

THE CITY OF
Anna

Traffic Studies Discussion

January 25, 2022

Overview

- Traffic Study Needs
- Traffic Signal Warrants
- SH 5 Corridor
 - Finley Boulevard Study Results
 - Rosamond Parkway Study Results
- FM 455 Corridor
 - US 75 Turning Study Results
 - Walmart/Throckmorton Study Results
 - Oak Hollow Drive Study Results
 - Westfield Drive/Willow Creek Drive Study Results
- Next Steps



Traffic Study Needs

- Reasons

- Anna is experiencing major growth in population and activity, which has increased traffic volumes throughout the community. Higher traffic volumes have caused delays, congestion, and traffic safety concerns in multiple locations.
- The traffic areas of concern are on TxDOT roads, which are not owned/operated by the City.
- In the Fall of 2021, the City Council requested for staff to engage experts to conduct traffic studies and use the data to request traffic improvements from TxDOT in locations where improvements are justified.

- Traffic Signal Warrant Study Locations

- SH 5 at Finley Boulevard
- SH 5 at Rosamond Parkway
- FM 455 at Oak Hollow Drive
- FM 455 at Westfield Drive / Willow Creek Drive

- Turning Movement Study Locations

- FM 455 at US 75
- FM 455 at Walmart/Throckmorton



Traffic Signal Warrants

- A traffic signal warrant study reviews 9 critical aspects of an intersection (warrants). This information is then used to determine whether a traffic signal is needed. The warrants include:

Warrant 1 – Eight-Hour Vehicular Volume;

Warrant 2 – Four-Hour Vehicular Volume;

Warrant 3 – Peak Hour;

Warrant 4 – Pedestrian Volume;

Warrant 5 – School Crossing;

Warrant 6 – Coordinated Signal System;

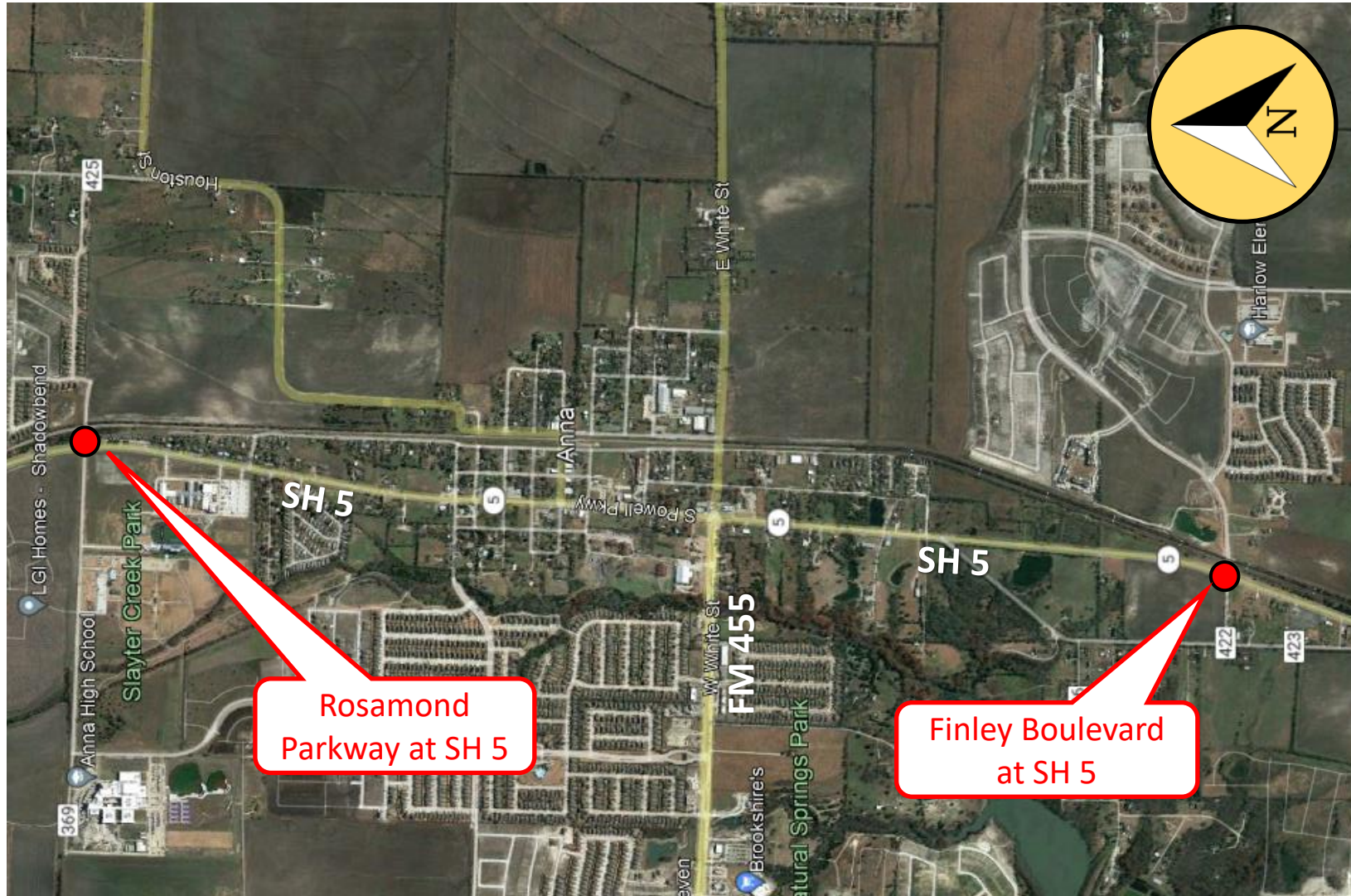
Warrant 7 – Crash Experience;

