

Crossing Prosper



April 4
2025

The Town of
Prosper's New
Crosswalk & School
Zone Policy

Hulon Webb
Town of Prosper

Josh Smith
Lee Engineering

LEE ENGINEERING



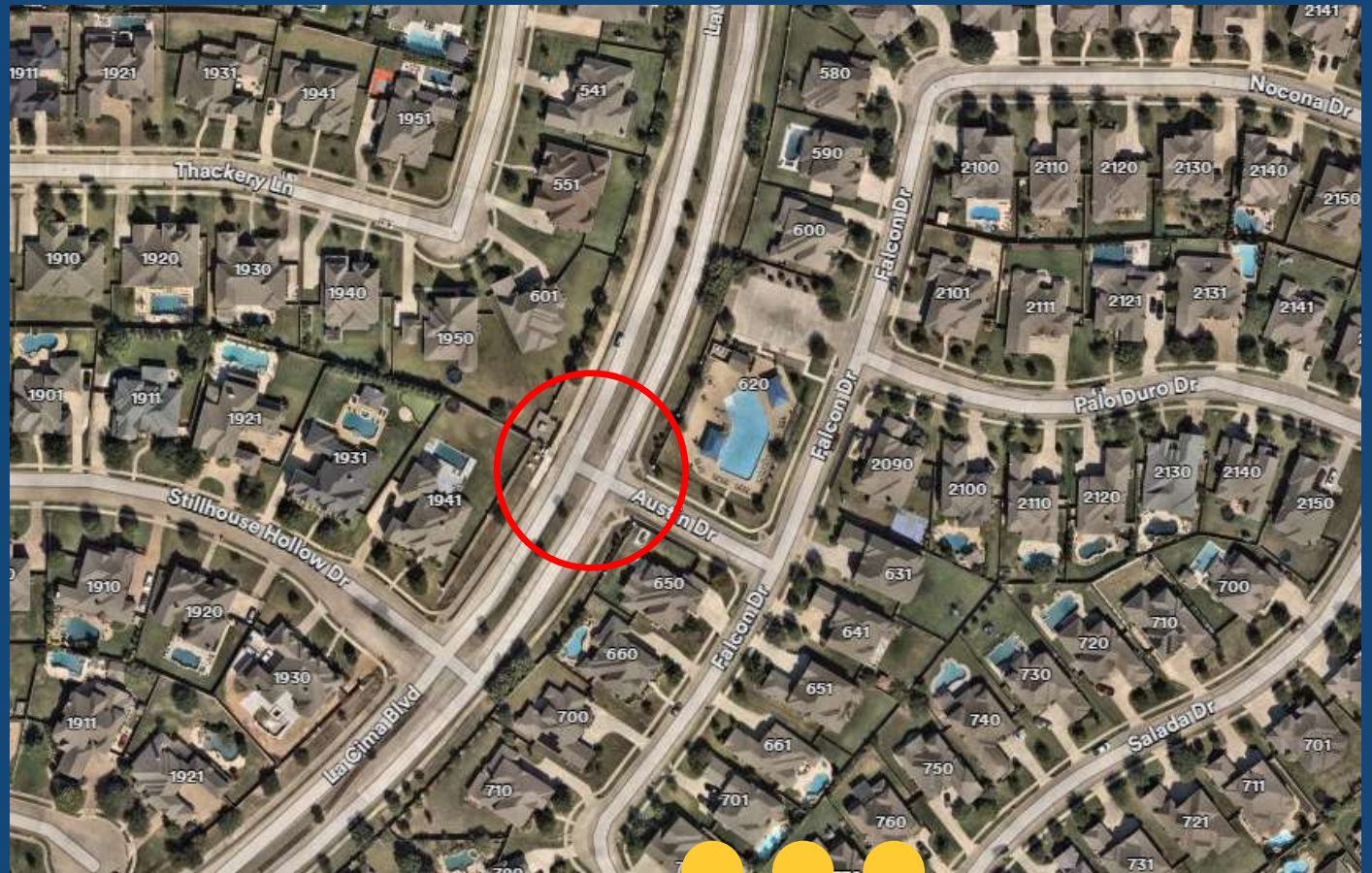
Problem

- Town of Prosper starting to get many requests for **mid-block crosswalks**
- Needed a **standard** way to **evaluate & implement**
- Integrate with **pre-existing 2014 policy** on **school zone** treatments, but also for **non-school** locations



Case Study

La Cima @ Austin



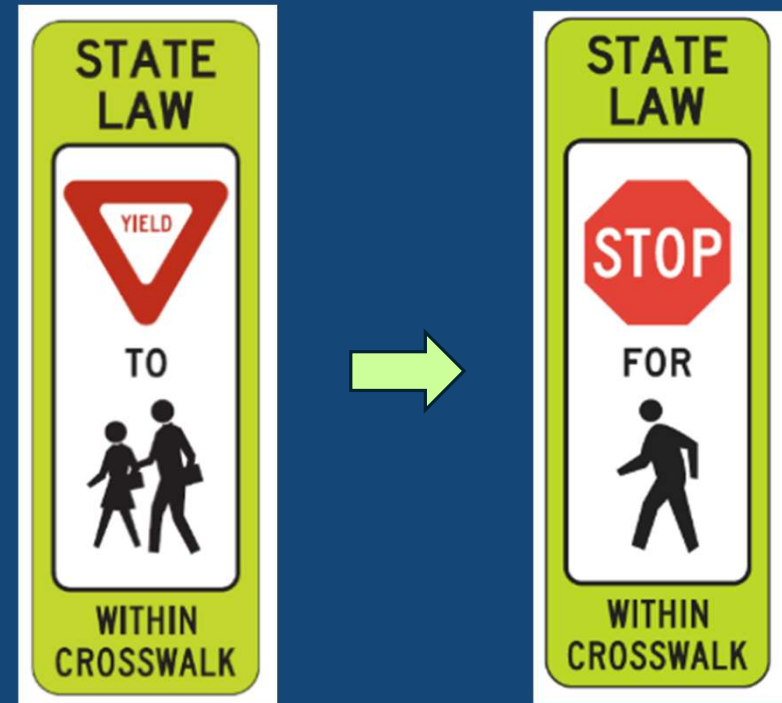
LEE ENGINEERING

TOWN OF
PROSPER

Process

Review:

- Current **Texas state law**
- **MUTCD** (2011 & 2023)
- **PROWAG** Final Rule
- **TxDOT** guidance
- National Best Practices
- **Peer City** Policies
- Adapt for **Prosper's needs**



