

MEMORANDUM

To: Bryce Christo, P.E.
Assistant City Engineer
El Mirage, Arizona

From: Zack Handy, P.E., PTOE
Traffic Engineer
Kimley-Horn and Associates, Inc.

Date: October 8, 2025

Subject: Speed Cushion Evaluation
El Mirage Road –Santa Fe Lane to End Street



Dear Bryce:

This letter outlines our analysis, conclusions, and recommendations for speed cushion locations and design for El Mirage Road from Santa Fe Lane to End Street. A vicinity map is provided as **Figure 1**.

PURPOSE OF STUDY

The City of El Mirage has requested a study to evaluate if speed cushions are warranted along El Mirage Road and, if warranted, to provide an exhibit of recommended locations of speed cushions and supplemental signage.

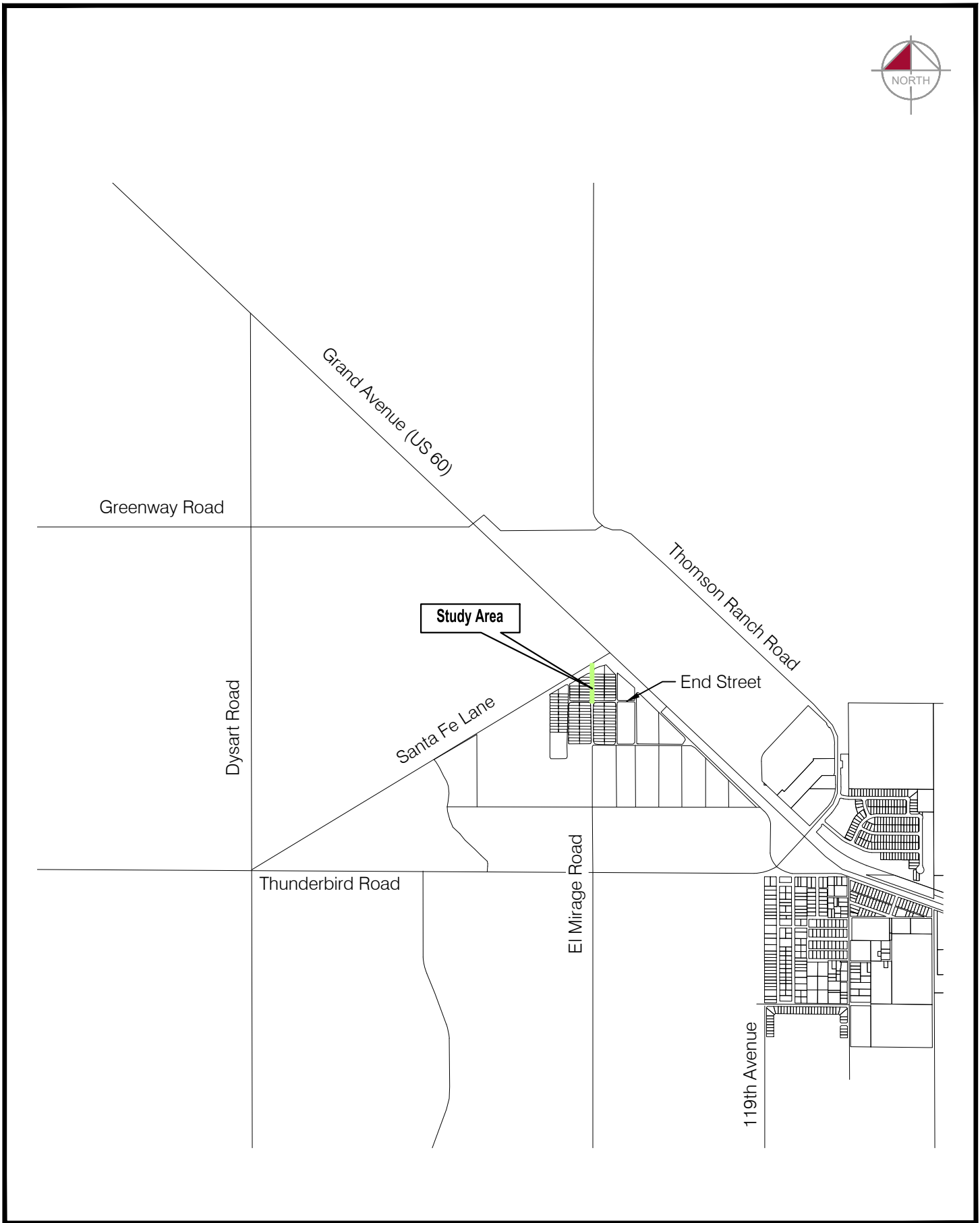
EXISTING CONDITIONS

ROADWAY

El Mirage Road is currently a north-south two-lane undivided roadway with one lane of travel in each direction, separated by striping. Both sides of El Mirage Road include sidewalk, curb, on street parking, and bike lanes. El Mirage Road begins to the south near Indian School Road and terminates to the north at Santa Fe Lane. The speed limit on El Mirage Road is 25 miles per hour (mph). El Mirage Road is classified as a major arterial roadway per the City of El Mirage *Street Classifications Map*. However, per the Arizona Department of Transportation (ADOT) *Functional Classification Map*, this segment of El Mirage Road is classified as an Urban Major Collector. The existing roadway geometry and roadway environment more closely aligns to a collector roadway.

