



# HIGHWAY SAFETY IMPROVEMENT PROGRAM (HSIP) POTENTIAL OPPORTUNITIES AVAILABLE FOR THE CITY OF FAIR OAKS RANCH

MICHAEL GARZA, PE, PTOE, RSP<sub>1</sub> - LEGACY ENGINEERING GROUP (GEC)

MAY 19, 2022





## PRESENTATION OUTLINE

- ✓ Overview of Highway Safety Improvement Program (HSIP)
  - Recent Changes w/HSIP Funding & Participation
  - \$3.6M of Safety Enhancement Funding Available for FY 23
- ✓ Potential Opportunities Available for the City of Fair Oaks Ranch
  1. Ammann Rd Curve Realignment(s) & Shoulder Widening
  2. Potential Targeted / Systemic Safety Enhancements
- ✓ Key Takeaways / Discussion / Next Steps



## What is the Highway Safety Improvement Program (HSIP)

- The HSIP is a federal-aid program, managed by each state, with the purpose to achieve a significant reduction in traffic fatalities and serious injuries on all public roads.
- Projects may be
  - Targeted - supported by qualifying preventable crashes with Safety Improvement Index  $\geq 1.0$
  - Systemic - based on roadway features that may pose known risks for severe crashes





## RECENT CHANGES TO HSIP PROGRAM

# How are HSIP Projects Selected?

Prior to 2020, all 25 TxDOT Districts competed for the same funding which funded based on the top SIs for each type of project submitted so the top tier was determined after projects were submitted

### 25 Districts

On System Targeted - Systemic - Off System

Intersection – Run off Road – Curves - Pedestrian – Widening – Grade Separations



LEGACY  
ENGINEERING GROUP



## RECENT CHANGES TO HSIP PROGRAM

Each District now has an assigned budget for qualifying projects

- Dedicated funding for off-system
- No longer competing statewide
- Districts accountable to meet funding amounts to reduce fatal and serious injury crashes
- The San Antonio District currently has \$3.6M available for FY 23 for off-system projects

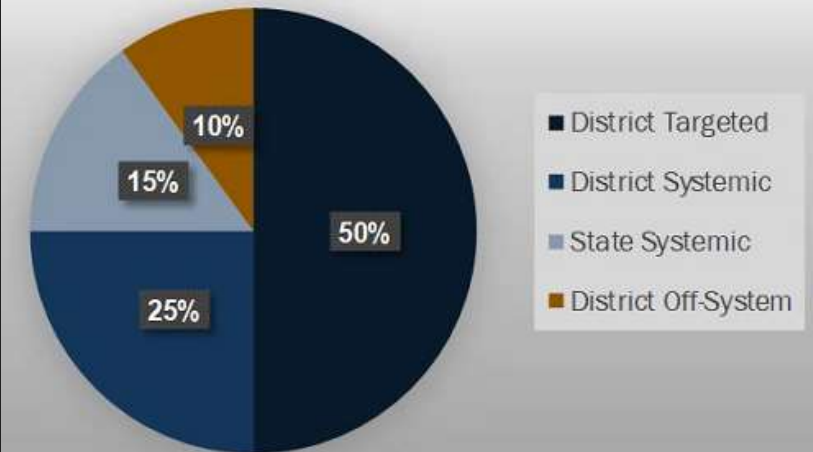
### FY 2022 Programming Projection

Dollar amount: \$ 160,000,000

% of Overall Funding: 50% 10% 40%  
\$ from Overall Funding: \$ 80,000,000 \$ 16,000,000 \$ 64,000,000