Updated Policy

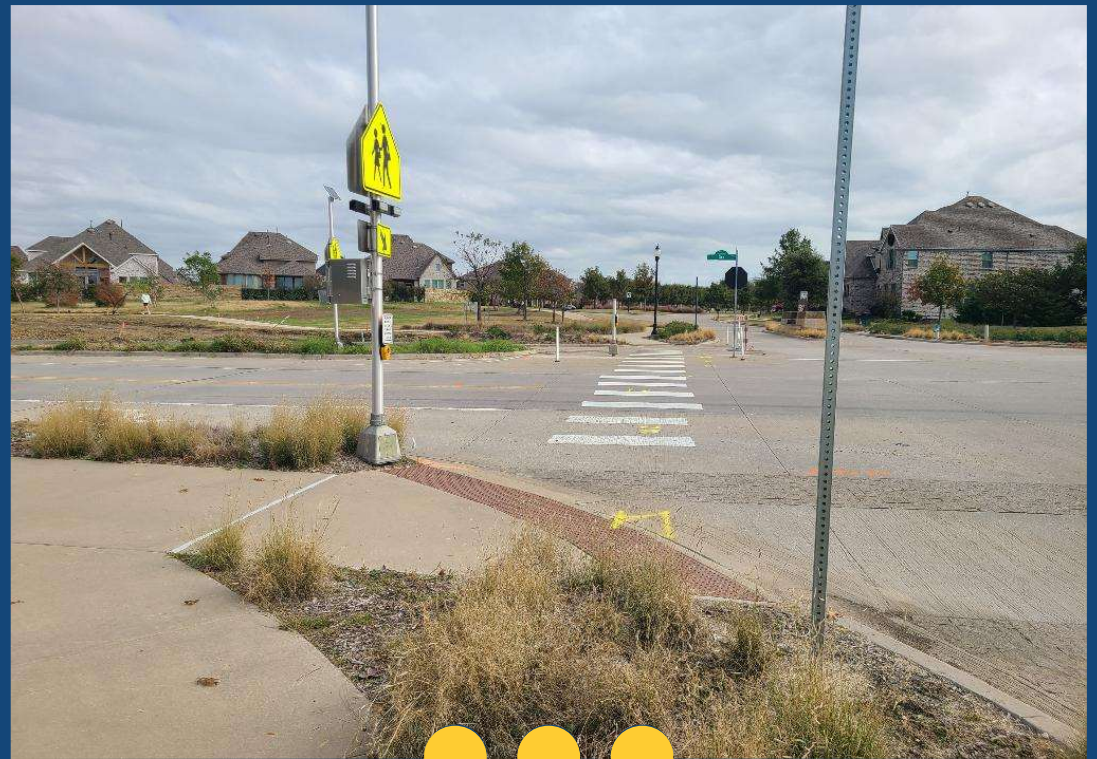
Part 1 – Laws & Standards related to crosswalks

Part 2 – Deciding Whether to Mark Crosswalks

Part 3 – Recommended Crosswalk Design Features

Part 4 – Reduced Speed School Zones













Part 5 – Development Review



Crossing Categories

Controlled – traffic signal, pedestrian hybrid beacon or stop sign controls the street being crossed

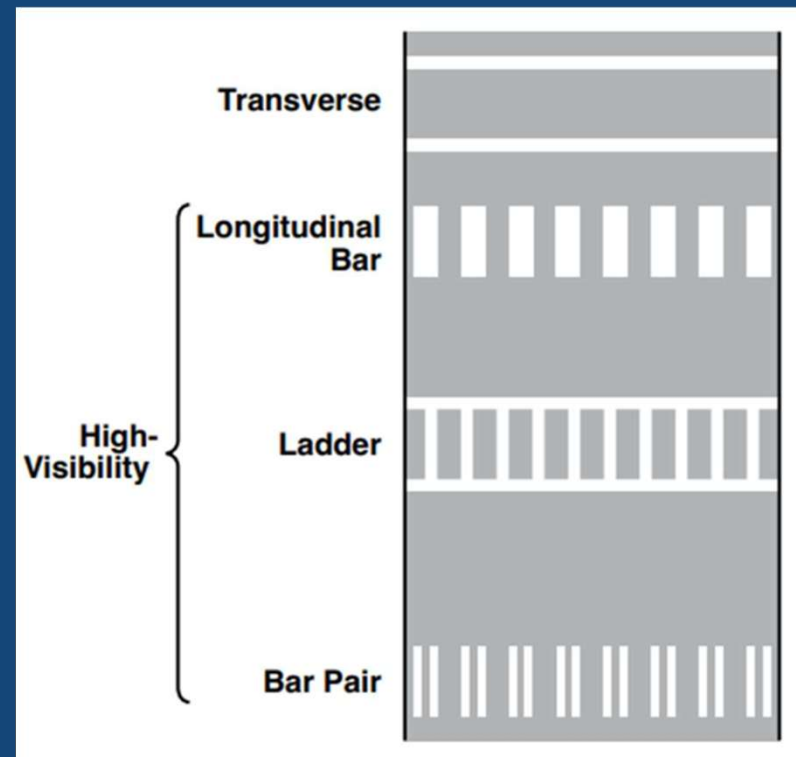
Uncontrolled – traffic across crosswalk is free flowing

Signal Interval	Vehicle Signal	Pedestrian Signal	Signal Interval	Vehicle Signal	Pedestrian Signal
1	 Blank for Drivers	 Steady Hand	4	 Steady Red	 Steady "Walk"
2	 Flashing Yellow	 Steady Hand	5	 Wig-Wag	 Flashing Hand and Countdown
3	 Steady Yellow	 Steady Hand	6	 Return to Blank	 Steady Hand

Laws & Standards

New MUTCD crosswalk type definitions:

- Transverse
- High-Visibility:
 - Longitudinal Bar
 - Ladder
 - Bar Pair
- Texas law says markings **not** required for a crosswalk



Deciding Whether to Mark Crosswalks

For **stop-controlled**, mark if one or more apply:

- Part of **walk route** within $\frac{1}{4}$ mile of **major ped generator**
- Involves **multi-use path**
- In **Old Town District** or other **ped-oriented** development
- Sidewalk or ped generators on **both sides** at **all-way stop**
- **Wide Crossing** ($> 36'$)



Deciding Whether to Mark Crosswalks

For **stop-controlled**, mark if one or more apply:

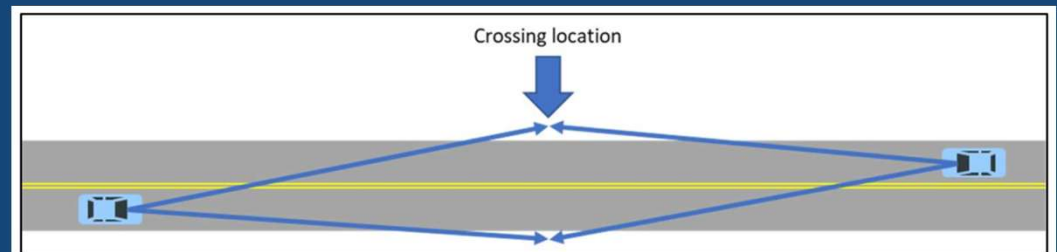
- **Stopped queues** often block crosswalk
- **Two-way vehicle traffic > 1,500 ADT** or **150 vehicles/peak hr** and ped thresholds met:
 - ≥ 20 peds/hr in **one** hour
 - ≥ 18 peds/hr in **two** hours
 - ≥ 15 peds/hr in **three** hours



Deciding Whether to Mark Crosswalks

For Uncontrolled, consider:

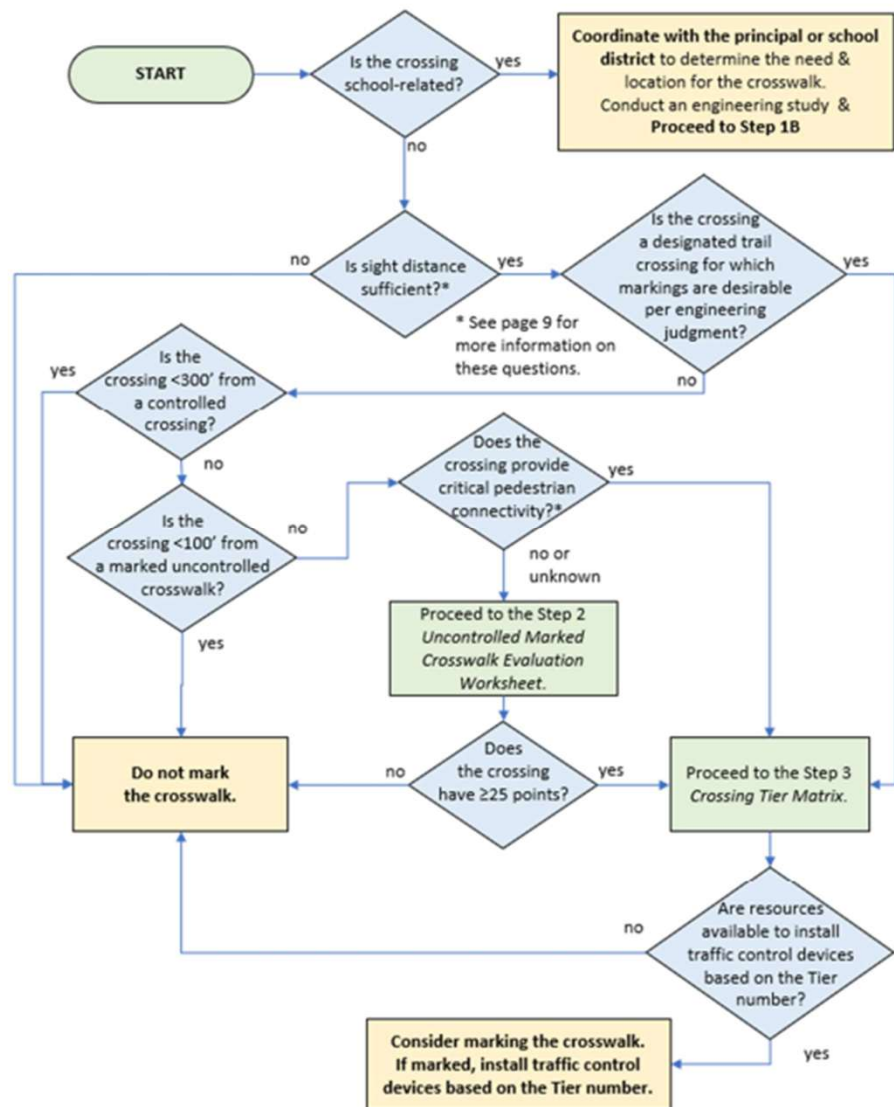
- School related?
- Crossing guard?
- No. of students crossing
- Stopping Sight Distance
- Crossing Sight Distance
- Designated Trail?
- Distance from controlled crossing or other marked crosswalk



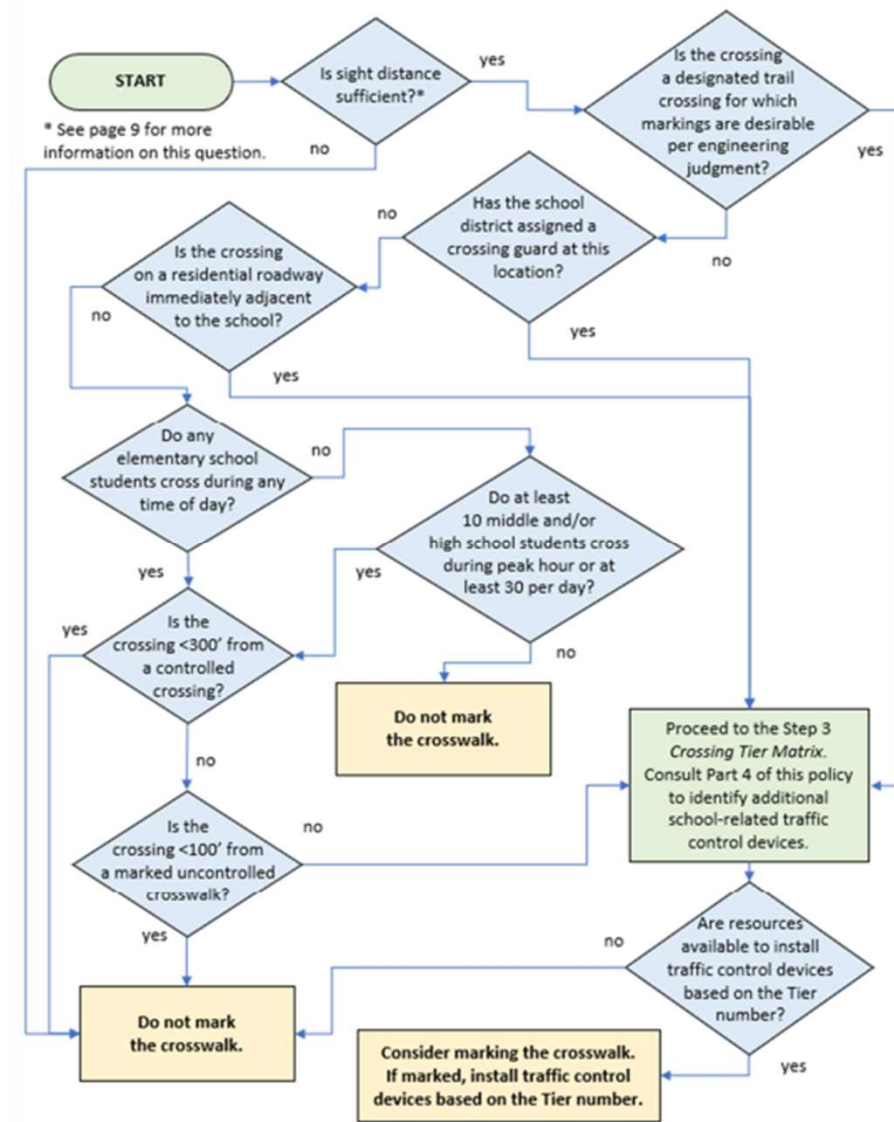
$$CSD = 1.47 * S * (2.5 + \frac{CL}{3.5})$$

Speed Limit (S) in mph	Minimum Crossing Sight Distance (CSD), in feet									
	Crossing Length (CL) in feet									
	10	12	20	24	30	36	40	48	50	60
25 or less	200	220	305	345	410	470	515	600	620	725
30	240	265	365	415	490	565	615	720	745	870
35	280	310	425	485	570	660	720	835	865	1015
40	315	350	485	555	655	755	820	955	990	1155
45	355	395	545	620	735	850	925	1075	1115	1300
50	395	440	605	690	815	940	1025	1195	1235	1445
55	435	480	665	760	900	1035	1130	1315	1360	1590