TRAFFIC VOLUMES AND SPEED COUNTS

Bidirectional daily traffic counts and speed counts were collected from Tuesday, April 8, 2025 to Thursday, April 10, 2025 on El Mirage Road, south of Santa Fe Lane. A copy of the data is provided as an **Attachment**.



In reviewing the traffic counts, it was found that about 1,950 vehicles per day (vpd) are using El Mirage Road on a typical weekday. Total traffic volumes were fairly even in the northbound and southbound directions. The summary of average traffic volumes over the 3-day collection period is summarized in **Table 1**.

Table 1. El Mirage Road Traffic Volume Summary

Segment	Direction	ADT (vpd)
El Mirage Road South of Santa Fe Lane	NB	974
	SB	963
	Total	1,937

In reviewing the speed counts along El Mirage Road, it was found that around 78% of all vehicles exceeded the 25-mph speed limit. It was found that speeds were slightly higher for the northbound direction. A summary of average traffic speeds over the 3-day collection period is summarized in **Table 2**.

Table 2. El Mirage Road Speed Count Summary

Segment	Direction	85 th Speed (mph)
El Mirage South of Santa Fe Lane	NB	33
	SB	31
	Both	32

SPEED CUSHION EVALUATION

The City of El Mirage *Policy for Speed Cushion Installation (revised February 2025)* was reviewed to determine if speed cushions are currently warranted along the study segment. Speed cushions are vertical deflections in the roadway designed to calm traffic along a roadway segment. They are designed with spacing to allow emergency vehicles to bypass the speed cushions. Per the policy, the following must be met to consider the installation of speed cushions along a public roadway:

1. The roadway must be classified as a local or collector street.
 2. The current posted speed limit cannot exceed 30 mph.
 3. The 85th percentile of vehicles on the study segment are currently exceeding the speed limit by at least 5 miles per hour.
 4. The study segment must have an average daily traffic (ADT) of 400 vpd on a typical weekday.
- Optional: If it is found that drivers are using the street as a “cut-through” route, speed cushions can be considered regardless of speed or traffic volume.*

A summary of the criteria and evaluation of the study segment is provided in **Table 3**.

Table 3. El Mirage Road Speed Cushion Evaluation

#	Criteria Description	Study Segment	Met?
1	Local or Collector	Arterial Per COEM and Major Collector Per ADOT	X
2	Posted Speed ≤ 30mph	Posted = 25 mph	X
3	85 th speed exceeding posted speed by at least 5 mph	Difference = 9mph	X
4	ADT ≥ 400 vpd (Both Directions)	1,937 vpd (Both)	X

As shown in **Table 3**, El Mirage Road is not classified as a collector or local road according to the City of El Mirage *Street Classifications Map*; However, it is classified as a major collector roadway per *ADOT’s Functional Classification Map* and generally aligns more closely to a collector roadway. Therefore, El Mirage Road between Santa Fe Lane and End Street currently meets the City’s criteria for consideration of speed cushions.

From this evaluation, it is recommended to install speed cushions along El Mirage Road from Santa Fe Lane to End Street.

DESIGN CONSIDERATIONS

Since the City of El Mirage does not currently have a published criterion for speed cushion design, Kimley-Horn researched various local and national standards for the design and location of speed cushions. From the research conducted, the following criteria are recommended for this study:

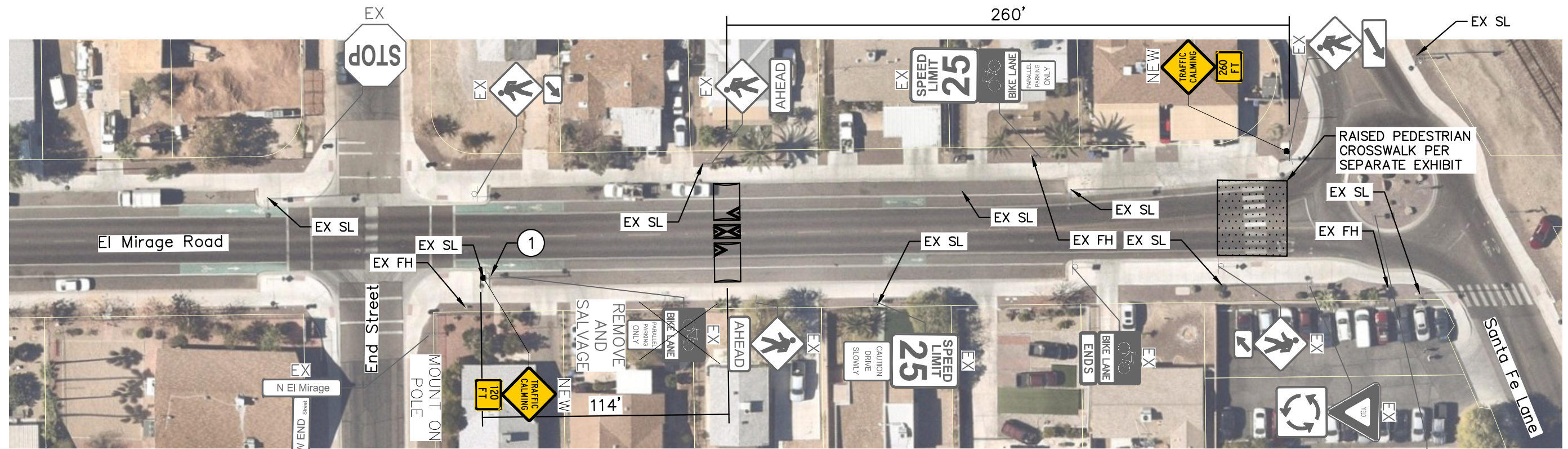
- Speed cushions should be placed at a minimum of 150' from unsignalized intersections, or a minimum of 250' from signalized intersections.
- Spacing of speed cushions should be between 250' and 600'.
- Location of speed cushions are preferred on straight and flat segments. If on a curve, there should be adequate stopping sight distance upstream of the speed cushion. If on a slope, the speed cushion should be placed on or after the crest, and at a maximum grade of 8%.
- Speed cushions should avoid manholes, grates, monuments, and other utilities within the roadway.
- Avoid placing speed cushions close to fire hydrants.
- Consider impacts to drainage with the speed cushion location.
- Consider installing speed cushions near lighting where available.