Warrant 8 – Roadway Network;

Warrant 9 – Intersection Near a Grade Crossing



Location Map – SH 5 Corridor



Finley Boulevard Study Results



MALDONADO-BURKETT

Table 2. Warrant 1 Analysis

Time	Major St.	Higher Volume Minor St.	Meet Condition A (70%)?
12:00 AM	34	9	No
1:00 AM	30	11	No
2:00 AM	15	3	No
3:00 AM	31	14	No
4:00 AM	68	29	No
5:00 AM	191	83	No
6:00 AM	490	196	Yes
7:00 AM	948	403	Yes
8:00 AM	725	202	Yes
9:00 AM	531	158	Yes
10:00 AM	573	137	No
11:00 AM	625	158	Yes
12:00 PM	712	173	Yes
1:00 PM	673	156	Yes
2:00 PM	728	153	Yes
3:00 PM	848	306	Yes
4:00 PM	1153	208	Yes
5:00 PM	1186	268	Yes
6:00 PM	896	161	Yes
7:00 PM	536	91	No
8:00 PM	397	52	No
9:00 PM	208	34	No
10:00 PM	175	20	No
11:00 PM	82	9	No
No. of Hours Meeting Condition:			12
No. of Hours Required:			8
Meet Warrant 1:			Yes

Warrant	Description	Analysis Result
1A	Eight Hour Volume – Minimum Vehicular Volume (70% & 56%)	Warrant 1, Condition A Met
1B	Eight Hour Volume – Interruption of Continuous Traffic (70% & 56%)	Condition B Not Evaluated as Condition A is Met
2	Four Hour Vehicular Volume	Warrant Met
3	Peak Hour	Warrant Met
4	Pedestrian Volume	Warrant Not Met
5	School Crossing	Warrant Not Met
6	Coordinated Signal System	Warrant Not Met
7	Crash Experience	Warrant Not Met
8	Roadway Network	Not Applicable
9	Intersection Near a RR Grade Crossing	Warrant Met