Step 1A: Determining Whether to Mark Uncontrolled Crosswalks



Step 1B: Determining Whether to Mark Uncontrolled School Crosswalks



Deciding Whether to Mark Crosswalks

As directed by uncontrolled flowchart, consider:

1. Nearby **ped generators** (0-6 pts)
2. **Crash history** (6+ pts/crash)
3. **Speed limit** (0-6 pts)
4. Traffic **volume** (0-6 pts)
5. Dist. to **nearest crossing** (0-9 pts)
6. No. of **thru lanes** crossed (0-10 pts)

LEE ENGINEERING



Step 2: Uncontrolled Marked Crosswalk Evaluation Worksheet

Note: This worksheet should only be used if directed by the Step 1A flowchart on page 12

1. Pedestrian Generators. Add 2 points for each pedestrian generator within 300 feet of the crossing, to a maximum of 6 points. Pedestrian generators include parks, swimming pools, grocery stores, convenience stores, apartment complexes, community centers, bus stops, etc.			Points: _____
2. Crash History. Add 6 points for each pedestrian or bicyclist crash within 300 feet of the crossing in the past 60 months. ²⁰			Points: _____
Add 5 additional points for any crashes counted above that resulted in fatal or serious injury. ²¹			Points: _____
3. Speed Limit	25 mph or below	0 points	Points: _____
	30 mph	2 points	
	35 mph	4 points	
	40 mph or above	6 points	
4. Daily Traffic Volume			Points: _____
3,000 vehicles per day (vpd) or less		0 points	
3,001 to 9,000 vpd		2 points	
9,001 to 15,000 vpd		4 points	
15,001 vpd or more		6 points	
5. Proximity to Nearest Controlled or Grade-Separated Crossing			Points: _____
300 to 500 feet		3 points	
500 to 750 feet		5 points	
751 to 1000 feet		7 points	
1001 feet or more		9 points	
6. Number of Through Lanes Crossed	2 lanes or fewer	0 points	Points: _____
	3 lanes	3 points	
	4 lanes	5 points	
	5 lanes	7 points	
	6 lanes or more	10 points	
Step 2, Parts 1-6 Subtotal			Points: _____

Deciding Whether to Mark Crosswalks

Also consider:

7. Ped/bike crossing volume within 300 feet (0-15 pts)

- Sliding scale for **peak hour** vs. **12-hour** total
- **Do not install** if **<10** users/hr & **<50** users / 12 hrs)

Else, if **≥ 25 points** then **eligible** for marked crosswalk

- If the subtotal for Step 2, Parts 1-6 is 25 points or greater, the crossing is considered eligible for a marked crosswalk. Designers should refer to Step 3, the *Uncontrolled Crossing Tier Matrix*, to determine appropriate traffic control devices.
- If the subtotal for Step 2, Parts 1-6 is less than 10 points, the crossing is not considered eligible for a marked crosswalk.
- If the subtotal for Step 2, Parts 1-6 is between 10 and 24 points, a pedestrian count should be conducted to determine additional points, as follows in Step 2, Part 7:

7. Pedestrian & bicyclist crossing volume within 300 feet of crossing. ²²				Points: _____
Peak Hour		12-Hour Total		
< 10 crossings	Do Not Install	< 50 crossings	Do Not Install	
10 to 19 crossings	5 points	50 to 79 crossings	5 points	
20 to 29 crossings	10 points	80 to 109 crossings	10 points	
≥ 30 crossings	15 points	≥ 110 crossings	15 points	

Crossing counts should be collected during peak pedestrian and bicyclist crossing times for a minimum of two hours. Peak pedestrian and bicyclist crossing hours may not coincide with peak motor vehicle traffic hours. If the peak crossing hours are unknown, it is desirable to conduct a 12-hour count of crossing activity to determine the peak times. The peak crossing hours for some locations (such as parks or athletic fields) may occur on the weekend.

Step 2, Parts 1-7 Total	Points: _____
-------------------------	---------------

- If the total is 25 points or greater, the crossing is considered eligible for a marked crosswalk. Designers should refer to Step 3, the *Uncontrolled Crossing Tier Matrix*, to determine appropriate traffic control devices.
- If the total is less than 25 points, the crossing is not eligible for a marked crosswalk (except if otherwise indicated on the Step 1 flowchart).

Deciding Whether to Mark Crosswalks

For uncontrolled, determine what “Tier” of traffic control devices apply given:

- No. of **Thru Lanes** Crossed
- Type of **Median**
- Average Daily Traffic (**ADT**)
- **Speed** Limit

Step 3A: Determine the Tier Number														
Street Functional Classification	Total Number of Through Lanes Crossed in Both Directions	Type of Median	Vehicle ADT < 9,000			Vehicle ADT 9,000 to < 12,000			Vehicle ADT 12,000 to < 15,000			Vehicle ADT ≥ 15,000		
			Speed limit (mph)											
			≤ 30	35	≥ 40	≤ 30	35	≥ 40	≤ 30	35	≥ 40	≤ 30	35	≥ 40
Local	1 or 2	Any	6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Collector or Arterial	1 or 2	No median or raised median	5	5	3*	5	4	3*	5	4	3*	4	4	3*
	1 or 2	TWLT or left-turn lane	5	5	3*	5	4	3	4	4	2	4	4	2
	3 or 4	Raised	5	4	3*	4	3*	2	4	3*	2	3	2	1
	3 or 4	Not raised or no median	3	2	1	3	2	1	3	2	1	2	1	1
	≥ 5	Any	3	2	1	2	2	1	2	1	1	1	1	1

* Consider Tier 2, especially when ≥ 40 mph or ≥ 15,000 ADT

* Consider Tier 2, especially when ≥ 40 mph or ≥ 15,000 ADT

Only use this table if prompted by earlier flowcharts, other conditions apply



Deciding Whether to Mark Crosswalks

Tier

- 1 Ped. Hybrid Beacon or Signal
- 2 RRFB*, Ped. Hybrid Beacon or Signal
- 3 RRFB*
- 4 Warning Signs in Advance & at Crossing
- 5 Warning Signs at Crossing
- 6 Warning Signs at Crossing (transverse mkgs)

*RRFB = Rectangular Rapid-Flashing Beacon

LEE ENGINEERING



Photo by Caleb Oquendo: <https://www.pexels.com/photo/shallow-focus-photo-of-pedestrian-signage-3162065/>