A tabulated list of the recommended criteria has been provided as an **Attachment**.

To further evaluate recommended locations of speed cushions for this study segment, the following considerations were noted and summarized below:

- Several fire hydrants were observed along the east and west side of El Mirage Road. Speed cushions should be placed away from fire hydrants to avoid conflict during potential emergency operations.
- There are several residential driveways along El Mirage Road. Speed cushions should be placed appropriately to minimize conflicts with drivers turning into and out of driveways.
- The distance between the existing bike lane and the edge of pavement is approximately 12 feet. As this distance is sufficient for a vehicle to bypass the speed cushions, two 17.25 feet exterior speed cushions will be constructed per discussion with the City of El Mirage.
- Per discussion with the City of El Mirage, a raised crosswalk will be constructed on the south leg of the intersection of El Mirage Road and Santa Fe Lane. The design of the pedestrian crosswalk is provided as a separate exhibit.

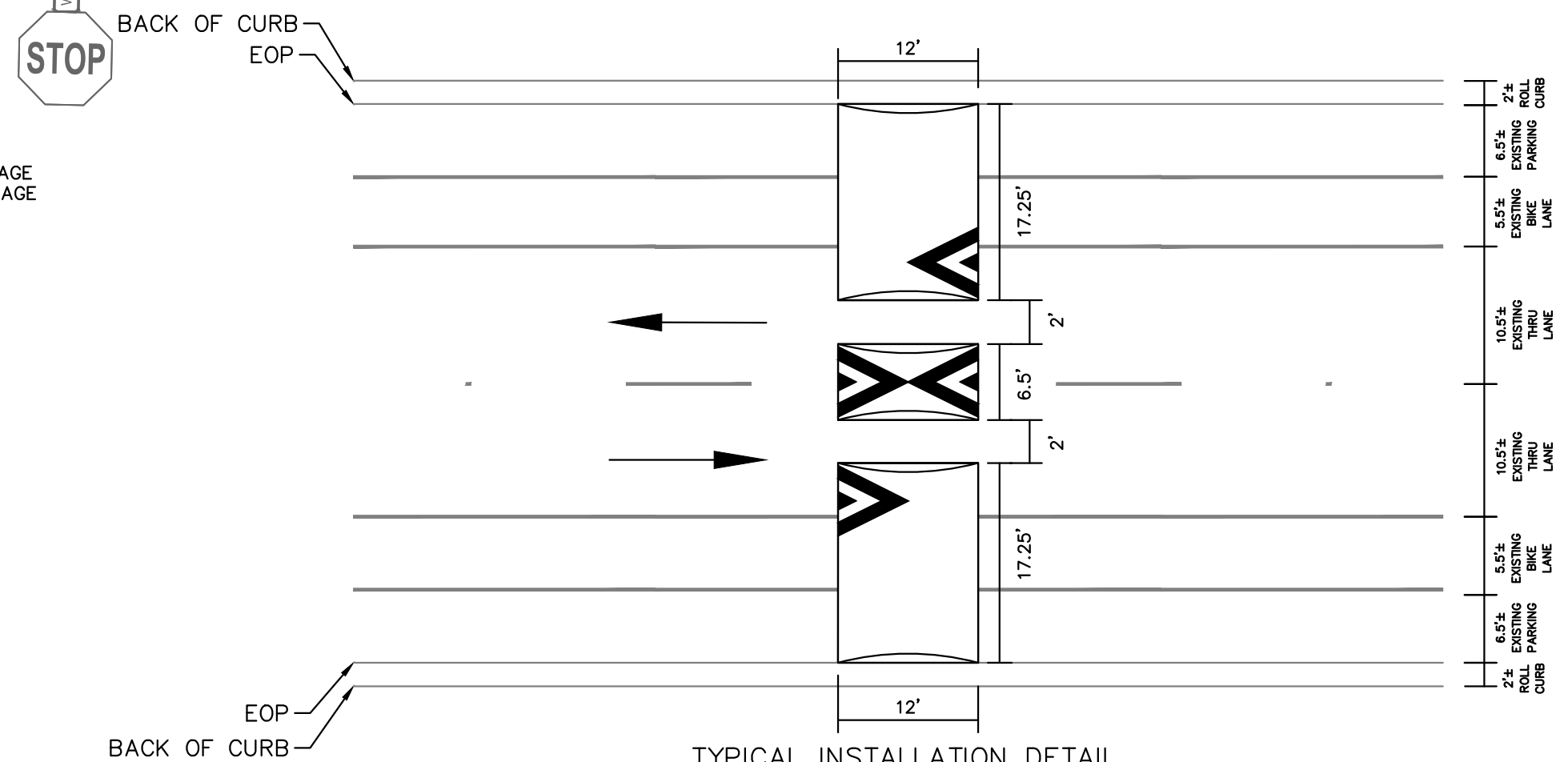
The recommended location of the traffic calming devices and signage for El Mirage Road is provided in **Figure 2**.