Findings: Warrant 1A, 2, 3, and 9 met

Recommendation: Install Traffic Signal

Rosamond Parkway Study Results

Table 2. Warrant 1 Analysis

Time	Major St.	Higher Volume Minor St.	Meet Condition A (70%)?	Meet Condition B (70%)?	Meet Condition A & B (56%)?
12:00 AM	32	1	No	No	No
1:00 AM	17	2	No	No	No
2:00 AM	27	1	No	No	No
3:00 AM	18	2	No	No	No
4:00 AM	61	7	No	No	No
5:00 AM	211	23	No	No	No
6:00 AM	408	69	No	Yes	No
7:00 AM	987	91	No	Yes	Yes
8:00 AM	814	62	No	Yes	No
9:00 AM	447	37	No	No	No
10:00 AM	451	32	No	No	No
11:00 AM	516	29	No	No	No
12:00 PM	593	31	No	No	No
1:00 PM	513	37	No	No	No
2:00 PM	631	47	No	No	No
3:00 PM	844	49	No	No	No
4:00 PM	1010	94	No	Yes	Yes
5:00 PM	1009	50	No	No	No
6:00 PM	796	58	No	Yes	No
7:00 PM	500	35	No	No	No
8:00 PM	377	51	No	No	No
9:00 PM	185	10	No	No	No
10:00 PM	168	9	No	No	No
11:00 PM	94	13	No	No	No
No. of Hours Meeting Condition:			0	5	2
No. Hours Required:			8	8	8
Meet Warrant 1:			No	No	No

Warrant	Description	Analysis Result
1A	Eight Hour Volume – Minimum Vehicular Volume (70% & 56%)	Warrant Not Met
1B	Eight Hour Volume – Interruption of Continuous Traffic (70% & 56%)	Warrant Not Met
2	Four Hour Vehicular Volume	Warrant Not Met
3	Peak Hour	Warrant Met
4	Pedestrian Volume	Warrant Not Met
5	School Crossing	Warrant Not Met
6	Coordinated Signal System	Warrant Not Met
7	Crash Experience	Warrant Not Met
8	Roadway Network	Not Applicable
9	Intersection Near a RR Grade Crossing	Warrant Not Met

Findings: Only Warrant 3 met

Recommendation: Do another study once the new developments on the north side of Rosamond have more homes and traffic volumes increase.

Location Map – FM 455 Corridor



US 75 Study Results

- Findings & Considerations

- The left turn lane for southbound US 75 from FM 455 backs into the northbound frontage road, causing congestion and safety concerns.
- The existing signal detection at the intersection is malfunctioning. As a result, that approach is operating on fixed time, so it is not able to extend the green arrow when it should. TxDOT has been notified and is working to resolve the issue. The malfunctioning equipment is obsolete and will need to be replaced with newer equipment. TxDOT is anticipating end of February for that to occur.

- Recommended options to discuss with TxDOT:

- Adjust the dynamic signal timing to give left turns a longer maximum time limit during peak hour.
- Reconfigure the intersection to allow for dual left turns onto the southbound frontage road.

**Note: On this intersection, the consultant is making additional site visits and data collections to develop more detailed options to present to TxDOT.*



Walmart/Throckmorton Study

- Findings & Considerations

- Vehicles seeking to make a left turn from FM 455 to Walmart/Throckmorton during peak PM times must wait a significant length of time to have a clear path.
- Visibility is not good for a left turn vehicle when they are trying to see oncoming traffic.
- Semi-tractor trucks are making U-turns at the intersection to head south on US 75 (they are trying to avoid turning onto the US 75 NB frontage road at Love's).

- Recommended options to discuss with TxDOT and landowners:

- Adding a protected left-turn phase for the Eastbound Left Turn into Walmart during the evening peak. (Not in TxDOT's current timing plans)
- Lane assignment changes at Walmart Drive to increase capacity.
- Redesign left-turn bays on FM 455 (at Walmart drive) to improve visibility of and for Left Turn vehicles. Right now, a left-turning vehicle blocks visibility of oncoming traffic. To improve, this would require reconstruction of the FM 455 medians.
- Place No U-turn signs at the intersection.
- Provide truck exit to Throckmorton from the south side of the Love's property, through the existing paved firelane/access drive on the adjacent property. This would allow the trucks to make a much safer left turn at the signal instead of a U-turn.

