

Memorandum

To: Michelle McCullough, P.E., CFM
Assistant Director
Public Works Department
City of Burleson

From: Jeff Whitacre, P.E., AICP, PTP
Kimley-Horn and Associates, Inc.

Date: September 5, 2023

Re: Greenridge Drive and Commons Drive Speed Study
Burleson, Texas



09-05-2023

PURPOSE

Kimley-Horn was retained by the City of Burleson, Texas to perform a speed study along each leg of the Greenridge Drive and Commons Drive roundabout. The purpose of this memo is to propose a speed limit for vehicular traffic based on existing vehicle speeds, roadway geometry, and land use context.

EXISTING CONDITIONS

Greenridge Drive and Commons Drive are classified as Major Collectors in the Master Thoroughfare Plan. While Greenridge Drive and Commons Drive do not have a posted speed in existing conditions, the current Design Manual calls for Major Collectors to be designed and constructed based on a 45-mph design speed. Both roadways are two-lane divided facilities as they enter the three-leg, single-lane roundabout.

Greenridge Drive and Commons Drive connect John Jones Drive (FM 731) to the north, Wilshire Boulevard (SH 174) to the east, and Hulen Street to the south. The study area is mainly comprised of residential land uses, both single and multi-family developments. **Figure 1** shows the study area and speed collection sites.

SPEED ANALYSIS

Data Collection

To evaluate the current speeds along Greenridge Drive and Commons Drive, bi-directional speed and volume data was collected at the following locations for a period of 24-hours on Thursday, August 16th, 2023:

- Greenridge Drive, north of Greenridge Drive & Commons Drive Roundabout
- Greenridge Drive, west of Greenridge Drive & Commons Drive Roundabout
- Commons Drive, east of Greenridge Drive & Commons Drive Roundabout



Figure 1. Greenridge Drive and Commons Drive

Results

Based upon the results of the data collection (see attached), **Table 1** summarizes the 85th percentile speed and data collection with the study area.

Table 1: 85th Percentile Speeds

Roadway Section	85 th Percentile Speed		Vehicles Included in Speed Study	24-Hour Volume
	EB/NB	WB/SB		
Commons Dr – East Leg	33 mph	34 mph	359	2,249
Greenridge Dr – West Leg	35 mph	18 mph	532	3,509
Greenridge Dr – North Leg	37 mph	38 mph	556	3,270



CONCLUSIONS AND RECOMMENDATIONS

In most instances, a speed limit based on the 85th percentile speed best reflects the expectations of the largest proportion of drivers; is found by most to be a safe and comfortable limit; facilitates speed enforcement; and offers the greatest chance of achieving some uniformity in speeds on a given road.

As previously stated, Major Collectors utilize a 45-mph design speed per the current Design Standards. However, Greenridge Drive was designed to match the context and land use in the area in an attempt to discourage such speeds. This is reflected by the data collection.

Based on the collected data along Greenridge Drive and Commons Drive and the context and adjacent land uses, it is recommended to implement a 35-mph posted speed limit along each leg of the roundabout.

If you have any questions, please contact me at jeff.whitacre@kimley-horn.com or by phone at 817-339-2254.

GRAM Traffic North Texas, Inc.

1120 W Lovers Lane
Arlington, TX 76013

COMMONS DR E OF ROUNDABOUT W 4 SEC FILTER

WB

Start Time	1	16	21	26	31	36	41	46	51	56	61	66	71	76	Total	85th Percent	95th Percent
08/16/23	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	0	0	2	13	16	2	1	0	0	0	0	0	0	0	34	34	38
11:00	0	0	4	20	8	5	0	0	0	0	0	0	0	0	37	34	38
12 PM	0	0	3	17	30	9	0	0	0	0	0	0	0	0	59	35	38
13:00	0	0	2	19	26	6	1	0	0	0	0	0	0	0	54	34	38
Total	0	0	11	69	80	22	2	0	0	0	0	0	0	0	184		
Percent	0.0%	0.0%	6.0%	37.5%	43.5%	12.0%	1.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak			11:00	11:00	10:00	11:00	10:00								11:00		
Vol.			4	20	16	5	1								37		
PM Peak			12:00	13:00	12:00	12:00	13:00								12:00		
Vol.			3	19	30	9	1								59		
Total	0	0	11	69	80	22	2	0	0	0	0	0	0	0	184		
Percent	0.0%	0.0%	6.0%	37.5%	43.5%	12.0%	1.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			