FH = FIRE HYDRANT
SL = STREET LIGHT

CONSTRUCTION NOTES:

- ① REMOVE SIGN POST AND SALVAGE SIGNS TO THE CITY OF EL MIRAGE



TYPICAL INSTALLATION DETAIL
NOT TO SCALE

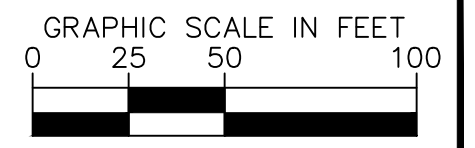
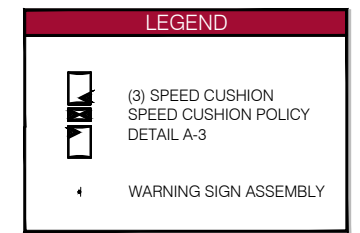
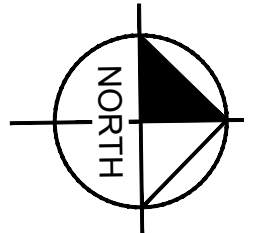
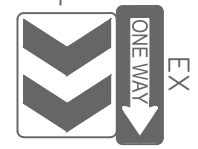


Photo Credit: Nearmap

ATTACHMENTS:

- **Existing Traffic and Speed Counts**
- **Recommended Speed Cushion Design Criteria**

United Civil Group
2803 N. 7th Avenue

Street : El Mirage Road
 Location : S of Santa Fe Lane
 Lat, Long : 33.61675, -112.32485

Site: TC25039
 4/8/2025
 Tuesday

24 Hour Volume

Interval Start	NB		SB		Combined		Interval Start	NB		SB		Combined				
00:00	0	5	1	4	1	9	12:00	15	60	17	49	32	109			
00:15	3		1		4		12:15	11		9		20				
00:30	2		2		4		12:30	16		12		28				
00:45	0		0		0		12:45	18		11		29				
01:00	0	1	0	2	0	3	13:00	18	50	20	62	38	112	Volume Totals		
01:15	1		0		1		13:15	6		19		25		NB	SB	Combined
01:30	0		0		0		13:30	15		13		28		00:00 - 12:00		
01:45	0		2		2		13:45	11		10		21		352	318	670
02:00	0	1	0	1	0	2	14:00	20	74	15	47	35	121	(52.5%)	(47.5%)	
02:15	0		0		0		14:15	23		9		32		12:00 - 00:00		
02:30	1		0		1		14:30	15		10		25		611	624	1235
02:45	0		1		1		14:45	16		13		29		(49.5%)	(50.5%)	
03:00	1	3	0	5	1	8	15:00	15	57	14	70	29	127	24 Hours		
03:15	1		0		1		15:15	15		20		35		963	942	1905
03:30	1		4		5		15:30	7		20		27		(50.6%)	(49.4%)	
03:45	0		1		1		15:45	20		16		36				
04:00	2	6	1	10	3	16	16:00	19	70	22	74	41	144	Peak Hours		
04:15	1		2		3		16:15	21		19		40		00:00 - 12:00		
04:30	1		5		6		16:30	12		13		25		NB	SB	Combined
04:45	2		2		4		16:45	18		20		38		09:45	08:00	07:45
05:00	1	19	2	13	3	32	17:00	16	81	20	73	36	154	Started		
05:15	2		3		5		17:15	23		15		38		Volume		
05:30	6		2		8		17:30	23		22		45		Factor		
05:45	10		6		16		17:45	19		16		35		0.76	0.65	0.79
06:00	6	36	4	22	10	58	18:00	15	75	14	73	29	148	12:00 - 00:00		
06:15	10		5		15		18:15	23		24		47		NB	SB	Combined
06:30	8		4		12		18:30	24		22		46		18:15	15:15	18:15
06:45	12		9		21		18:45	13		13		26		Volume		
07:00	14	54	8	44	22	98	19:00	27	61	16	61	43	122	Factor		
07:15	10		6		16		19:15	9		17		26		0.76	0.65	0.79
07:30	9		15		24		19:30	11		15		26				
07:45	21		15		36		19:45	14		13		27				
08:00	10	48	29	75	39	123	20:00	17	42	19	62	36	104	12:00 - 00:00		
08:15	11		12		23		20:15	7		17		24		NB	SB	Combined
08:30	12		14		26		20:30	8		11		19		Started		
08:45	15		20		35		20:45	10		15		25		Volume		
09:00	23	61	16	53	39	114	21:00	6	23	9	37	15	60	18:15	15:15	18:15
09:15	12		11		23		21:15	13		11		24		Factor		
09:30	9		9		18		21:30	0		9		9		87	78	162
09:45	17		17		34		21:45	4		8		12		0.81	0.89	0.86
10:00	22	65	12	47	34	112	22:00	5	14	5	9	10	23			
10:15	18		12		30		22:15	5		2		7				
10:30	10		15		25		22:30	2		1		3				
10:45	15		8		23		22:45	2		1		3				
11:00	12	53	10	42	22	95	23:00	1	4	3	7	4	11			
11:15	14		15		29		23:15	1		1		2				
11:30	13		10		23		23:30	1		2		3				
11:45	14		7		21		23:45	1		1		2				

