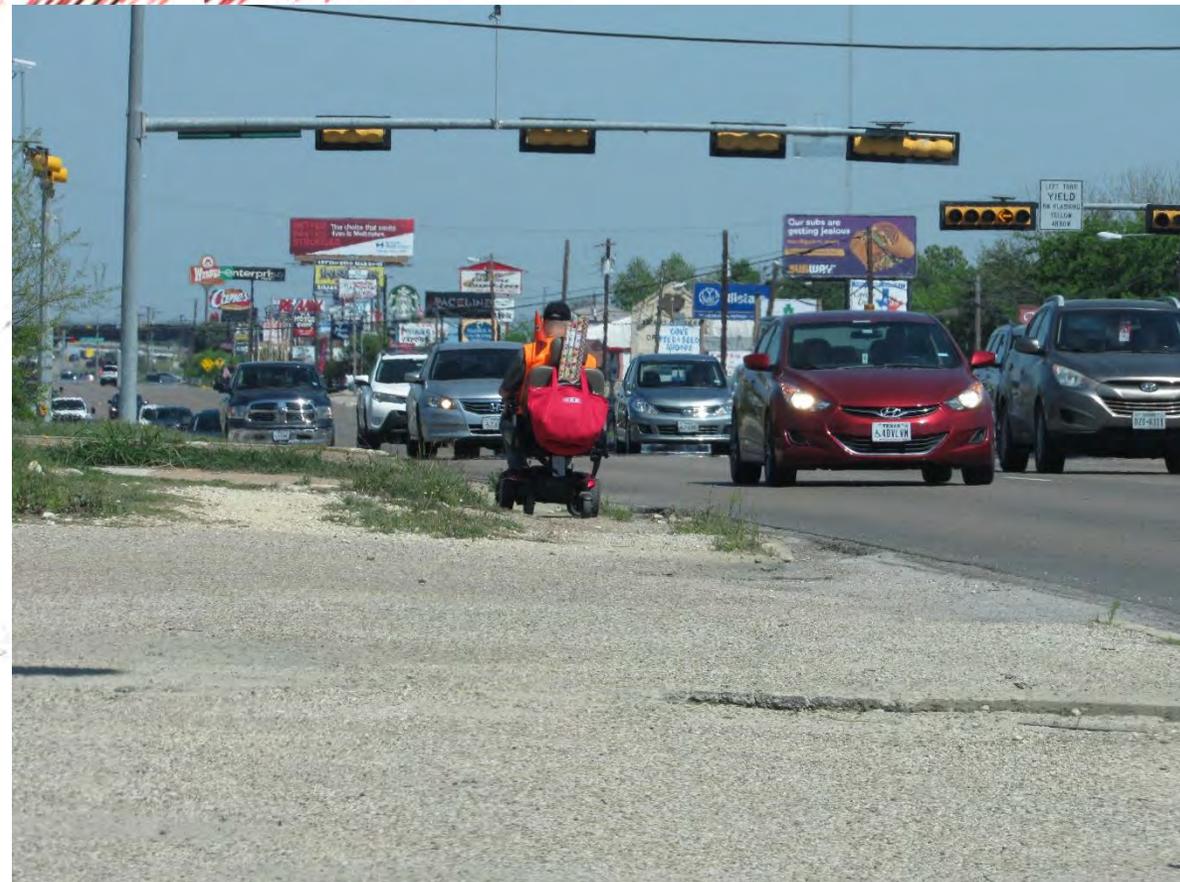
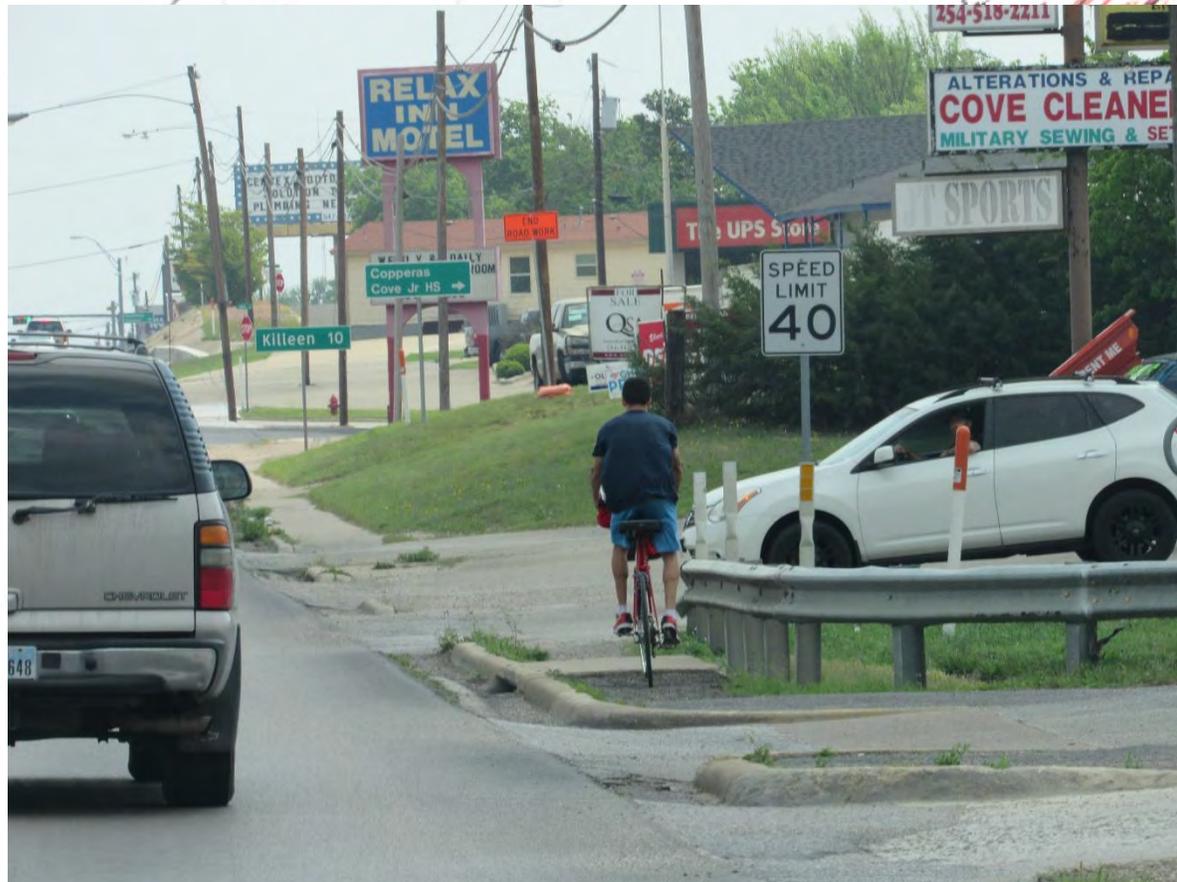
*Read the studies*