Deciding Whether to Mark Crosswalks

Step 3B: Determine the Devices to Use Based on the Tier Number

Tier	Crosswalk markings	W11-2 (or W11-15 or S1-1) and W16-7P warning signs at crossing ²	W11-2 (or W11-15 or S1-1) and W16-9P advance warning signs ²	Stop lines and STOP HERE FOR PEDESTRIANS signs	R1-6a In-Street Pedestrian Crossing Signs	PED XING or SCHOOL pavement word markings	Raised median or crossing island	Rectangular Rapid-Flashing Beacon (RRFB)	Pedestrian Hybrid Beacon (PHB)	Traffic Signal
Tier 1	High-Visibility	Yes	Optional ³	Yes	No	Optional ³	Optional	No	Optional in lieu of Traffic Signal ⁵	Yes, if warranted ⁶
Tier 2	High-Visibility	Yes	Yes for RRFB, optional for PHB ³	On multilane approaches	No	Optional ³	Recommended if RRFB is used ⁴	Optional in lieu of PHB	Yes ⁵	Optional in lieu of PHB if warranted ⁶
Tier 3	High-Visibility	Yes	Yes	On multilane approaches	No	Optional ³	Recommended if practicable ⁴	Yes	No	No
Tier 4	High-Visibility	Yes	Yes	On multilane approaches	Optional for 2-lane & ≤ 30 mph in school zones. No for all other crossings	No ³	Optional	No ³	No	No
Tier 5	High-Visibility	Yes	No***	No		No ³	No	No ³	No	No
Tier 6	Transverse ¹	Yes if midblock, Optional otherwise	No***	No		No ³	No	No ³	No	No

¹ At intersection locations only. High-Visibility markings should be provided at non-intersection locations.

² For school zone crossings, use S1-1 signs instead of W11-2 signs. For crossings of trails with shared bicycle and pedestrian traffic, use W11-15 signs instead of W11-2.

³ Recommended if the stopping sight distance (SSD) is provided but not the crossing sight distance (CSD).

⁴ Consider a raised median **before** evaluating other devices. In some cases, it may be possible to retrofit a raised median on the roadway without affecting needed left-turn access. If a raised median is feasible, re-evaluate the crossing according to its tier number with a raised median.

⁵ If MUTCD guidelines in Figures 4J-1 or 4J-2 (see Appendix) are met for the appropriate speed.

⁶ See Chapter 4C of MUTCD for traffic signal warrant study requirements.