**Note: On this intersection, the consultant is making additional site visits and data collections to develop more detailed options to present to TxDOT.*



Oak Hollow Drive Study Results

Table 1: Volume Summary

Hour Begin	FM 455			Oak Hollow Lane				Total Minor Volume	Pedestrians Crossing Major Roadway
	EB Volume	WB Volume	Total Volume	NB Volume		SB Volume			
				Thru/LT	RT	Thru/LT	RT		
0:00	60	19	79	1	0	0	0	1	0
1:00	31	20	51	4	0	2	0	6	0
2:00	12	27	39	4	0	1	0	5	0
3:00	27	47	74	11	1	2	0	14	0
4:00	35	107	142	19	1	2	0	22	0
5:00	68	297	365	38	0	5	1	44	1
6:00	319	615	934	106	13	12	2	133	0
7:00	562	1,008	1,570	119	61	25	17	222	0
8:00	518	897	1,415	69	37	19	18	143	0
9:00	474	629	1,103	45	9	18	12	84	0
10:00	511	589	1,100	40	22	17	11	90	0
11:00	667	686	1,353	58	23	20	14	115	0
12:00	729	723	1,452	48	32	24	15	119	0
13:00	744	631	1,375	49	37	17	15	118	1
14:00	785	666	1,451	52	39	22	13	126	0
15:00	895	735	1,630	54	36	13	8	111	0
16:00	1,171	941	2,112	59	36	19	11	125	0
17:00	1,322	1,038	2,360	66	41	25	25	157	3
18:00	994	715	1,709	62	26	27	6	121	0
19:00	809	421	1,230	30	13	16	7	66	0
20:00	510	270	780	28	12	13	2	55	0
21:00	337	188	525	19	4	14	1	38	0
22:00	237	113	350	13	5	6	1	25	0
23:00	142	51	193	5	2	5	0	12	0
TOTAL	11,959	11,433	23,392	999	450	324	179	1,952	5

Table 2: Volume for Analysis and Warrant Summary

Hour Begin	FM 455			Oak Hollow Lane		Max Volume	Meets Warrants?				
	EB Volume	WB Volume	Total Volume	NB Thru/LT Volume	SB Thru/LT Volume		1A	1B	7-56% Volume Threshold		2
									A	B	
0:00	60	19	79	1	0	1	0	0	0	0	0
1:00	31	20	51	4	2	4	0	0	0	0	0
2:00	12	27	39	4	1	4	0	0	0	0	0
3:00	27	47	74	11	2	11	0	0	0	0	0
4:00	35	107	142	19	2	19	0	0	0	0	0
5:00	68	297	365	38	5	38	0	0	0	0	0
6:00	319	615	934	106	12	106	1	1	1	1	1
7:00	562	1,008	1,570	119	25	119	1	1	1	1	1
8:00	518	897	1,415	69	19	69	0	1	0	1	1
9:00	474	629	1,103	45	18	45	0	0	0	1	0
10:00	511	589	1,100	40	17	40	0	0	0	0	0
11:00	667	686	1,353	58	20	58	0	1	0	1	0
12:00	729	723	1,452	48	24	48	0	0	0	1	0
13:00	744	631	1,375	49	17	49	0	0	0	1	0
14:00	785	666	1,451	52	22	52	0	0	0	1	0
15:00	895	735	1,630	54	13	54	0	1	0	1	0
16:00	1,171	941	2,112	59	19	59	0	1	0	1	0
17:00	1,322	1,038	2,360	66	25	66	0	1	0	1	1
18:00	994	715	1,709	62	27	62	0	1	0	1	1
19:00	809	421	1,230	30	16	30	0	0	0	0	0
20:00	510	270	780	28	13	28	0	0	0	0	0
21:00	337	188	525	19	14	19	0	0	0	0	0
22:00	237	113	350	13	6	13	0	0	0	0	0
23:00	142	51	193	5	5	5	0	0	0	0	0
TOTAL	11,959	11,433	23,392	999	324	999	2	8	2	12	5