# Safety - Pedestrians





# Safety - Multimodal





# Funding

KTMPO awarded \$8 million in Category 2 (on-system) funds.

This funding requires a 20% match.

Since this project is designated an “on-system” roadway, TxDOT will provide the 20% match of \$2 million.

**Total awarded for construction: \$10 million**

City of Copperas Cove is responsible for:

Design: \$721,963

Construction: Only if final engineer's estimate is over \$10M  
The final estimate will be \$10M or less



# Funding

Total awarded for construction: \$10 million

The \$10 million for this project awarded by KTMPO **cannot** be used for other projects in Copperas Cove.

If this project is not constructed, the money will be awarded to the next project within KTMPO's MTP per recommendations of the Technical Advisory Committee and Policy Board members.



# Project Page

<https://www.txdot.gov/inside-txdot/projects/studies/waco/business-us-190.html>

The screenshot shows the Texas Department of Transportation website. The header includes the TxDOT logo, the text "TEXAS DEPARTMENT OF TRANSPORTATION", and navigation links for "A - Z Site Index", "Contact Us", and "Español". A search bar is also present. Below the header, a secondary navigation bar includes "Inside TxDOT" (highlighted), "Get Involved", "Media Center", "Projects", "Forms & Publications", "Administration", "Districts", and "Divisions".