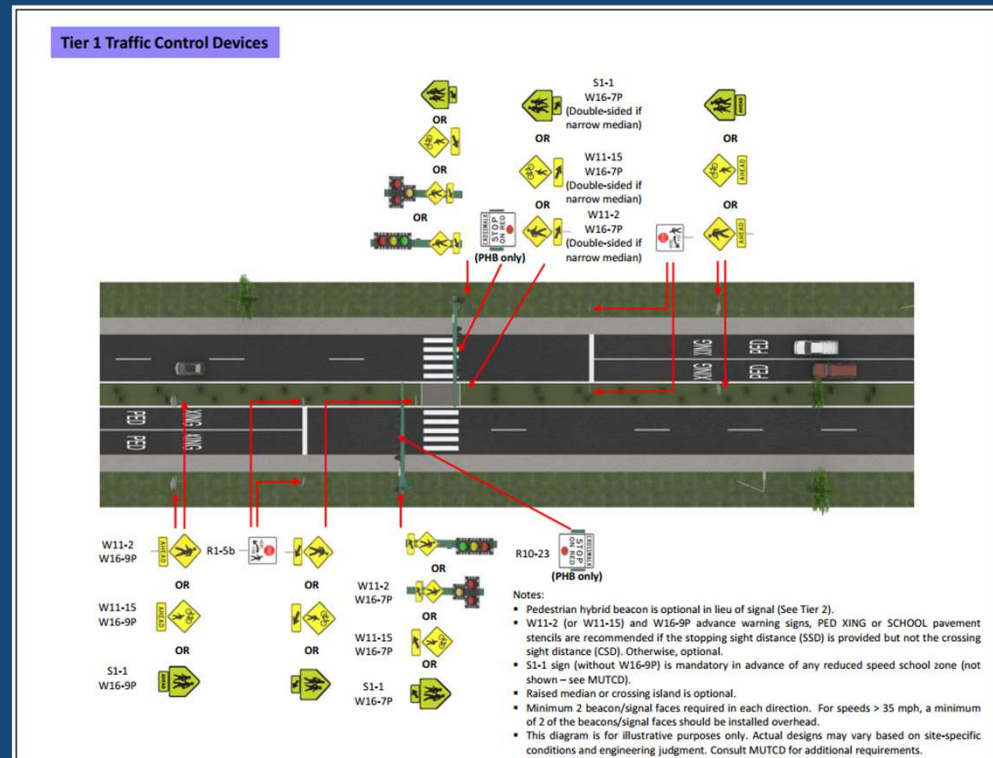
Deciding How to Mark Crosswalks

Tier 1: Traffic Signal Rendering



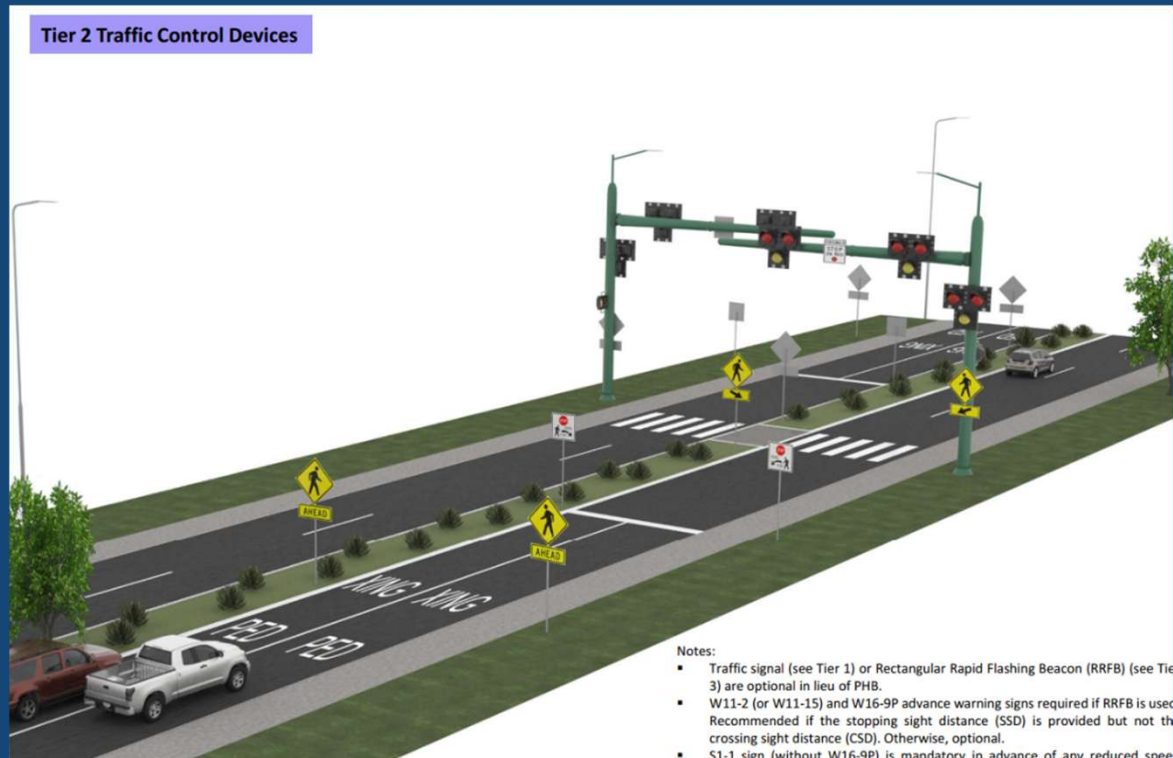
Deciding How to Mark Crosswalks

Tier 1: Traffic Signal Plan
View Layout with Notes



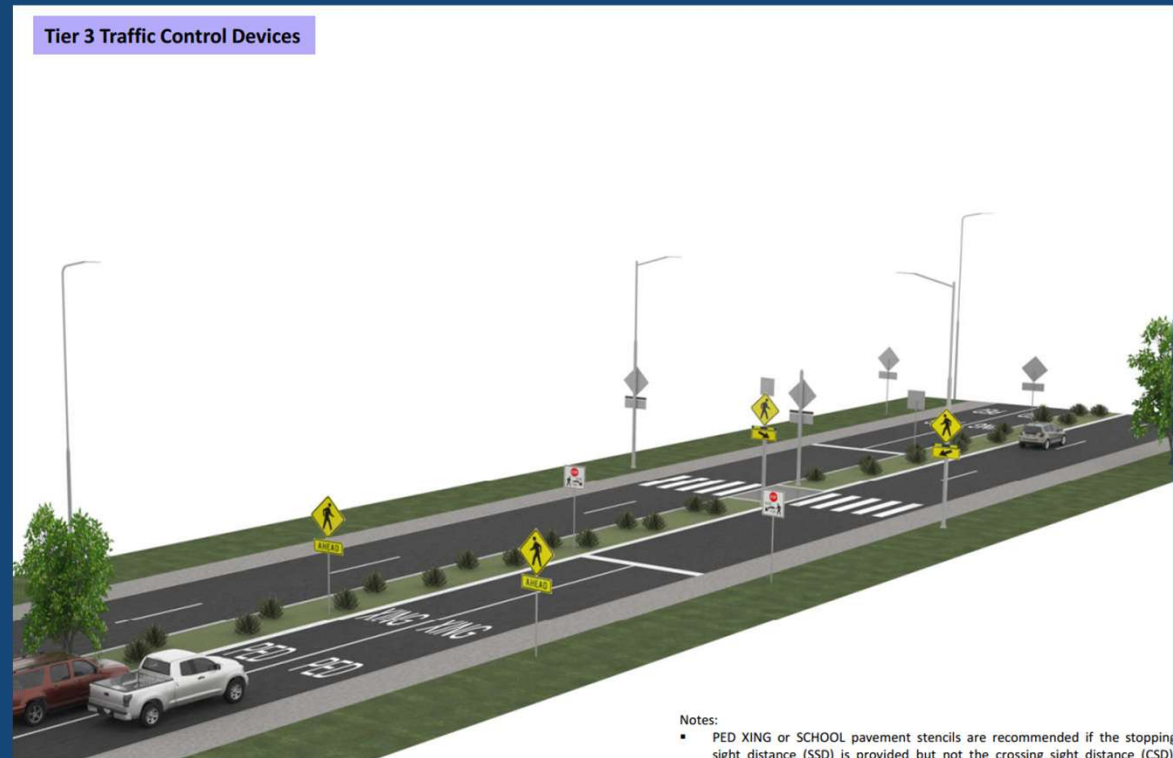
Deciding How to Mark Crosswalks

Tier 2: Pedestrian Hybrid Beacon Rendering