United Civil Group

2803 N. 7th Avenue

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Site: TC25039
 4/8/2025
 Tuesday

24 Hour Speed

mph	NB														Avg.
	Total	0 - < 15	15 - < 20	20 - < 25	25 - < 30	30 - < 35	35 - < 40	40 - < 45	45 - < 50	50 - < 55	55 - < 60	60 - < 65	65 - < 70	70 - < 200	
00:00	5	0	0	1	3	1	0	0	0	0	0	0	0	0	28.1
01:00	1	0	0	0	1	0	0	0	0	0	0	0	0	0	26.4
02:00	1	0	0	1	0	0	0	0	0	0	0	0	0	0	24.9
03:00	3	0	0	0	2	1	0	0	0	0	0	0	0	0	28.5
04:00	6	0	0	0	1	3	2	0	0	0	0	0	0	0	33.0
05:00	19	0	0	4	7	3	2	2	1	0	0	0	0	0	31.0
06:00	36	1	0	6	15	11	3	0	0	0	0	0	0	0	28.1
07:00	54	0	0	9	20	15	9	1	0	0	0	0	0	0	30.2
08:00	48	0	1	3	22	15	6	1	0	0	0	0	0	0	29.7
09:00	61	0	0	5	36	14	5	1	0	0	0	0	0	0	29.5
10:00	65	0	2	7	34	19	2	0	1	0	0	0	0	0	28.7
11:00	53	0	2	10	24	12	4	1	0	0	0	0	0	0	28.4
12:00	60	0	0	9	36	14	1	0	0	0	0	0	0	0	28.1
13:00	50	1	3	4	26	16	0	0	0	0	0	0	0	0	28.1
14:00	74	1	3	4	34	25	5	1	1	0	0	0	0	0	29.3
15:00	57	0	1	8	27	12	8	1	0	0	0	0	0	0	29.1
16:00	70	2	1	7	27	25	7	1	0	0	0	0	0	0	29.2
17:00	81	1	2	8	43	20	7	0	0	0	0	0	0	0	28.8
18:00	75	0	5	19	33	15	2	1	0	0	0	0	0	0	27.3
19:00	61	1	0	16	27	13	4	0	0	0	0	0	0	0	27.5
20:00	42	0	0	5	20	14	3	0	0	0	0	0	0	0	29.5
21:00	23	0	0	2	14	6	1	0	0	0	0	0	0	0	28.6
22:00	14	0	0	7	2	3	2	0	0	0	0	0	0	0	27.6
23:00	4	0	1	0	1	2	0	0	0	0	0	0	0	0	26.8

Total	963	7	21	135	455	259	73	10	3	0	0	0	0	0	28.8
%		0.7	2.2	14.0	47.2	26.9	7.6	1.0	0.3	0.0	0.0	0.0	0.0	0.0	

Average (Mean) 28.8 mph **Minimum** 10.4 mph **Maximum** 49.1 mph **Pace Range** 24.1 - 34.1 mph 727 vehicles (75.5%)

Percentile Speeds
 (mph) 10% 15% 50% 85% 90%
 23.5 24.5 28.6 33.6 34.8

Speeds Exceeded
25 mph 35 mph 45 mph 55 mph 65 mph 75 mph
 82.3% (793) 8.9% (86) 0.2% (2) 0% (0) 0% (0) 0% (0)

United Civil Group

2803 N. 7th Avenue

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Site: TC25039
 4/9/2025
 Wednesday

24 Hour Speed

mph	NB														Avg.	
	Total	0 - < 15	15 - < 20	20 - < 25	25 - < 30	30 - < 35	35 - < 40	40 - < 45	45 - < 50	50 - < 55	55 - < 60	60 - < 65	65 - < 70	70 - < 200		
00:00	1	0	0	0	0	1	0	0	0	0	0	0	0	0	31.8	
01:00	3	0	0	0	0	3	0	0	0	0	0	0	0	0	31.5	
02:00	1	0	0	0	0	0	1	0	0	0	0	0	0	0	36.7	
03:00	1	0	0	0	1	0	0	0	0	0	0	0	0	0	29.5	
04:00	5	0	0	1	1	1	2	0	0	0	0	0	0	0	31.6	
05:00	17	0	1	3	4	5	3	0	1	0	0	0	0	0	30.4	
06:00	34	0	1	7	12	10	2	2	0	0	0	0	0	0	28.9	
07:00	50	0	3	6	15	19	7	0	0	0	0	0	0	0	29.4	
08:00	51	1	1	8	23	13	4	1	0	0	0	0	0	0	28.4	
09:00	63	0	1	11	26	16	6	3	0	0	0	0	0	0	29.0	
10:00	62	0	0	10	21	26	4	1	0	0	0	0	0	0	29.6	
11:00	60	1	2	15	25	15	2	0	0	0	0	0	0	0	27.3	
12:00	56	0	0	7	23	22	4	0	0	0	0	0	0	0	29.6	
13:00	49	0	0	6	16	20	7	0	0	0	0	0	0	0	30.3	
14:00	82	0	2	12	36	21	6	3	1	1	0	0	0	0	29.8	
15:00	77	0	0	10	33	25	9	0	0	0	0	0	0	0	29.6	
16:00	88	1	1	6	34	36	6	0	2	2	0	0	0	0	30.7	
17:00	78	2	2	10	48	14	2	0	0	0	0	0	0	0	27.4	
18:00	64	2	0	8	29	19	5	1	0	0	0	0	0	0	28.7	
19:00	67	0	0	12	29	24	2	0	0	0	0	0	0	0	28.6	
20:00	29	0	0	5	9	14	1	0	0	0	0	0	0	0	29.3	
21:00	31	0	0	3	12	13	2	1	0	0	0	0	0	0	30.4	
22:00	16	0	0	3	7	3	3	0	0	0	0	0	0	0	29.6	
23:00	6	0	0	1	4	1	0	0	0	0	0	0	0	0	27.8	
Total	991	7	14	144	408	321	78	12	3	4	0	0	0	0	29.2	
%		0.7	1.4	14.5	41.2	32.4	7.9	1.2	0.3	0.4	0.0	0.0	0.0	0.0		
Average (Mean)	29.2 mph		Minimum	11.8 mph		Maximum	52.9 mph		Pace Range		24.3 - 34.3 mph					757 vehicles (76.4%)
Percentile Speeds	<u>10%</u>	<u>15%</u>	<u>50%</u>	<u>85%</u>	<u>90%</u>											
(mph)	23.6	24.6	29.1	33.7	34.9											
Speeds Exceeded	<u>25 mph</u>	<u>35 mph</u>	<u>45 mph</u>	<u>55 mph</u>	<u>65 mph</u>	<u>75 mph</u>										
	83.0% (823)	9.7% (96)	0.7% (7)	0% (0)	0% (0)	0% (0)										