District Name	Total On-System Targeted	Total Off-System Targeted	District Systemic	District Expected Program Total
Abilene	\$ 784,369	\$ 69,398	\$ 2,560,000	\$ 3,413,767
Amarillo	\$ 625,222	\$ 164,008	\$ 2,560,000	\$ 3,349,230
Atlanta	\$ 1,696,308	\$ 184,544	\$ 2,560,000	\$ 4,440,852
Austin	\$ 4,469,574	\$ 1,628,926	\$ 2,560,000	\$ 8,658,500
Beaumont	\$ 4,389,764	\$ 426,352	\$ 2,560,000	\$ 7,376,116
Brownwood	\$ 420,363	\$ 35,451	\$ 2,560,000	\$ 3,015,814
Bryan	\$ 2,593,623	\$ 153,447	\$ 2,560,000	\$ 5,307,070
Childress	\$ 648,032	\$ 23,133	\$ 2,560,000	\$ 3,231,165
Corpus Christi	\$ 1,340,871	\$ 172,116	\$ 2,560,000	\$ 4,072,987
Dallas	\$ 13,813,668	\$ 3,722,970	\$ 2,560,000	\$ 20,096,639
El Paso	\$ 2,109,728	\$ 563,408	\$ 2,560,000	\$ 5,233,136
Ft. Worth	\$ 4,495,399	\$ 925,930	\$ 2,560,000	\$ 7,981,328

### Breakdown of Funding



LEGACY  
ENGINEERING GROUP



## OVERVIEW OF HIGHWAY SAFETY IMPROVEMENT PROGRAM

### How does Fair Oaks Ranch Qualify For Funding?

**Targeted** submissions require an  $SII \geq 1.0$

- Crashes Analyzed
  - ❖ Fatal Injury Crash (K)
  - ❖ Incapacitating Injury Crash (A)
  - ❖ Non-Incapacitating Injury Crash (B)
- Safety Counter-Measures Established
- Project Estimate Developed
- Safety Improvement Index (SII) Calculated

**Systemic** submissions do not need an SII  
but, if available, may be used for prioritization

$$S = \frac{R(C_f F + C_i I)}{Y} - M$$

$$Q = \left( \frac{A_a - A_b}{A_b} \div L \right) S$$

$$B = \frac{S + \frac{1}{2}Q}{1.06} + \sum_{i=2}^L \left[ \frac{(S + \frac{1}{2}Q) + (i-1)Q}{(1.06)^i} \right]$$

$$SII = \frac{B}{C}$$



LEGACY  
ENGINEERING GROUP



## OVERVIEW OF HIGHWAY SAFETY IMPROVEMENT PROGRAM

# How Does HSIP Funding Work?

Federal: 90% of Construction Costs

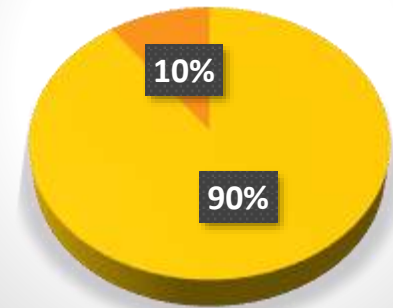
Local: 10% of Construction Costs (+ Engineering)

All costs will be allocated based on 90% federal funding and 10% local government funding\* until the federal funding reaches the maximum obligated amount for the project. The local government will then be responsible for 100% of the overrun costs.

\*Projects that qualify for **G-match** receive 100% federal funding until the federal funding reaches the maximum obligated amount for the project.

## CONSTRUCTION COSTS

FEDERAL LOCAL



LEGACY  
ENGINEERING GROUP



## OVERVIEW OF HIGHWAY SAFETY IMPROVEMENT PROGRAM

### What is G-Match?

Federal: 100% of Construction Costs for certain projects

Local: Engineering

Increased Federal Share for Certain Safety Projects. All projects must conform to the guidelines for HSIP projects (meeting minimum SII if applicable)

Safety Engineering will consider off-system projects a priority for this increased share.

Examples of potentially eligible projects include:

- traffic control signalization
- traffic circles (also known as "roundabouts")
- pavement markings
- installation of traffic signs, traffic lights, guardrails, impact attenuators, or concrete barrier end treatments

The local government may still be responsible for overrun costs.