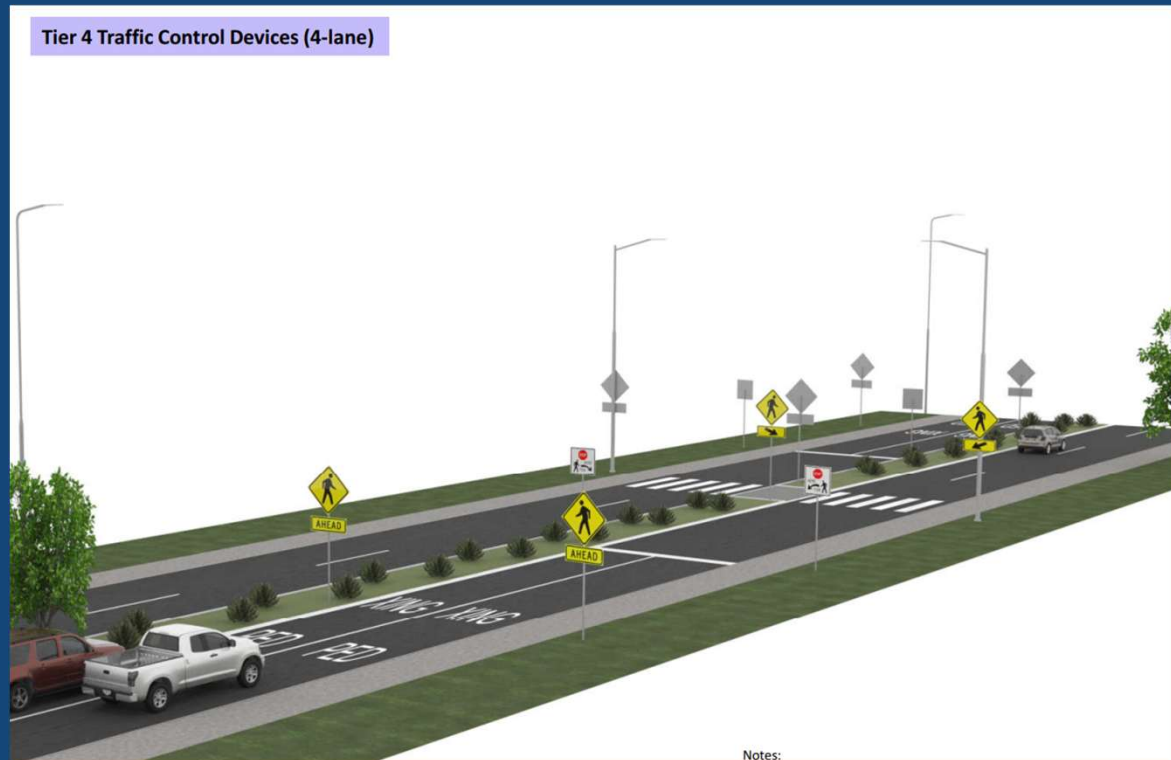
Deciding How to Mark Crosswalks

Tier 3: Rectangular
Rapid-Flashing
Beacon (RRFB)
Rendering



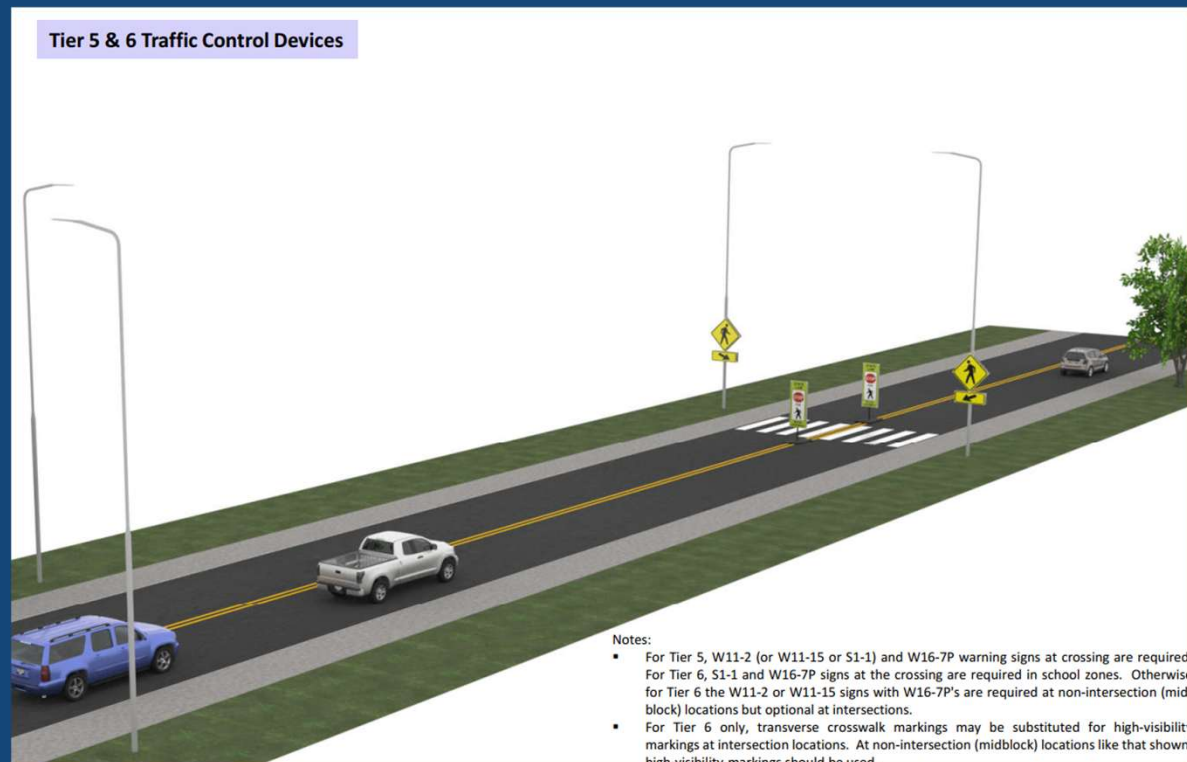
Deciding How to Mark Crosswalks

Tier 4: Warning Signs
in Advance & at
Crossing



Deciding How to Mark Crosswalks

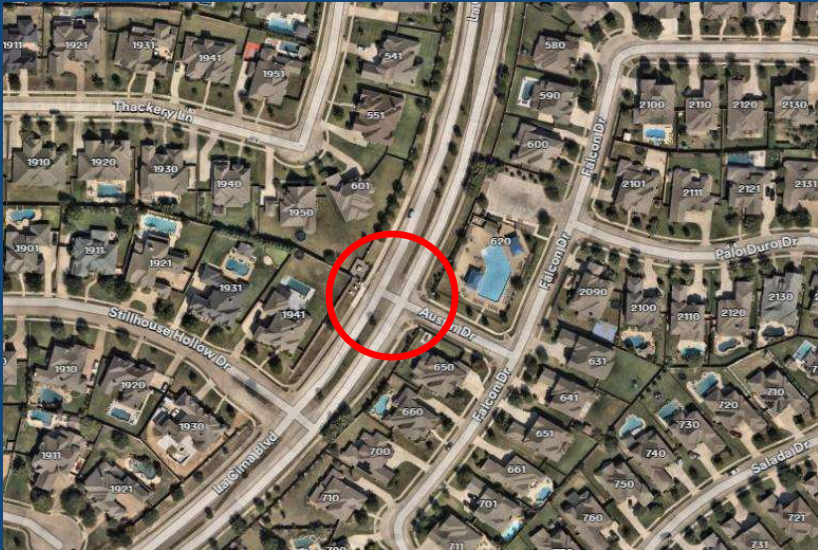
Tiers 5 & 6: Warning
Signs at Crossing Only