15th Percentile : 26 MPH
 50th Percentile : 30 MPH
 85th Percentile : 34 MPH
 95th Percentile : 38 MPH

Stats
 10 MPH Pace Speed : 26-35 MPH
 Number in Pace : 149
 Percent in Pace : 81.0%
 Number of Vehicles > 55 MPH : 0
 Percent of Vehicles > 55 MPH : 0.0%
 Mean Speed(Average) : 31 MPH

GRAM Traffic North Texas, Inc.

1120 W Lovers Lane
Arlington, TX 76013

GREENRIDGE DR N OF ROUNDABOUT W 4 SEC FILTER

NB

Start Time	15	20	25	30	35	40	45	50	55	60	65	70	75	999	Total	85th Percent	95th Percent
08/16/23	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	0	1	3	13	30	6	0	0	0	0	0	0	0	0	53	34	37
11:00	0	0	4	14	27	14	2	0	0	0	0	0	0	0	61	37	39
12 PM	0	0	2	29	34	15	5	1	0	0	0	0	0	0	86	37	41
13:00	0	0	3	13	25	14	3	0	0	0	0	0	0	0	58	37	40
Total	0	1	12	69	116	49	10	1	0	0	0	0	0	0	258		
Percent	0.0%	0.4%	4.7%	26.7%	45.0%	19.0%	3.9%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak		10:00	11:00	11:00	10:00	11:00	11:00									11:00	
Vol.		1	4	14	30	14	2									61	
PM Peak			13:00	12:00	12:00	12:00	12:00	12:00								12:00	
Vol.			3	29	34	15	5	1								86	
Total	0	1	12	69	116	49	10	1	0	0	0	0	0	0	258		
Percent	0.0%	0.4%	4.7%	26.7%	45.0%	19.0%	3.9%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			

15th Percentile : 26 MPH
 50th Percentile : 32 MPH
 85th Percentile : 37 MPH
 95th Percentile : 39 MPH

Stats
 10 MPH Pace Speed : 26-35 MPH
 Number in Pace : 185
 Percent in Pace : 71.7%
 Number of Vehicles > 55 MPH : 0
 Percent of Vehicles > 55 MPH : 0.0%
 Mean Speed(Average) : 33 MPH

GRAM Traffic North Texas, Inc.

1120 W Lovers Lane
Arlington, TX 76013

GREENRIDGE DR N OF ROUNDABOUT W 4 SEC FILTER

SB

Start Time	15	20	25	30	35	40	45	50	55	60	65	70	75	999	Total	85th Percent	95th Percent
08/16/23	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	0	1	7	9	23	12	3	0	0	0	0	0	0	0	55	37	40
11:00	0	2	5	11	35	12	5	0	0	0	0	0	0	0	70	37	41
12 PM	1	2	7	14	35	28	5	0	0	0	0	0	0	0	92	38	40
13:00	1	0	5	19	27	23	5	1	0	0	0	0	0	0	81	38	41
Total	2	5	24	53	120	75	18	1	0	0	0	0	0	0	298		
Percent	0.7%	1.7%	8.1%	17.8%	40.3%	25.2%	6.0%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak		11:00	10:00	11:00	11:00	10:00	11:00								11:00		
Vol.		2	7	11	35	12	5								70		
PM Peak	12:00	12:00	12:00	13:00	12:00	12:00	12:00	13:00							12:00		
Vol.	1	2	7	19	35	28	5	1							92		
Total	2	5	24	53	120	75	18	1	0	0	0	0	0	0	298		
Percent	0.7%	1.7%	8.1%	17.8%	40.3%	25.2%	6.0%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			

15th Percentile : 26 MPH
 50th Percentile : 32 MPH
 85th Percentile : 38 MPH
 95th Percentile : 41 MPH

Stats
 10 MPH Pace Speed : 31-40 MPH
 Number in Pace : 195
 Percent in Pace : 65.4%
 Number of Vehicles > 55 MPH : 0
 Percent of Vehicles > 55 MPH : 0.0%
 Mean Speed(Average) : 33 MPH

GRAM Traffic North Texas, Inc.

