

MEMO

TO: Carly Farmer, E.I.T.

FROM: Jemal Ali, PE, PMP; Larry Picasso, PE, PTOE

DATE: June 17, 2022

REQUEST TYPE: Speed Study

REQUEST: Speed study on Alves Lane between SH 46 and Barbarosa

RECOMMENDATION: Increase posted speed limit to 35 mph on Alves Lane between SH 46 and Barbarosa

Background

WSP was contracted by the City of New Braunfels to complete a speed study for Alves Lane between SH 46 and Barbarosa as shown in **Figure 1**.

The purpose of this study is to address concerns by residents of speeding on Alves Lane. Residents requested a speed study on Alves Lane between SH 46 and Barbarosa as a measure to improve traffic safety.

The statutory maximum speed limit in New Braunfels is 30 miles per hour (mph) except where otherwise established by ordinance and posted by official traffic signs.

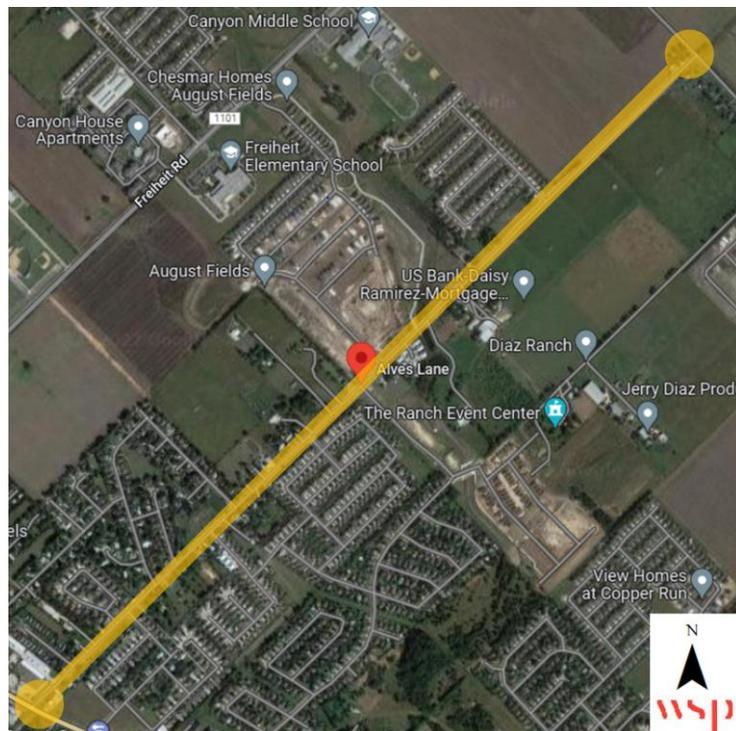


Figure 1 - Project Locations

Guidance

Speed limits applicable to public streets are established:

- Statutorily - a maximum speed limit applicable to a particular class of road that is established by State Law; or
- As altered speed zones- based on engineering studies

The maximum speed limits posted should be based primarily on the 85th percentile speed - the speed at or below which 85 percent of the vehicles travel. Other factors that may be considered when establishing or re-evaluating speed limits include the following:

- Road characteristics
- Roadside development and environment
- Parking practices and pedestrian activity
- Reported crash experience

A city may declare a lower speed limit of not less than 25 miles per hour if the governing body determines that the prima facie speed limit on the streets is unreasonable or unsafe. By State Law, traffic engineering study is required for a city to lower a speed limit below 25 mph (Texas Transportation Code Sec. 545.356).

Site Investigation

A site investigation was completed for Alves Lane in May 2022. The posted speed limit was observed to be 30 mph. The street has one lane in each direction, a continuous two-way center turn-lane, and sidewalks with curb on both sides.

Crash History

Five years of crash data was obtained for the period between January 1, 2017 and December 31, 2021 from the TxDOT Crash Records Information System (CRIS). The data represented all vehicle, bicycle, and pedestrian crashes.