### CONSTRUCTION COSTS

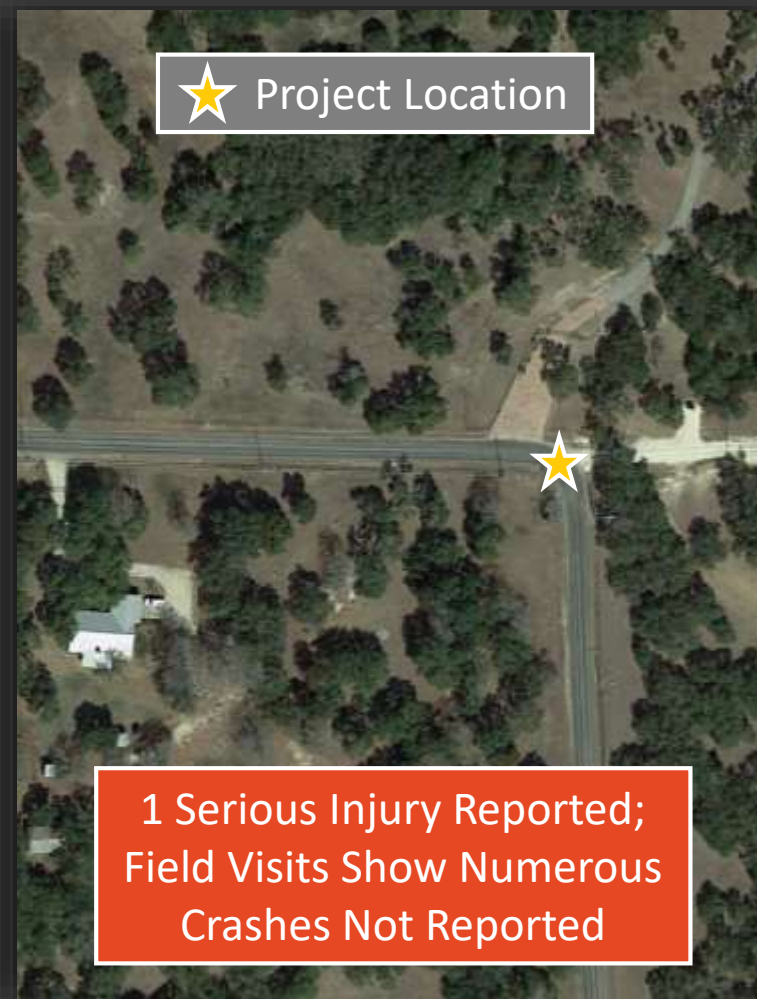
■ FEDERAL ■ LOCAL



LEGACY  
ENGINEERING GROUP



# OPPORTUNITY #1: AMMANN RD REALIGNMENT



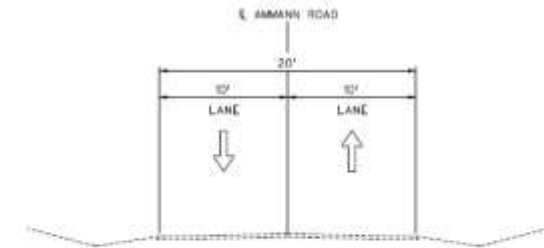
★ Project Location

1 Serious Injury Reported;  
Field Visits Show Numerous  
Crashes Not Reported

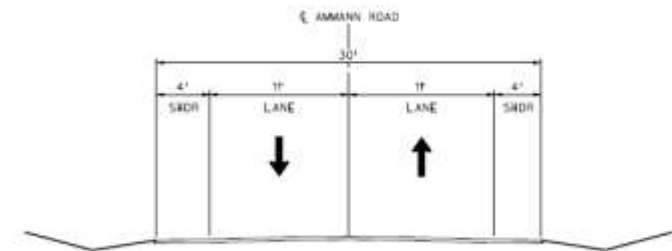




# OPPORTUNITY #1: AMMANN RD REALIGNMENT



EXISTING TYPICAL SECTION



PROPOSED TYPICAL SECTION



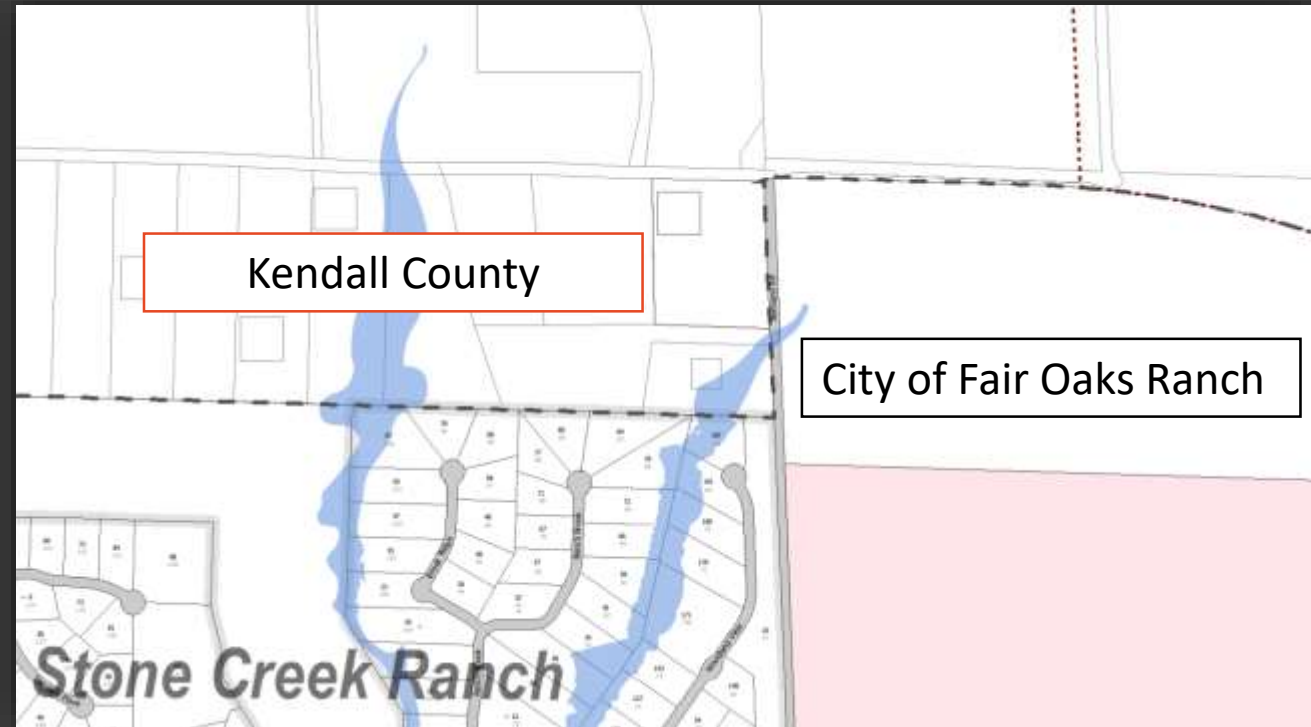
LEGACY  
ENGINEERING GROUP



## OPPORTUNITY #1: AMMANN RD REALIGNMENT

### Kendall County Participation

- The project limits include both the City of Fair Oaks Ranch and Kendall County
- Preliminary discussions w/Kendall County point towards project support and funding participation
- Project recommended by KCBFOR Transportation Committee



LEGACY  
ENGINEERING GROUP



**OPPORTUNITY #1:  
AMMANN RD  
REALIGNMENT**

## Previous Kendall County Commissioner's Court Meeting Minutes:

*"It is ordered by the Commissioners' Court of Kendall County, Texas, to approve moving forward to the next step to gain information about the Highway Safety Improvement Program (HSIP) Project on Ammann Road (located approximately 3.75 miles east of the intersection of Ammann Road and SH 46)."*

Motion was made by Commissioner Elkins, seconded by Commissioner Chapman, and carried by a vote of 5-0 in March 2020.