1120 W Lovers Lane
Arlington, TX 76013

GREENRIDGE DR W OF ROUNDABOUT W 4 SEC FILTER

EB	Start	1	16	21	26	31	36	41	46	51	56	61	66	71	76	Total	85th	95th
Time	15	20	25	30	35	40	45	50	55	60	65	70	75	999		Percent	Percent	
08/16/23	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	0	1	6	23	27	11	0	0	0	0	0	0	0	0	68	35	38	
11:00	0	0	2	32	28	6	5	1	0	0	0	0	0	0	74	35	42	
12 PM	0	0	4	28	23	10	2	0	0	0	0	0	0	0	67	35	39	
13:00	0	1	6	27	26	14	1	0	0	0	0	0	0	0	75	36	39	
Total	0	2	18	110	104	41	8	1	0	0	0	0	0	0	284			
Percent	0.0%	0.7%	6.3%	38.7%	36.6%	14.4%	2.8%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%				
AM Peak		10:00	10:00	11:00	11:00	10:00	11:00	11:00								11:00		
Vol.		1	6	32	28	11	5	1								74		
PM Peak		13:00	13:00	12:00	13:00	13:00	12:00									13:00		
Vol.		1	6	28	26	14	2									75		
Total	0	2	18	110	104	41	8	1	0	0	0	0	0	0	284			
Percent	0.0%	0.7%	6.3%	38.7%	36.6%	14.4%	2.8%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%				

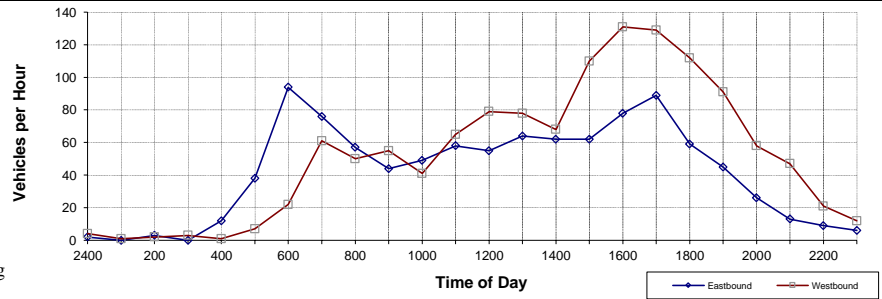
15th Percentile : 26 MPH
 50th Percentile : 30 MPH
 85th Percentile : 35 MPH
 95th Percentile : 39 MPH

Stats
 10 MPH Pace Speed : 26-35 MPH
 Number in Pace : 214
 Percent in Pace : 75.4%
 Number of Vehicles > 55 MPH : 0
 Percent of Vehicles > 55 MPH : 0.0%
 Mean Speed(Average) : 31 MPH

Project No. : 061166098
Station No. :
Counter No. :