The main content area is titled "Business US 190 Improvements". It features a breadcrumb trail: Home > Inside TxDOT > Projects > Projects & Studies > Waco District. The page is divided into several sections:

- Projects:** A sidebar menu with links for Project Tracker, Stimulus Funding, Projects & Studies, Project Websites, Transportation Expenditure Reporting System, and Aviation.
- Project Overview:** A paragraph stating that TxDOT, in coordination with the City of Copperas Cove, is developing plans for improvements to Business US 190 from Constitution Drive to East Avenue D. The project includes bicycle and pedestrian facilities and a raised median.
- Details:** A section titled "Enhancements to this corridor would include:" followed by a bulleted list:
  - Raised medians using xeriscape landscape elements
  - Two through lanes of traffic in each direction with controlled left turn access at public intersections
  - ADA compliant bicycle and pedestrian facilities
- Get Involved:** A paragraph announcing a public meeting on Thursday, May 31, 2018, for property owners and citizens to provide input.
- Downloads:** A bulleted list of downloadable documents:
  - Project History and Schedule
  - Project Map
  - Frequently Asked Questions
  - Lee Engineering Study
  - Killeen-Temple Metropolitan Planning Organization (KTMPO)
  - KTMPO Projects
  - Economic Impacts of Median Design - 1
  - Economic Impacts of Median Design - 2



# Project Page

- Safety
  - Drivers
  - Pedestrians

**Question:** Why will the number of lanes be reduced?

**Answer:** Reducing the number of travel lanes is part of the overall plan to improve safety and provide pedestrian routes along BUS US 190.



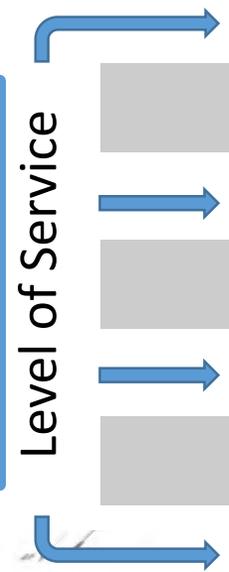
# Project Page

- Safety
- Congestion

## Signalized Intersections on Business 190 Using Projected **2036** Traffic Volumes

Peak Hour:	AM Peak		Midday Peak		PM Peak	
Lanes:	6	4	6	4	6	4
	<b>@ E Avenue D</b>					
	45 s	47 s	41 s	44 s	54 s	52 s
	<b>@ Martin Luther King Jr Drive</b>					
	19 s	21 s	22 s	27 s	24 s	43 s
	<b>@ Constitution Drive</b>					
	12 s	12 s	18 s	21 s	17 s	18 s
	<b>@ Robert Griffin III Drive</b>					
	7 s	9 s	26 s	28 s	15 s	16 s

Lee Engineering  
2016  
Intersection and  
Access Analysis





# Project Page

- Safety
- Congestion
- Left Turns

## Resources for Two-Way Left-Turn Lanes

- *FHWA Road Diet Case Studies*
- *FHWA's Road Diet Informational Guide*
- *Safety Evaluation of Installing Center Two-Way Left-Turn Lanes on Two-Lane Roads*
- *Safety and Operational Characteristics of Two-Way Left-Turn Lanes*
- *Missouri DOT Two Way Left Turn Lanes*
- *Texas DOT Urban Street Design*
- *A Study of Two-Way Left-Turn Lane Pavement Markings*
- *Manual on Uniform Traffic Control Devices, Figure 3B-7 Example of Two-Way Left Turn Lane Marking Applications*



### Mike Spack, PE, PTOE

Mike is the founder of Spack Enterprise and creative force and principal writer behind MikeOn Traffic.

He is the recognized industry leader of traffic studies and traffic data collection. He is also the author or numerous industry leading guides used by transportation professionals around the world and presenter for Traffic Corner Tuesday webinars.

Photo Credit: City of Charlotte, NC

[1] [https://safety.fhwa.dot.gov/road\\_diets/](https://safety.fhwa.dot.gov/road_diets/)



# Project Page

- Safety
- Congestion
- Left Turns



**Mike Spack, PE, PTOE**

Mike is the founder of Spack Enterprise and creative force and principal writer behind MikeOn Traffic.

He is the recognized industry leader of traffic studies and traffic data collection. He is also the author of numerous industry leading guides used by transportation professionals around the world and presenter for Traffic Corner Tuesday webinars.

## Two-Way Left-Turn Lanes (TWLTL)

- Not as safe as the addition of raised medians and exclusive turn lanes, particularly on high volume roadways
- Seven-lane roadways, three lanes of through traffic in both directions with a TWLTL have high crash rates

- Police should enforce TWLTL laws for turning only, not allowing passing
- Safety benefits degrade if the speed limit is 45 mph or more mph
- Access should be limited to 12 driveways per mile, or 440-foot spacing, as opposing left turning vehicles will overlap



# Project Page

- Safety
- Congestion
- Left Turns
- U-Turns

Raised medians may increase U-turns..., but [had] minimal effect on safety and operational performance.