Case Study

La Cima @ Austin



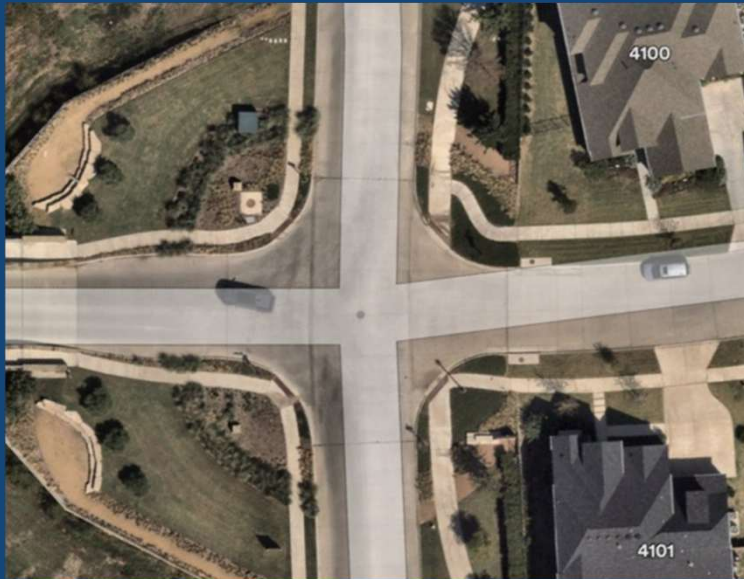
LEE ENGINEERING





Case Study

Old Rosebud / Windsong

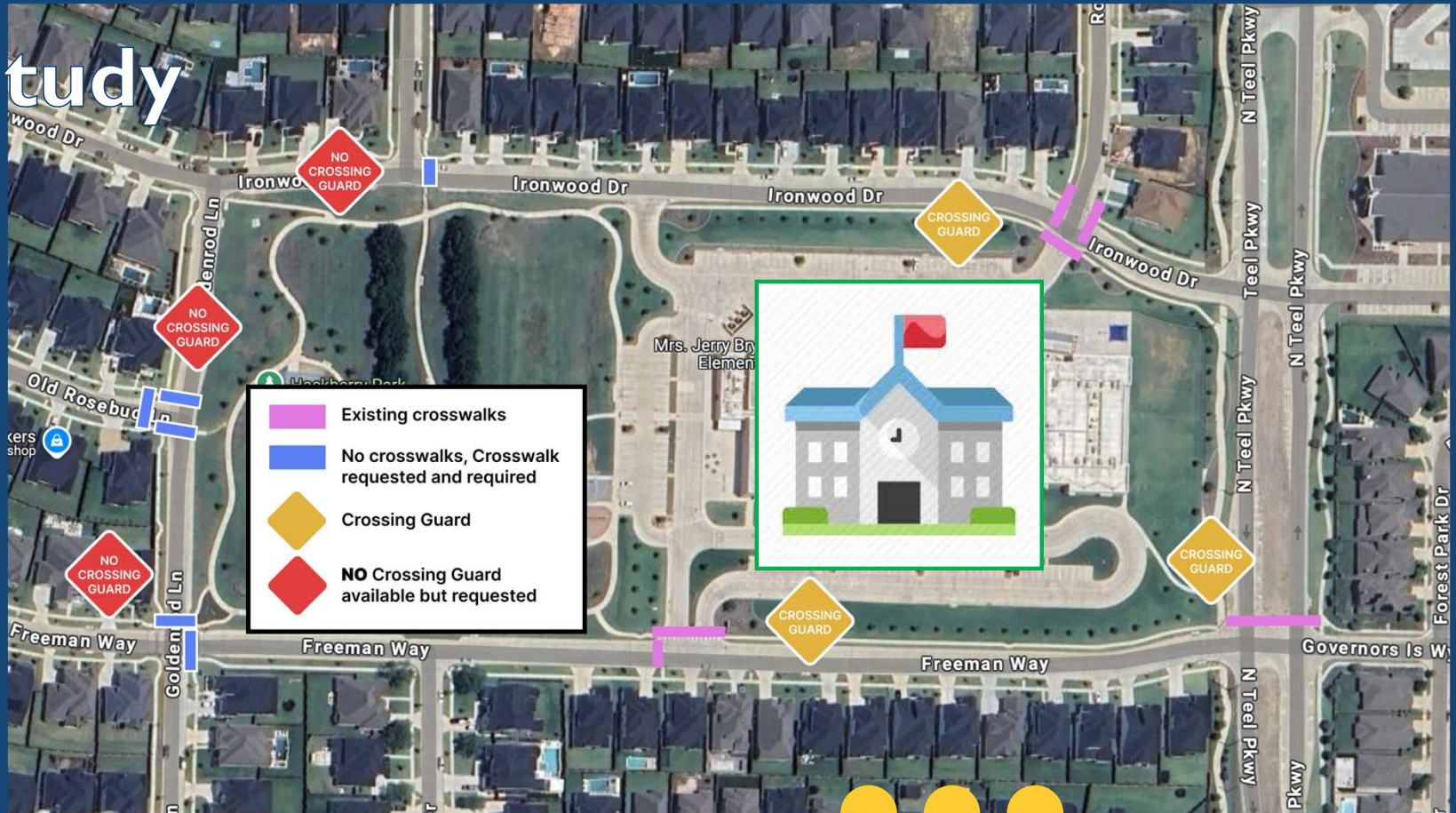


LEE ENGINEERING



Case Study

Bryant
Elementary/
Windsong
Ranch HOA



LEE ENGINEERING

TOWN OF
PROSPER

Case Study

ISD added a
school crossing
guard



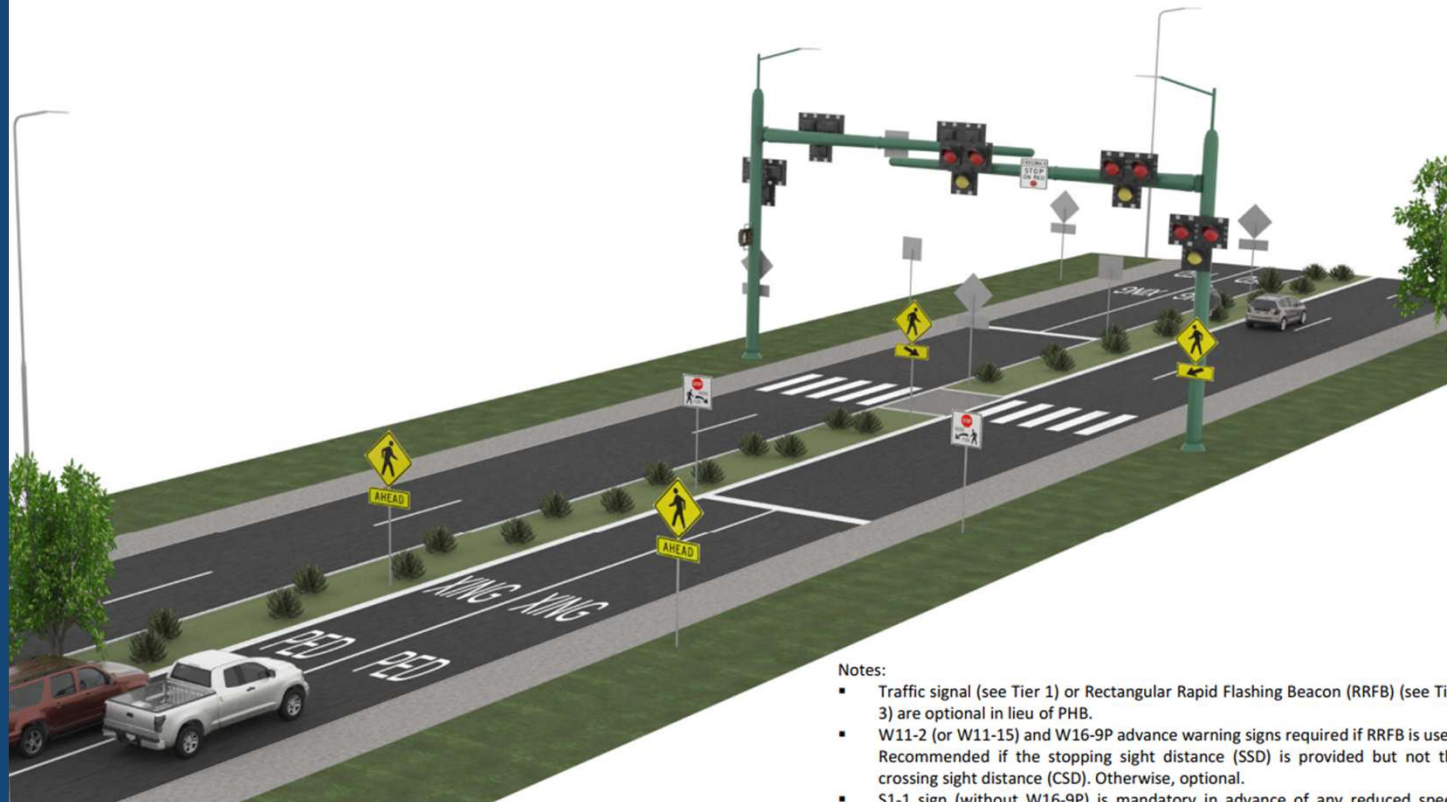
LEE ENGINEERING

PROSPER

Case Study

Pedestrian Hybrid Beacon

Tier 2 Traffic Control Devices



Case Study



LEE ENGINEERING

TOWN OF
PROSPER

Questions?



Hulon T. Webb, Jr., P.E.
Director of Engineering Services
Town of Prosper
(972) 569-1065
HWebb@prospertx.gov



Full policy
available online:

[https://www.prospertx.gov/
347/Engineering-Resources](https://www.prospertx.gov/347/Engineering-Resources)



Josh Smith, P.E., PTOE
Project Manager
Lee Engineering
(972) 456-9044
jsmith@lee-eng.com

LEE ENGINEERING