Findings: Warrant 1B, 2, 3, and 7 met
 Recommendation: Install Traffic Signal

Westfield Drive / Willow Creek Drive Study Results

Table 1: Volume Summary

Hour Begin	FM 455			Westfield Drive		Willow Creek Drive		Total Minor Volume	Pedestrians Crossing Major Roadway
	EB Volume	WB Volume	Total Volume	NB Volume		SB Volume			
				Thru/LT	RT	Thru/LT	RT		
0:00	38	12	50	1	0	0	1	2	0
1:00	12	11	23	0	0	1	0	1	0
2:00	13	15	28	0	0	0	0	0	0
3:00	21	23	44	1	1	0	4	6	0
4:00	30	68	98	5	0	1	7	13	0
5:00	95	138	233	22	1	4	20	47	0
6:00	310	317	627	21	14	22	21	78	0
7:00	583	657	1,240	60	20	27	38	145	0
8:00	464	616	1,080	37	17	21	36	111	2
9:00	411	461	872	27	3	10	14	54	0
10:00	425	466	891	30	9	16	16	71	0
11:00	523	566	1,089	26	14	10	24	74	0
12:00	630	541	1,171	37	15	9	17	78	0
13:00	591	474	1,065	37	12	7	15	71	11
14:00	589	532	1,121	36	10	14	24	84	0
15:00	747	656	1,403	40	24	10	14	88	0
16:00	871	764	1,635	43	20	13	19	95	0
17:00	945	860	1,805	49	30	15	32	126	4
18:00	869	587	1,456	41	27	17	27	112	0
19:00	590	359	949	19	7	4	15	45	0
20:00	388	229	617	12	12	6	8	38	0
21:00	237	151	388	16	3	4	2	25	0
22:00	161	91	252	7	2	3	2	14	0
23:00	91	40	131	4	1	0	2	7	0
TOTAL	9,634	8,634	18,268	571	242	214	358	1,385	17

Table 3: Volume for Analysis and Warrant Summary

Hour Begin	FM 455			Westfield Drive/ Willow Creek Dr		Max Volume	Meets Warrants?				
	EB Volume	WB Volume	Total Volume	NB Volume	SB Volume		1A	1B	1-Combo		2
									A	B	
0:00	38	12	50	1	1	1	0	0	0	0	0
1:00	12	11	23	0	1	1	0	0	0	0	0
2:00	13	15	28	0	0	0	0	0	0	0	0
3:00	21	23	44	2	4	4	0	0	0	0	0
4:00	30	68	98	5	8	8	0	0	0	0	0
5:00	95	138	233	23	24	24	0	0	0	0	0
6:00	310	317	627	35	43	43	0	0	0	0	0
7:00	583	657	1,240	80	65	80	0	1	0	1	1
8:00	464	616	1,080	54	57	57	0	0	0	1	0
9:00	411	461	872	30	24	30	0	0	0	0	0
10:00	425	466	891	39	32	39	0	0	0	0	0
11:00	523	566	1,089	40	34	40	0	0	0	0	0
12:00	630	541	1,171	52	26	52	0	0	0	0	0
13:00	591	474	1,065	49	22	49	0	0	0	0	0
14:00	589	532	1,121	46	38	46	0	0	0	0	0
15:00	747	656	1,403	64	24	64	0	0	0	1	0
16:00	871	764	1,635	63	32	63	0	0	0	1	0
17:00	945	860	1,805	79	47	79	0	1	0	1	0
18:00	869	587	1,456	68	44	68	0	0	0	1	0
19:00	590	359	949	26	19	26	0	0	0	0	0
20:00	388	229	617	24	14	24	0	0	0	0	0
21:00	237	151	388	19	6	19	0	0	0	0	0
22:00	161	91	252	9	5	9	0	0	0	0	0
23:00	91	40	131	5	2	5	0	0	0	0	0
TOTAL	9,634	8,634	18,268	813	572	831	0	2	0	6	1

Findings: No Warrants met

Recommendation: Monitor traffic volumes and re-assess if volumes change significantly

Next Steps

- Staff will be reaching out to TxDOT staff to set up meetings to discuss the following intersections, which require improvements:
 - SH 5 @ Finley Boulevard (signal required)
 - FM 455 @ Oak Hollow Drive (signal required)
 - FM 455 @ US 75 (efficiency improvements needed)
 - FM 455 @ Throckmorton/Wal Mart (efficiency improvements needed)
- Staff will be preparing a formal request for the two traffic signals, and submitting the requests to TxDOT, along with the studies.