**LEGACY**  
ENGINEERING GROUP



**OPPORTUNITY #1:  
AMMANN RD  
REALIGNMENT**

# SAFETY ENHANCEMENTS AT 2 CURVES

Ammann Road



**ADDITION OF 4 FT SHOULDERS**



**LEGACY**  
ENGINEERING GROUP

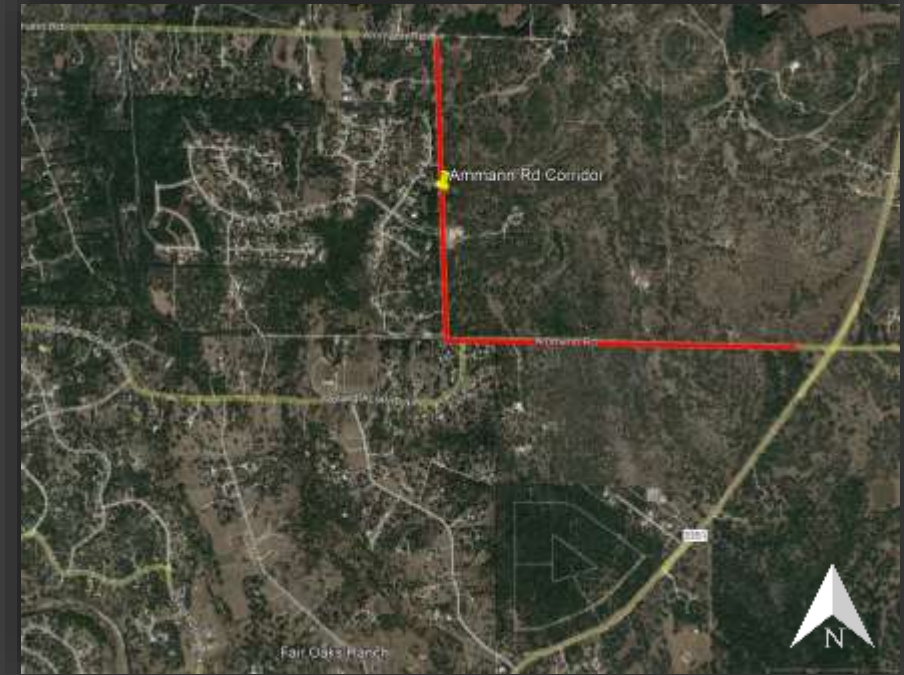


## OPPORTUNITY #1: AMMANN RD REALIGNMENT

### Current Ammann Road Project

#### Approved City of Fair Oaks Ranch Roadway CIP

- Overall Condition Index (OCI) Score Below 40
  - ❖ In Less Than 3 Years, the Average OCI Will Be Below 30
- Full Depth Reconstruction, Drainage Improvements, & Utility Adjustments
- Addition of 4 ft Shoulders
- **Total Estimated Cost = \$5,532,050**



#### Current Roadway CIP Budget

FY 23: \$241k (Engineering)

FY 24: \$241k (Engineering)

FY 25/26: \$4.8M (Construction)