Twenty-two total crashes were recorded during this time. Thirteen were injury, eight non injury, and one fatal crash was recorded during this time. One pedestrian and no cyclist crashes were recorded.

Eleven of the total crashes reported on Alves Lane were reported as occurring due to unsafe speed and failure to control speed. Other contributing factors were related to driver inattention and disregard for traffic signs.

Data Collection

Traffic speed and volume data were collected on Thursday, May 12, 2022 for Alves Lane. The average daily traffic (ADT) in vehicles per day(vpd) and the 85th percentile speed are shown in Tables 1 and 2.

Table 1 - 24-hour Count Summary

Location	Average Daily Traffic (ADT) Vehicles per Day (vpd) Date: 05/12/2022		
	NB	SB	Total
North end of Alves Lane	1,836	1,598	3,434
South end of Alves Lane	1,631	1,488	3,119

Table 2 - Speed Count Summary

Location	85 th percentile Speed (mph) Date: 05/12/2022	
	Speed Limit	85 th
North end of Alves Lane (NB/SB)	30	41.5/39.0
South end of Alves Lane (NB/SB)		43.4/40.9

Recommendation

Based on the site investigation, crash history, and collected speed data it is recommended that the posted speed limit be increased to 35 mph. Although the 85th percentile speed was determined to be an average of 40 mph, due to the number of homes with direct driveway access it is not recommended to increase the posted speed limit to 40 mph.

Additional considerations for Alves Lane include the installation of driver feedback signs and increased law enforcement to curb vehicular speeding. Driver feedback signs are beneficial in alerting drivers of their speeds and can aid in reducing speed on roadways.

Appendices

Appendix A – 24HR Estimated Traffic Volumes and Speed Data



6/17/2022



Appendix A – 24HR Estimated Traffic Volumes and Speed Data



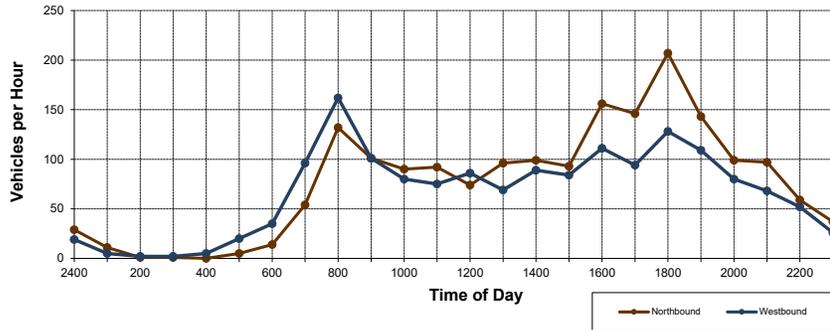
South end of Alves Lane
North of Highway 46

Average Daily Traffic Data

Project No. : 2022005700
 Station No. : 1100
 Counter No. : ACGR-6 / 4

 Day of Week: Thursday, May 12, 2022

 Site: **Northbound / Southbound
 Alves Lane**
 Location: North of Highway 46
 City/State: New Braunfels, Texas



End Time	Northbound Alves Lane	Westbound Alves Lane
15	3	1
30	3	2
45	5	1
100	0	11
115	0	0
130	0	0
145	0	2
200	1	1
215	1	0
230	0	0
245	0	1
300	0	1
315	0	0
330	0	1
345	0	2
400	0	0
415	1	6
430	1	5
445	2	6
500	1	5
515	4	4
530	3	10
545	2	9
600	5	14
615	10	13
630	7	25
645	16	23
700	21	54
715	23	38
730	33	43
745	42	47
800	34	132
815	34	35
830	18	21
845	17	25
900	32	101
915	30	24
930	19	25
945	21	16
1000	20	90
1015	24	32
1030	17	12
1045	20	17
1100	31	92
1115	12	18
1130	22	26
1145	17	25
1200	23	74