United Civil Group

2803 N. 7th Avenue

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 Lat, Long : 33.61675, -112.32485

Site: TC25039
 4/10/2025
 Thursday

24 Hour Speed

mph	NB														Avg.
	Total	0 - < 15	15 - < 20	20 - < 25	25 - < 30	30 - < 35	35 - < 40	40 - < 45	45 - < 50	50 - < 55	55 - < 60	60 - < 65	65 - < 70	70 - < 200	
00:00	2	0	0	0	2	0	0	0	0	0	0	0	0	0	27.1
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
02:00	2	0	0	0	1	1	0	0	0	0	0	0	0	0	30.1
03:00	2	0	0	0	1	1	0	0	0	0	0	0	0	0	31.7
04:00	4	0	0	0	3	1	0	0	0	0	0	0	0	0	29.7
05:00	17	0	0	1	5	8	2	1	0	0	0	0	0	0	31.5
06:00	41	0	1	8	15	10	6	1	0	0	0	0	0	0	29.3
07:00	75	0	1	10	32	24	6	2	0	0	0	0	0	0	29.6
08:00	59	0	0	11	25	19	4	0	0	0	0	0	0	0	29.1
09:00	69	1	1	14	28	23	2	0	0	0	0	0	0	0	27.9
10:00	74	0	1	23	29	19	2	0	0	0	0	0	0	0	27.2
11:00	50	0	0	9	23	11	7	0	0	0	0	0	0	0	29.2
12:00	51	0	0	7	24	17	2	1	0	0	0	0	0	0	29.1
13:00	33	1	0	5	12	12	2	1	0	0	0	0	0	0	29.7
14:00	61	0	0	4	35	19	3	0	0	0	0	0	0	0	29.4
15:00	63	0	0	11	21	27	3	1	0	0	0	0	0	0	29.3
16:00	60	0	0	9	31	17	3	0	0	0	0	0	0	0	28.8
17:00	72	0	0	10	39	18	5	0	0	0	0	0	0	0	28.5
18:00	84	2	1	16	36	24	5	0	0	0	0	0	0	0	28.1
19:00	56	0	3	15	28	9	1	0	0	0	0	0	0	0	26.5
20:00	41	0	0	6	20	11	2	2	0	0	0	0	0	0	29.3
21:00	23	1	0	2	14	4	2	0	0	0	0	0	0	0	28.1
22:00	18	0	0	0	10	7	1	0	0	0	0	0	0	0	29.3
23:00	12	0	0	2	6	3	0	1	0	0	0	0	0	0	28.7
Total	969	5	8	163	440	285	58	10	0	0	0	0	0	0	28.7
%		0.5	0.8	16.8	45.4	29.4	6.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	
Average (Mean)	28.7 mph	Minimum		11.4 mph		Maximum		43.8 mph		Pace Range		24.1 - 34.1 mph			755 vehicles (77.9%)
Percentile Speeds		<u>10%</u>	<u>15%</u>	<u>50%</u>	<u>85%</u>	<u>90%</u>									
(mph)		23.5	24.5	28.7	32.9	34.1									
Speeds Exceeded		<u>25 mph</u>	<u>35 mph</u>	<u>45 mph</u>	<u>55 mph</u>	<u>65 mph</u>	<u>75 mph</u>								
		81.2% (787)	6.9% (67)	0% (0)	0% (0)	0% (0)	0% (0)								