## EFFECTS OF INCREASED U-TURNS AT INTERSECTIONS ON DIVIDED FACILITIES AND MEDIAN DIVIDED VERSUS FIVE-LANE UNDIVIDED BENEFITS

Research Conducted for  
The North Carolina Department of Transportation

By

Stacie L. Phillips,  
Daniel L. Carter, and  
Joseph E. Hummer, Ph.D., P.E.  
Department of Civil, Construction and Environmental Engineering  
North Carolina State University

and

Robert S. Foyle, P.E.  
Transportation Research and Education  
North Carolina State University

August 2004

approach densities (0-25 approaches per mile). For medium to high driveway densities (25-90 approaches per mile), the raised median was slightly safer at high traffic volumes

# Project Page

Technical Report Documentation Page		
1. Report No. TX-01/3904-4	2. Government Accession No.	3. Recipient's Catalog No.
4. Title and Subtitle A METHODOLOGY FOR DETERMINING ECONOMIC IMPACTS OF RAISED MEDIANS: FINAL PROJECT RESULTS		5. Report Date October 2000
7. Author(s) William L. Eisele and William E. Frawley		6. Performing Organization Code
9. Performing Organization Name and Address Texas Transportation Institute The Texas A&M University System		8. Performing Organization Report No. Report 3904-4
		10. Work Unit No. (TRIS)
		11. Contract or Grant No.

- Safety
- Congestion
- Left Turns
- U-Turns
- Economy

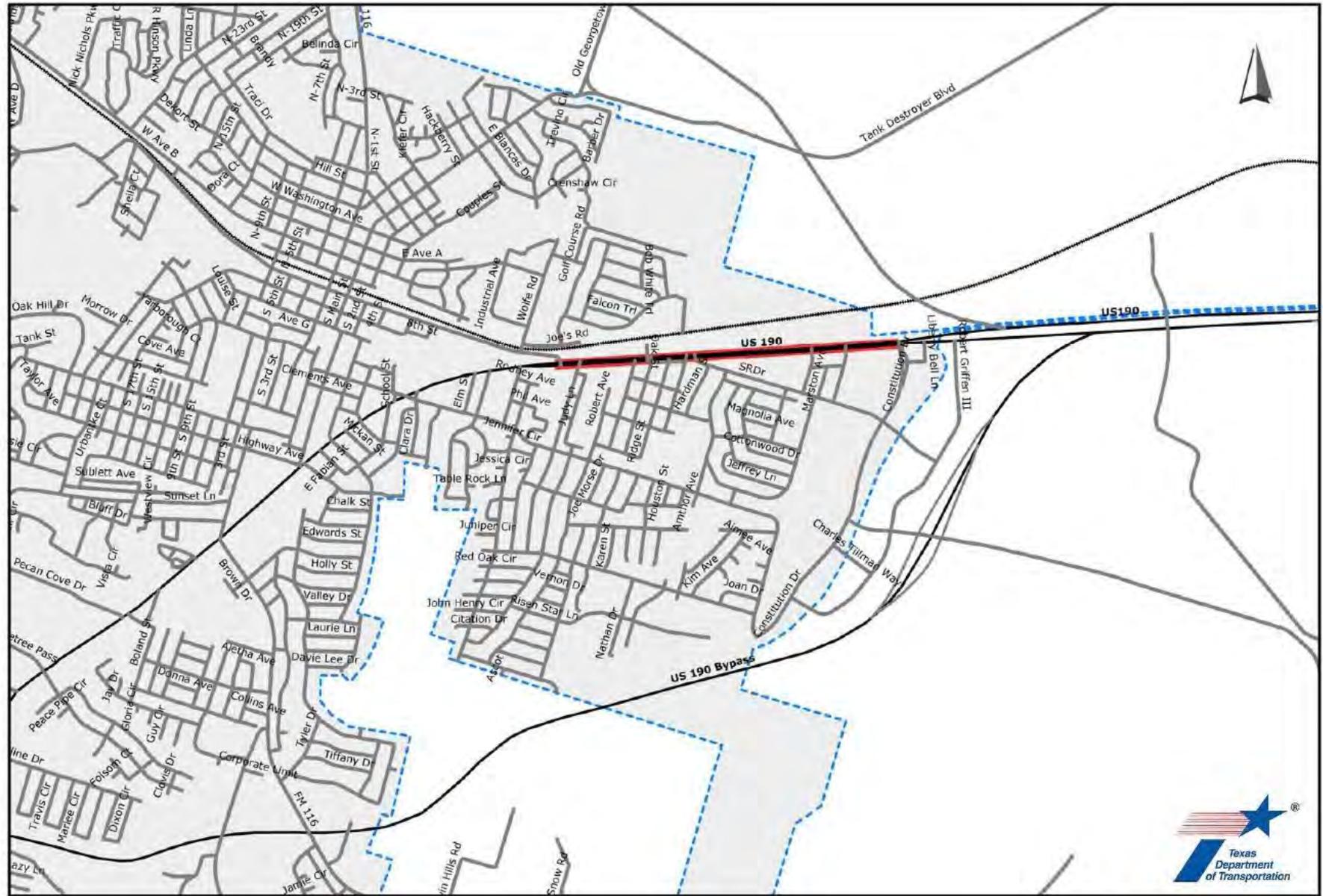
• ...85.7% of business owners...present before, during, and after the median installation felt...regular customer would be more likely or stay about the same....