End Time	Eastbound Alves Lane	Westbound Alves Lane
1215	24	21
1230	22	18
1245	27	16
1300	23	96
1315	20	22
1330	24	23
1345	35	16
1400	20	99
1415	24	21
1430	25	14
1445	21	13
1500	23	93
1515	34	27
1530	33	32
1545	37	27
1600	52	156
1615	42	25
1630	35	20
1645	33	24
1700	36	146
1715	49	43
1730	65	25
1745	46	34
1800	47	207
1815	43	28
1830	37	34
1845	30	30
1900	33	143
1915	31	22
1930	15	16
1945	31	28
2000	22	99
2015	31	18
2030	27	16
2045	20	14
2100	19	97
2115	18	16
2130	14	13
2145	15	13
2200	12	59
2215	11	14
2230	11	8
2245	7	3
2300	8	37
2315	9	4
2330	8	2
2345	7	7
2400	5	29

Daily Traffic Data
 Total ADT 1,836 1,598
 3,434



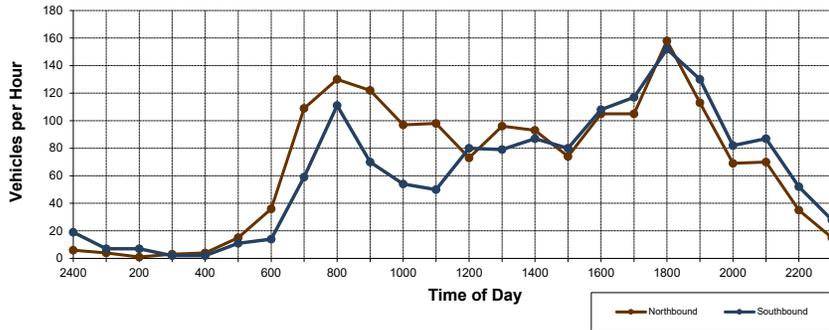
North end of Alves Lane
South of Barbarosa

Average Daily Traffic Data

Project No. : 2022005700
 Station No. : 1200
 Counter No. : ACGR-8 / 3

 Day of Week: Thursday, May 12, 2022

 Site: **Northbound / Southbound**
Alves Lane
 Location: south of Barbarosa Road
 City/State: New Braunfels, Texas



End Time	Northbound Alves Lane	Southbound Alves Lane
15	0	2
30	1	1
45	0	1
100	3 4	3 7
115	0	3
130	0	0
145	1	4
200	0 1	0 7
215	1	0
230	1	0
245	1	1
300	0 3	1 2
315	1	0
330	1	0
345	0	2
400	2 4	0 2
415	1	6
430	5	3
445	4	0
500	5 15	2 11
515	8	1
530	9	5
545	10	5
600	9 36	3 14
615	20	7
630	19	16
645	31	14
700	39 109	22 59
715	32	18
730	33	32
745	32	26
800	33 130	35 111
815	34	24
830	26	17
845	29	13
900	33 122	16 70
915	30	15
930	23	13
945	24	12
1000	20 97	14 54
1015	24	16
1030	17	10
1045	23	13
1100	34 98	11 50
1115	15	19
1130	21	14
1145	16	19
1200	21 73	28 80

End Time	Northbound Alves Lane	Southbound Alves Lane
1215	18	23
1230	27	22
1245	26	13
1300	25 96	21 79
1315	30	19
1330	20	21
1345	21	26
1400	22 93	21 87
1415	20	19
1430	18	18
1445	19	19
1500	17 74	24 80
1515	23	28
1530	18	30
1545	26	28
1600	38 105	22 108
1615	24	29
1630	25	30
1645	31	30
1700	25 105	28 117
1715	36	51
1730	35	33
1745	45	34
1800	42 158	34 152
1815	31	35
1830	26	40
1845	34	37
1900	22 113	18 130
1915	17	20
1930	12	26
1945	20	26
2000	20 69	10 82
2015	16	17
2030	25	28
2045	18	23
2100	11 70	19 87
2115	11	13
2130	9	11
2145	12	18
2200	3 35	10 52
2215	9	17
2230	3	5
2245	2	3
2300	1 15	3 28
2315	2	6
2330	1	4
2345	2	5
2400	1 6	4 19