United Civil Group

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 4/8/2025
 Tuesday

24 Hour Speed

mph	SB														Avg.
	Total	0 - < 15	15 - < 20	20 - < 25	25 - < 30	30 - < 35	35 - < 40	40 - < 45	45 - < 50	50 - < 55	55 - < 60	60 - < 65	65 - < 70	70 - < 200	
00:00	4	0	0	1	2	0	1	0	0	0	0	0	0	0	28.2
01:00	2	0	0	1	0	1	0	0	0	0	0	0	0	0	27.3
02:00	1	0	0	0	0	1	0	0	0	0	0	0	0	0	31.8
03:00	5	0	1	2	1	1	0	0	0	0	0	0	0	0	24.9
04:00	10	0	1	2	6	1	0	0	0	0	0	0	0	0	26.7
05:00	13	0	0	3	5	5	0	0	0	0	0	0	0	0	27.7
06:00	22	0	0	3	10	6	2	0	1	0	0	0	0	0	29.7
07:00	44	0	2	9	19	12	2	0	0	0	0	0	0	0	27.7
08:00	75	0	2	16	40	15	2	0	0	0	0	0	0	0	27.4
09:00	53	0	1	19	21	10	2	0	0	0	0	0	0	0	26.8
10:00	47	0	3	16	23	5	0	0	0	0	0	0	0	0	25.4
11:00	42	0	2	15	17	7	1	0	0	0	0	0	0	0	26.1
12:00	49	0	3	14	25	6	0	1	0	0	0	0	0	0	26.3
13:00	62	2	8	22	22	7	1	0	0	0	0	0	0	0	24.6
14:00	47	0	2	16	21	7	1	0	0	0	0	0	0	0	26.3
15:00	70	3	5	19	33	9	1	0	0	0	0	0	0	0	25.8
16:00	74	0	2	25	36	11	0	0	0	0	0	0	0	0	26.4
17:00	73	1	3	23	31	13	2	0	0	0	0	0	0	0	26.7
18:00	73	0	11	20	27	12	3	0	0	0	0	0	0	0	25.9
19:00	61	0	1	18	29	12	1	0	0	0	0	0	0	0	27.0
20:00	62	0	2	16	28	14	2	0	0	0	0	0	0	0	27.2
21:00	37	0	1	7	17	12	0	0	0	0	0	0	0	0	27.9
22:00	9	0	1	2	2	4	0	0	0	0	0	0	0	0	27.1
23:00	7	0	1	3	3	0	0	0	0	0	0	0	0	0	23.2
Total	942	6	52	272	418	171	21	1	1	0	0	0	0	0	26.6
%		0.6	5.5	28.9	44.4	18.2	2.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	
Average (Mean)	26.6 mph	Minimum 11.0 mph			Maximum 47.9 mph			Pace Range 20.7 - 30.7 mph				720 vehicles (76.4%)			
Percentile Speeds		<u>10%</u>	<u>15%</u>	<u>50%</u>	<u>85%</u>	<u>90%</u>									
(mph)		21.0	22.1	26.6	30.9	32.0									
Speeds Exceeded		<u>25 mph</u>	<u>35 mph</u>	<u>45 mph</u>	<u>55 mph</u>	<u>65 mph</u>	<u>75 mph</u>								
		64.2% (605)	2.4% (23)	0.1% (1)	0% (0)	0% (0)	0% (0)								

United Civil Group

2803 N. 7th Avenue

Street : El Mirage Road
 Location : S of Santa Fe Lane
 Lat, Long : 33.61675, -112.32485

Site: TC25039
 4/9/2025
 Wednesday

24 Hour Speed

mph	SB														Avg.
	Total	0 - < 15	15 - < 20	20 - < 25	25 - < 30	30 - < 35	35 - < 40	40 - < 45	45 - < 50	50 - < 55	55 - < 60	60 - < 65	65 - < 70	70 - < 200	
00:00	3	0	0	1	1	1	0	0	0	0	0	0	0	0	28.1
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
02:00	3	0	0	0	1	1	0	0	1	0	0	0	0	0	34.7
03:00	4	0	1	1	2	0	0	0	0	0	0	0	0	0	24.2
04:00	6	0	0	3	2	1	0	0	0	0	0	0	0	0	25.2
05:00	23	0	1	6	5	9	2	0	0	0	0	0	0	0	28.3
06:00	30	1	2	6	9	8	3	1	0	0	0	0	0	0	28.0
07:00	56	2	1	10	22	21	0	0	0	0	0	0	0	0	27.6
08:00	57	1	0	9	25	21	0	1	0	0	0	0	0	0	28.8
09:00	48	0	1	9	24	11	2	1	0	0	0	0	0	0	28.1
10:00	39	0	2	17	15	4	1	0	0	0	0	0	0	0	25.8
11:00	50	0	5	22	19	4	0	0	0	0	0	0	0	0	24.7
12:00	45	0	2	14	24	4	1	0	0	0	0	0	0	0	25.8
13:00	44	0	3	10	22	7	2	0	0	0	0	0	0	0	26.8
14:00	48	0	2	21	15	9	1	0	0	0	0	0	0	0	26.4
15:00	90	0	5	26	44	13	0	2	0	0	0	0	0	0	26.4
16:00	66	1	3	23	27	11	1	0	0	0	0	0	0	0	25.8
17:00	72	1	1	16	32	19	2	0	1	0	0	0	0	0	27.9
18:00	71	1	13	27	23	7	0	0	0	0	0	0	0	0	24.2
19:00	71	1	1	24	31	11	3	0	0	0	0	0	0	0	26.4
20:00	47	1	0	19	19	7	0	0	0	1	0	0	0	0	26.4
21:00	37	0	0	11	18	7	1	0	0	0	0	0	0	0	27.3
22:00	21	1	0	8	5	7	0	0	0	0	0	0	0	0	27.1
23:00	8	1	0	3	2	2	0	0	0	0	0	0	0	0	25.4
Total	939	11	43	286	387	185	19	5	2	1	0	0	0	0	26.6
%		1.2	4.6	30.5	41.2	19.7	2.0	0.5	0.2	0.1	0.0	0.0	0.0	0.0	
Average (Mean)	26.6 mph			Minimum	10.3 mph			Maximum	52.7 mph			Pace Range 21.6 - 31.6 mph 703 vehicles (74.9%)			
Percentile Speeds	<u>10%</u>		<u>15%</u>		<u>50%</u>		<u>85%</u>		<u>90%</u>						
(mph)	21.1		22.1		26.3		31.4		32.4						
Speeds Exceeded	<u>25 mph</u>		<u>35 mph</u>		<u>45 mph</u>		<u>55 mph</u>		<u>65 mph</u>		<u>75 mph</u>				
	63.0% (592)		2.9% (27)		0.3% (3)		0% (0)		0% (0)		0% (0)				