◆ A majority of customers indicated that while the raised median made access more difficult, they indicated that customer satisfaction was better or that it remained about the same for the five businesses where customer surveys were performed.

◆ There was almost always an increase in the number of total employees along several of the corridors. Those corridors that did experience a decrease in the number of employees only experienced a decrease for one year and not over consecutive years.

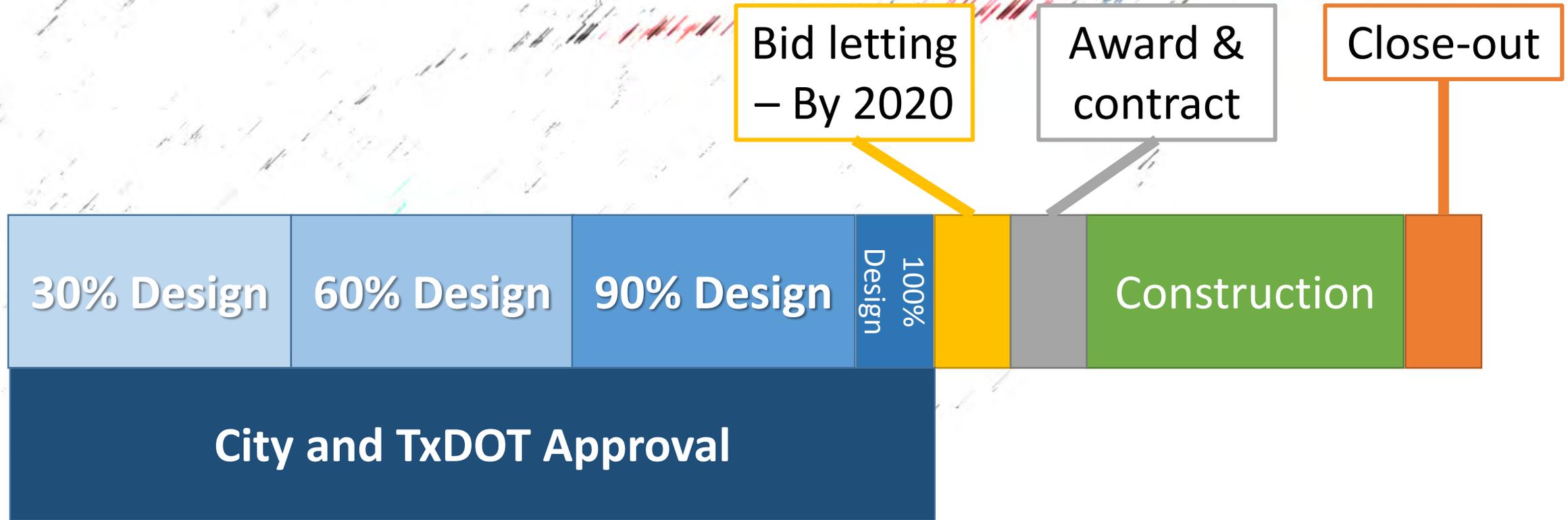


# Schematic Discussion





# Next Steps

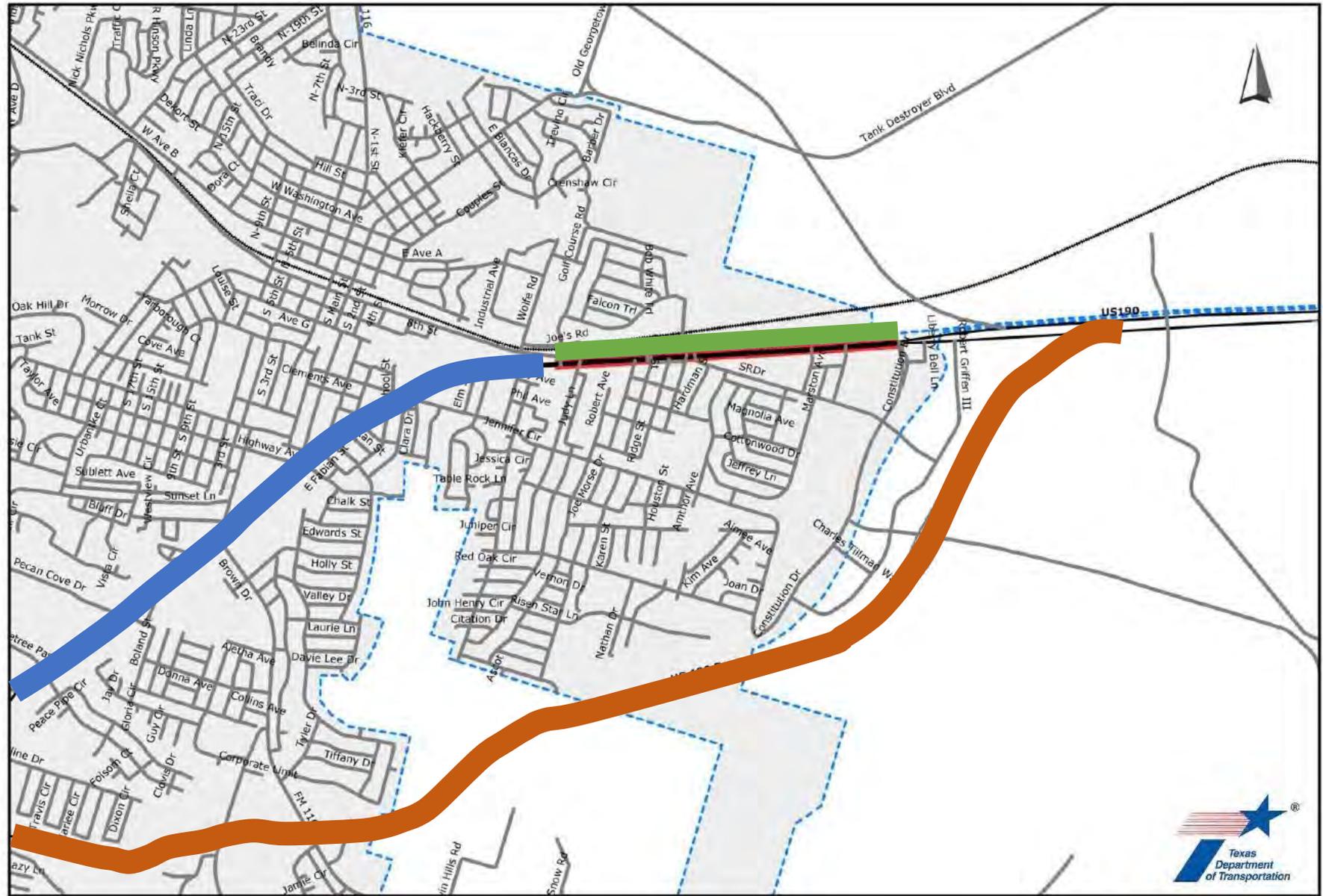


# Future Projects

- Business 190 North Sidewalk

- Business 190 West of Ave D

- I-14



City of Copperas Cove, Texas  
Business 190 Phase 1  
Project Location Map

**Legend**  
City Limit  
Project Location





# TxDOT Public Meeting

---

**Date:** May 31, 2018  
**Time:** 5:30 p.m.  
**Location:** Civic Center