Daily Traffic Data
 Total ADT 1,631 1,488
 3,119

Site Northbound Alves Lane
 Location near South end Alves Lane
 Dates: 5/12/2022
 Counter No. ACGR 6



24 Hour SPEED DATA

Time	0 to 15	>15 to 20	>20 to 25	>25 to 30	>30 to 35	>35 to 40	>40 to 45	>45 to 50	>50 to 55	>55 to 60	>60 to 65	>65 to 70	> 70	TOTAL
12:00 AM	0	0	0	2	3	3	1	2	0	0	0	0	0	11
1:00 AM	0	0	0	0	1	0	0	0	0	0	0	0	0	1
2:00 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	1
3:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 AM	0	0	1	0	1	0	2	1	0	0	0	0	0	5
5:00 AM	0	0	0	4	3	2	5	0	0	0	0	0	0	14
6:00 AM	1	0	2	2	20	17	10	2	0	0	0	0	0	54
7:00 AM	0	0	2	20	30	48	25	6	1	0	0	0	0	132
8:00 AM	1	0	0	7	36	28	21	8	0	0	0	0	0	101
9:00 AM	0	0	0	3	29	34	17	7	0	0	0	0	0	90
10:00 AM	0	1	1	8	31	34	13	3	1	0	0	0	0	92
11:00 AM	0	0	1	6	22	34	10	0	1	0	0	0	0	74
12:00 PM	0	0	3	7	36	28	19	3	0	0	0	0	0	96
1:00 PM	1	0	3	11	31	32	19	1	1	0	0	0	0	99
2:00 PM	1	0	0	5	29	31	18	8	0	1	0	0	0	93
3:00 PM	0	2	0	17	54	54	24	5	0	0	0	0	0	156
4:00 PM	1	0	3	10	52	50	18	11	1	0	0	0	0	146
5:00 PM	0	0	1	9	82	69	31	11	2	2	0	0	0	207
6:00 PM	0	0	0	4	44	63	22	10	0	0	0	0	0	143
7:00 PM	0	0	2	11	31	37	14	3	1	0	0	0	0	99
8:00 PM	0	0	2	9	42	28	8	6	2	0	0	0	0	97
9:00 PM	0	0	2	7	26	18	4	2	0	0	0	0	0	59
10:00 PM	0	0	1	9	15	9	2	0	1	0	0	0	0	37
11:00 PM	0	0	1	7	6	9	6	0	0	0	0	0	0	29

1836

Percentile Speed (MPH)	10th 29.7	15th 31	50th 35.9	85th 41.5	90th 42.8	Minimum Speed 7.5 (MPH)	Maximum Speed 59.7 (MPH)
Pace Range	Speed 30-39 MPH		61.92%	Number 1247		Average Speed	36.1 (MPH)

Site Southbound Alves Lane
 Location near South end Alves Lane
 Dates: 5/12/2022
 Counter No. ACGR_4