LEGACY  
ENGINEERING GROUP



## OPPORTUNITY #2: GENERAL SYSTEMIC IMPROVEMENTS

\* May qualify for G-Match

### POTENTIAL SYSTEMIC IMPROVEMENTS

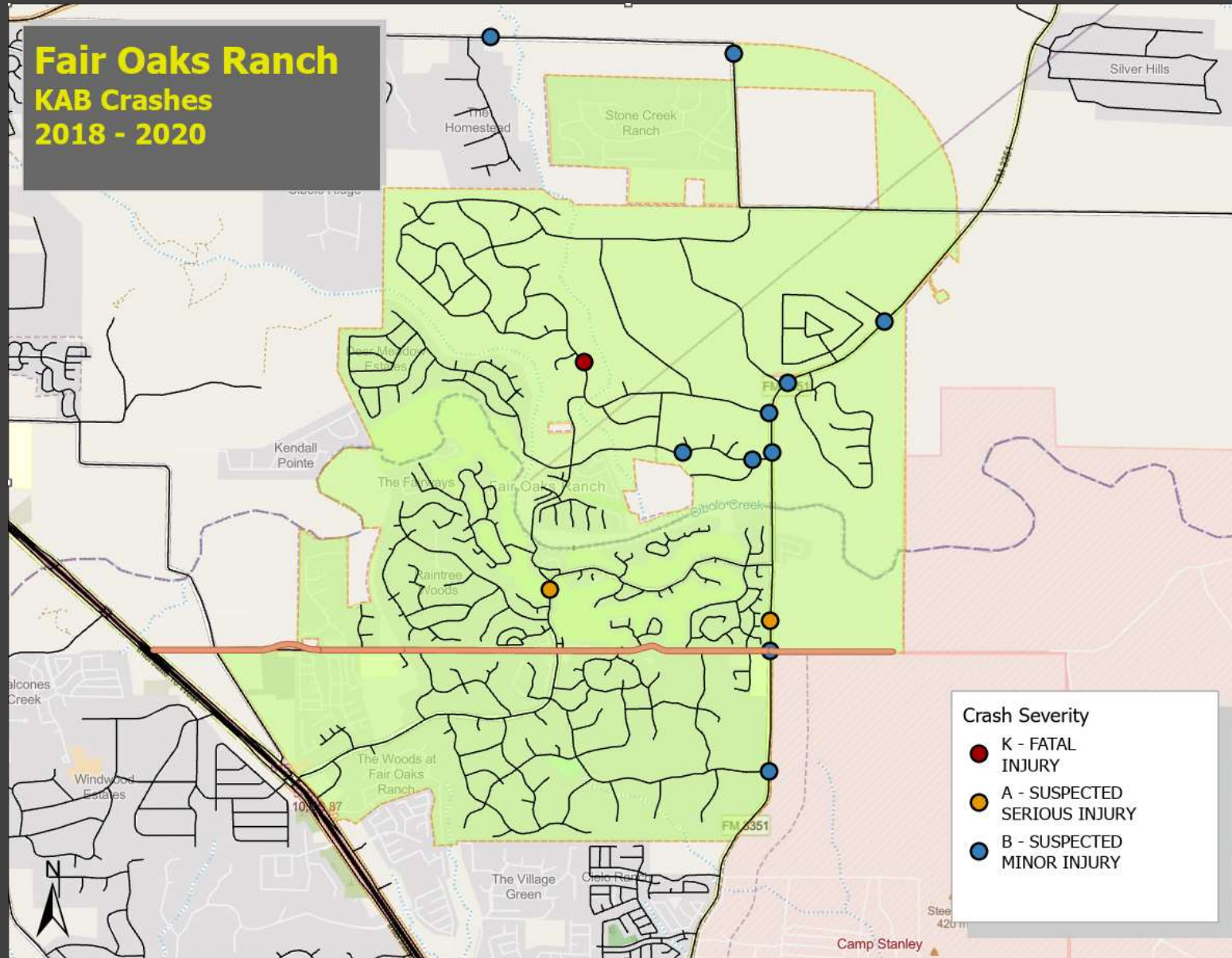
- Illumination / Safety Lighting\*
- Rumble Strips on Stop-Controlled Approaches
- Installation of Roadside Flashers or Embedded LEDs for Stop Signs on Controlled Approaches
- "Intersection Ahead" Warning Signs\* Along Uncontrolled Approaches
- Systemically Treat Curves within a Geographical Area or Roadway Type
- Systemically Apply Pedestrian Treatments
- Roadway Widening (increase  $\leq 24'$  to  $28'$ )





## OPPORTUNITY #2: TARGETED IMPROVEMENTS

### Fair Oaks Ranch KAB Crashes 2018 - 2020



Fair Oaks Ranch Crashes  
for the Years Evaluated  
by the Current HSIP  
Program Call



## OPPORTUNITY #2: TARGETED IMPROVEMENT (SILVER SPUR)

10/5/2020 - Fatal Injury

Monday 2:13 PM

- Contributing Factors: Driver inattention; Fatigued or Asleep; Wrong side – not passing
- Manner of Collision: Opposite Direction – both going straight



### FHWA Countermeasures that Work

- Enhanced Delineation for Horizontal Curves
- ~~Lighting~~ **Does Not Apply**
- Local Road Safety Plans
- Longitudinal Rumble Strips and Stripes on Two-Lane Roads
- Road Safety Audit
- SafetyEdge <sup>SM</sup>



**10/5/2020 - Fatal Injury**

**Monday 2:13 PM**

- Contributing Factors: Driver inattention; Fatigued or Asleep; Wrong side – not passing
- Manner of Collision: Opposite Direction – both going straight

**Targeted Countermeasures (Crash Reduction Factor / Service Life)**

- 502 Widen Lanes (30% /20 Yrs) Up to \$5M\*
- 504 Construct Paved Shoulders 1-4 ft (25% /20 Yrs) Up to \$4M
- 404 Install Center Striping (65%/4 Yrs) Up to \$2.5M
- 543 Profile Centerline Markings\*\* (7%/5 Yrs)
- 137 – Install Chevrons (25%/10 Yrs) Up to \$2.5M