United Civil Group
2803 N. 7th Avenue

Street : El Mirage Road
 Location : S of Santa Fe Lane
 Lat, Long : 33.61675, -112.32485

Site: TC25039
 4/10/2025
 Thursday

24 Hour Speed

mph	SB														Avg.
	Total	0 - < 15	15 - < 20	20 - < 25	25 - < 30	30 - < 35	35 - < 40	40 - < 45	45 - < 50	50 - < 55	55 - < 60	60 - < 65	65 - < 70	70 - < 200	
00:00	5	0	0	1	2	2	0	0	0	0	0	0	0	0	27.7
01:00	1	0	0	1	0	0	0	0	0	0	0	0	0	0	23.4
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
03:00	4	0	0	2	1	1	0	0	0	0	0	0	0	0	25.4
04:00	8	0	0	2	3	2	1	0	0	0	0	0	0	0	28.1
05:00	21	0	1	2	12	4	1	1	0	0	0	0	0	0	28.9
06:00	27	0	0	4	9	12	2	0	0	0	0	0	0	0	29.6
07:00	55	0	2	9	31	11	2	0	0	0	0	0	0	0	27.7
08:00	84	0	1	26	41	16	0	0	0	0	0	0	0	0	26.7
09:00	53	0	3	15	20	14	1	0	0	0	0	0	0	0	26.9
10:00	65	0	6	19	28	8	3	1	0	0	0	0	0	0	26.2
11:00	40	0	5	14	19	2	0	0	0	0	0	0	0	0	25.1
12:00	37	0	3	19	11	4	0	0	0	0	0	0	0	0	24.9
13:00	41	0	3	16	18	3	1	0	0	0	0	0	0	0	25.5
14:00	31	0	3	11	15	2	0	0	0	0	0	0	0	0	25.2
15:00	78	0	4	27	35	12	0	0	0	0	0	0	0	0	26.1
16:00	87	0	4	24	43	14	2	0	0	0	0	0	0	0	27.0
17:00	81	1	4	31	30	14	0	1	0	0	0	0	0	0	26.1
18:00	95	1	14	37	28	11	4	0	0	0	0	0	0	0	24.8
19:00	84	1	8	24	35	15	1	0	0	0	0	0	0	0	26.0
20:00	56	1	1	11	34	8	0	1	0	0	0	0	0	0	27.1
21:00	32	0	1	7	14	9	1	0	0	0	0	0	0	0	27.6
22:00	10	0	0	2	7	1	0	0	0	0	0	0	0	0	28.3
23:00	13	0	1	4	8	0	0	0	0	0	0	0	0	0	25.1
Total	1008	4	64	308	444	165	19	4	0	0	0	0	0	0	26.4
%		0.4	6.3	30.6	44.0	16.4	1.9	0.4	0.0	0.0	0.0	0.0	0.0	0.0	
Average (Mean)	26.4 mph	Minimum 13.8 mph			Maximum 43.8 mph			Pace Range 21.1 - 31.1 mph 775 vehicles (76.9%)							
Percentile Speeds		<u>10%</u>	<u>15%</u>	<u>50%</u>	<u>85%</u>	<u>90%</u>									
(mph)		20.9	22.1	26.3	30.7	32.1									
Speeds Exceeded		<u>25 mph</u>	<u>35 mph</u>	<u>45 mph</u>	<u>55 mph</u>	<u>65 mph</u>	<u>75 mph</u>								
		62.1% (626)	2.3% (23)	0% (0)	0% (0)	0% (0)	0% (0)								

Recommended Design Criteria for Speed Cushions

Constraint	Criteria
Distance from Intersections	Unsignalized – 150' Minimum Signalized – 250' Minimum ⁽¹⁾
Spacing	250' Minimum, 600' Maximum
Horizontal Design	Straight Segments Desired Curves Permitted ⁽²⁾
Vertical Design	Flat segments Desired 8% Maximum grade (Installed on or after crest)
Visibility	Must be visible to drivers from AASHTO SSD ⁽³⁾

(1) Assumed that speed limit is 25 mph. If speed limit is 30 mph, use 305' minimum

(2) Minimum horizontal radius of 300'; must have visibility upstream of speed cushion

(3) Table 3-1 AASHTO *A Policy on Geometric Design of Highways and Streets*, 2018

Additional Design Considerations:

- Avoid manholes, grates, monuments, and other utilities within roadway
- Avoid locating speed cushions close to fire hydrants
- Consider impacts to drainage with speed cushion location
- Consider installing speed cushions near lighting where available