24 Hour SPEED DATA

Time	0 to 15	>15 to 20	>20 to 25	>25 to 30	>30 to 35	>35 to 40	>40 to 45	>45 to 50	>50 to 55	>55 to 60	>60 to 65	>65 to 70	> 70	TOTAL
12:00 AM	0	0	0	1	0	2	1	0	1	0	0	0	0	5
1:00 AM	0	0	0	1	0	1	0	0	0	0	0	0	0	2
2:00 AM	0	0	0	0	1	1	0	0	0	0	0	0	0	2
3:00 AM	0	0	0	0	3	0	2	0	0	0	0	0	0	5
4:00 AM	0	0	0	5	7	2	3	2	1	0	0	0	0	20
5:00 AM	0	1	5	5	11	7	4	1	1	0	0	0	0	35
6:00 AM	0	1	8	22	33	26	6	0	0	0	0	0	0	96
7:00 AM	0	0	15	63	49	28	6	1	0	0	0	0	0	162
8:00 AM	1	0	13	30	34	10	7	6	0	0	0	0	0	101
9:00 AM	0	0	3	25	29	19	3	1	0	0	0	0	0	80
10:00 AM	0	1	5	24	22	14	6	3	0	0	0	0	0	75
11:00 AM	0	0	8	27	29	19	3	0	0	0	0	0	0	86
12:00 PM	0	0	3	18	22	17	9	0	0	0	0	0	0	69
1:00 PM	0	0	5	17	32	20	13	2	0	0	0	0	0	89
2:00 PM	0	0	3	20	29	25	3	3	0	0	1	0	0	84
3:00 PM	0	0	7	28	41	25	10	0	0	0	0	0	0	111
4:00 PM	0	0	5	26	24	22	15	1	1	0	0	0	0	94
5:00 PM	0	0	6	24	47	37	12	1	1	0	0	0	0	128
6:00 PM	1	0	3	31	32	27	14	1	0	0	0	0	0	109
7:00 PM	0	1	7	21	30	12	6	2	0	1	0	0	0	80
8:00 PM	0	0	3	25	20	14	5	1	0	0	0	0	0	68
9:00 PM	0	1	3	20	18	5	5	0	0	0	0	0	0	52
10:00 PM	0	1	2	7	6	9	1	0	0	0	0	0	0	26
11:00 PM	0	0	2	7	7	2	1	0	0	0	0	0	0	19

1598

Percentile Speed (MPH)	10th 26	15th 26.6	50th 32.8	85th 39	90th 40.3	Minimum Speed 9.3 (MPH)	Maximum Speed 60.3 (MPH)
Pace Range	Speed 28-37 MPH		59.78%	Number 538		Average Speed	32.8 (MPH)

Site Northbound Alves Lane
 Location South of Barbarosa Road
 Dates: 5/12/2022
 Counter No. ACGR 8



24 Hour SPEED DATA

Time	0 to 15	>15 to 20	>20 to 25	>25 to 30	>30 to 35	>35 to 40	>40 to 45	>45 to 50	>50 to 55	>55 to 60	>60 to 65	>65 to 70	> 70	TOTAL
12:00 AM	0	0	0	1	2	1	0	0	0	0	0	0	0	4
1:00 AM	0	0	0	0	1	0	0	0	0	0	0	0	0	1
2:00 AM	0	0	1	1	1	0	0	0	0	0	0	0	0	3
3:00 AM	0	1	0	0	0	1	0	0	0	2	0	0	0	4
4:00 AM	0	1	2	2	2	1	6	1	0	0	0	0	0	15
5:00 AM	0	0	5	5	6	8	7	4	1	0	0	0	0	36
6:00 AM	0	0	2	20	36	25	20	6	0	0	0	0	0	109
7:00 AM	0	0	4	19	31	40	25	11	0	0	0	0	0	130
8:00 AM	0	1	1	10	28	38	31	10	3	0	0	0	0	122
9:00 AM	0	0	2	11	20	30	24	9	1	0	0	0	0	97
10:00 AM	0	0	1	9	19	34	27	5	1	1	1	0	0	98
11:00 AM	0	1	2	5	23	17	17	8	0	0	0	0	0	73
12:00 PM	0	0	1	11	16	34	25	8	0	1	0	0	0	96
1:00 PM	0	1	3	9	19	35	12	11	1	0	2	0	0	93
2:00 PM	0	0	1	9	21	16	20	5	2	0	0	0	0	74
3:00 PM	0	0	3	13	24	29	24	7	4	1	0	0	0	105
4:00 PM	0	0	1	13	19	36	21	12	3	0	0	0	0	105
5:00 PM	0	4	2	20	39	40	36	15	0	2	0	0	0	158
6:00 PM	0	0	3	14	20	37	24	10	4	1	0	0	0	113
7:00 PM	0	0	3	14	19	14	11	5	2	1	0	0	0	69
8:00 PM	0	0	0	15	21	24	6	3	1	0	0	0	0	70
9:00 PM	0	1	1	7	7	5	6	6	1	1	0	0	0	35
10:00 PM	0	0	1	2	2	5	5	0	0	0	0	0	0	15
11:00 PM	0	0	0	2	2	1	1	0	0	0	0	0	0	6