\* Dependent on available HSIP funding and requires 10% LG Cost Participation + Engineering + ROW




\*\*Cannot Submit Standalone Profile Markings

Standalone Striping may qualify for G-match

Each work code was calculated individually; a combination would impact (increase or reduce) the value



**FHWA Countermeasures that Work**

-  Enhanced Delineation for Horizontal Curves
-  ~~Lighting~~ **Does Not Apply**
-  Local Road Safety Plans
-  Longitudinal Rumble Strips and Stripes on Two-Lane Roads
-  Road Safety Audit
-  SafetyEdge <sup>SM</sup>



## POTENTIAL PROJECT COSTS BREAKDOWN

# OPPORTUNITY #1 – AMMANN RD SAFETY ENHANCEMENT REALIGN 2 EXISTING 90° CURVES & PROVIDE 4 LF OUTSIDE SHOULDERS

Description	Total Estimated Cost	Federal Participation		State Participation		Local Participation	
		%	Cost	%	Cost	%	Cost
Engineering @15% (By Local Government)	\$450,000.00	0%	\$0	0%	\$0	100%	\$450,000
Construction Estimated @ \$3M (By State)	\$3,000,000.00	90%	\$2,700,000	0%	\$0	10%	\$300,000
Environmental Direct State Costs (2.5%)	\$75,000	0%	\$0	0%	\$0	100%	\$75,000
Right of Way Direct State Costs (2.5%)	\$75,000	0%	\$0	0%	\$0	100%	\$75,000
Engineering Direct State Costs (2.5%)	\$75,000	0%	\$0	0%	\$0	100%	\$75,000
Utility Direct State Costs (2.5%)	\$75,000	0%	\$0	0%	\$0	100%	\$75,000
Construction Direct State Costs (5%)	\$150,000	90%	\$135,000	0%	\$0	10%	\$15,000
Indirect State Costs (5.33%)	\$159,900	0%	\$0	100%	\$159,900	0%	\$0
<b>TOTAL</b>	<b>\$4,059,900</b>	<b>\$2,835,000</b>		<b>\$159,900</b>		<b>\$1,065,000</b>	

Fair Oaks Ranch Tax-Payers Save 74% on a Project that  
Council has Already Approved in the Roadway CIP





## POTENTIAL PROJECT COSTS BREAKDOWN

**OPPORTUNITY #2 – VARIOUS TARGETED/SYSTEMIC SAFETY ENHANCEMENTS**  
**CITY STAFF & GEC WILL REQUIRE ADDITIONAL RESEARCH/ANALYSIS ON  
POTENTIAL PROJECTS THROUGHOUT CITY LIMITS AS WELL AS GENERATING  
HIGH-LEVEL COST-ESTIMATES FOR EACH ONE.**



**LEGACY**  
ENGINEERING GROUP



## KEY TAKEAWAYS

- ✓ The health, safety, and welfare of Fair Oaks Ranch residents is the paramount objective of the Public Works Department; these projects will enhance the safety of the existing roadway network for citizens at a fraction of the cost it would normally take to do so.
- ✓ \$3.6M of funding is available for our community; on certain projects, 100% of construction costs are covered. Only the engineering, environmental, ROW, and administrative charges are the City's responsibility.
- ✓ The current City of Fair Oaks Ranch Roadway CIP will require general debt obligations and/or a voter-approved Bond Program---taking advantage of the HSIP available funding will save our taxpayers millions of dollars.





## NEXT STEPS



Step 1 – Identify projects that may qualify



Step 2 – Approve pursuit of HSIP funding



Step 3 – Prioritize projects



Step 4 – Submit project concept(s)  
and estimate(s) to TxDOT



Step 5 – AFA Agreement  
with TxDOT

The current available funding (\$3.6M) requires a project  
let date of August 2023 or sooner.



LEGACY  
ENGINEERING GROUP



# QUESTIONS / DISCUSSION / DIRECTION

MICHAEL GARZA, PE, PTOE, RSP<sub>1</sub> - LEGACY ENGINEERING GROUP (GEC)