1631

Percentile Speed (MPH) **10th** 27.9 **15th** 29.7 **50th** 36.6 **85th** 43.4 **90th** 45.3 **Minimum Speed** 16.2 (MPH) **Maximum Speed** 60.9 (MPH)

Pace Range Speed 34-43 MPH 54.71% **Number** 447 **Average Speed** 36.9 (MPH)

Site Southbound Alves Lane
 Location South of Barbarosa Road
 Dates: 5/12/2022
 Counter No. ACGR_3



24 Hour SPEED DATA

Time	0 to 15	>15 to 20	>20 to 25	>25 to 30	>30 to 35	>35 to 40	>40 to 45	>45 to 50	>50 to 55	>55 to 60	>60 to 65	>65 to 70	> 70	TOTAL
12:00 AM	0	0	0	1	2	3	0	1	0	0	0	0	0	7
1:00 AM	0	0	0	0	0	3	2	2	0	0	0	0	0	7
2:00 AM	0	0	0	1	0	1	0	0	0	0	0	0	0	2
3:00 AM	0	0	0	1	0	1	0	0	0	0	0	0	0	2
4:00 AM	0	0	0	4	4	1	2	0	0	0	0	0	0	11
5:00 AM	0	0	1	6	3	0	4	0	0	0	0	0	0	14
6:00 AM	0	1	1	23	17	9	5	1	1	1	0	0	0	59
7:00 AM	0	0	0	28	34	31	12	6	0	0	0	0	0	111
8:00 AM	0	2	3	17	22	14	7	3	1	1	0	0	0	70
9:00 AM	0	0	3	11	18	17	4	1	0	0	0	0	0	54
10:00 AM	0	0	1	10	18	15	5	1	0	0	0	0	0	50
11:00 AM	0	0	2	9	28	30	10	1	0	0	0	0	0	80
12:00 PM	0	0	1	12	19	28	16	3	0	0	0	0	0	79
1:00 PM	0	0	2	11	19	30	19	2	3	0	1	0	0	87
2:00 PM	0	0	3	8	31	21	11	5	1	0	0	0	0	80
3:00 PM	0	0	3	17	45	28	11	4	0	0	0	0	0	108
4:00 PM	0	0	1	17	31	46	15	7	0	0	0	0	0	117
5:00 PM	0	1	1	11	58	55	17	7	2	0	0	0	0	152
6:00 PM	0	0	2	14	35	45	28	6	0	0	0	0	0	130
7:00 PM	0	0	0	11	29	22	14	5	0	1	0	0	0	82
8:00 PM	0	0	0	13	29	34	11	0	0	0	0	0	0	87
9:00 PM	0	0	1	6	18	17	8	2	0	0	0	0	0	52
10:00 PM	0	0	0	7	6	8	6	1	0	0	0	0	0	28
11:00 PM	0	0	0	2	4	5	6	1	1	0	0	0	0	19

1488

Percentile Speed (MPH)	10th 29.1	15th 29.7	50th 35.3	85th 40.9	90th 42.2	Minimum Speed 15.5 (MPH)	Maximum Speed 60.9 (MPH)
Pace Range	Speed 30-39 MPH		37.25%	Number 686		Average Speed	35.4 (MPH)