City/State: Burleson, TX
Date: August 16, 2023
Day of Week: Wednesday

Site: Commons Drive, East Leg

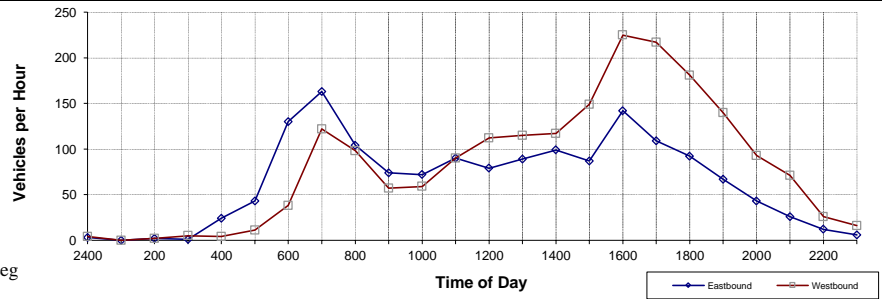


Time	Peak	Eastbound	Westbound	Time	Peak	Eastbound	Westbound
24:00				12:00			
0:15		0	2	12:15		14	20
0:30		1	0	12:30		15	22
0:45		1	1	12:45		10	18
1:00		0	2	13:00		16	55
1:15		0	0	13:15		19	24
1:30		0	0	13:30		18	14
1:45		0	1	13:45		12	17
2:00		0	0	14:00		15	64
2:15		1	1	14:15		15	15
2:30		1	0	14:30		16	14
2:45		1	1	14:45		15	21
3:00		0	3	15:00		16	62
3:15		0	0	15:15		11	23
3:30		0	1	15:30		21	24
3:45		0	0	15:45		18	31
4:00		0	0	16:00		12	62
4:15		1	0	16:15		22	31
4:30		1	0	16:30		26	33
4:45		5	1	16:45		14	29
5:00		5	12	17:00	*	16	78
5:15		5	0	17:15	*	23	38
5:30		5	2	17:30	*	22	131
5:45		12	3	17:45	*	29	25
6:00		16	38	18:00		15	89
6:15		14	4	18:15		12	30
6:30		22	4	18:30		17	22
6:45		23	6	18:45		12	31
7:00	*	35	94	19:00		18	59
7:15	*	26	13	19:15		16	29
7:30	*	16	12	19:30		15	23
7:45	*	18	17	19:45		9	17
8:00		16	76	20:00		5	45
8:15		15	13	20:15		7	28
8:30		20	16	20:30		8	91
8:45		11	10	20:45		5	17
9:00		11	57	21:00		6	12
9:15		13	10	21:15		4	58
9:30		11	13	21:30		1	7
9:45		15	16	21:45		5	16
10:00		5	44	22:00		3	12
10:15		9	8	22:15		2	47
10:30		9	11	22:30		5	4
10:45		17	10	22:45		1	8
11:00		14	49	23:00		1	6
11:15		18	17	23:15		2	21
11:30		17	8	23:30		2	5
11:45		8	18	23:45		0	4
12:00		15	58	24:00		2	3
AM Peak Hour		7:00-8:00		Directional Volumes		1,001	
% of ADT		6.4%				24-Hour Volume	
PM Peak Hour		17:00-18:00				2,249	
% of ADT		10.1%					

Project No. : 061166098
Station No. :
Counter No. :

City/State: Burleson, TX
Date: August 16, 2023
Day of Week: Wednesday

Site: Greenridge Drive, West Leg

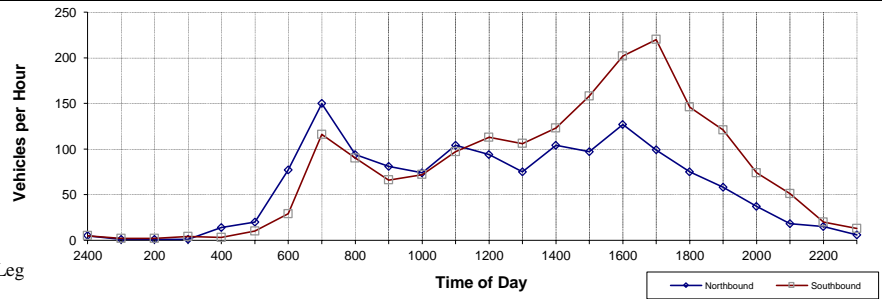


Time	Peak	Eastbound	Westbound	Time	Peak	Eastbound	Westbound
24:00				12:00			
0:15		0	2	12:15		21	33
0:30		1	1	12:30		14	26
0:45		1	1	12:45		26	28
1:00		1 3	0 4	13:00		18 79	25 112
1:15		0	0	13:15		22	32
1:30		0	0	13:30		24	28
1:45		0	0	13:45		23	26
2:00		0 0	0 0	14:00		20 89	29 115
2:15		1	1	14:15		17	31
2:30		0	0	14:30		30	32
2:45		1	1	14:45		31	25
3:00		0 2	0 2	15:00		21 99	29 117
3:15		0	0	15:15		19	33
3:30		0	2	15:30		18	39
3:45		0	1	15:45		25	34
4:00		1 1	2 5	16:00		25 87	43 149
4:15		2	1	16:15		34	44
4:30		4	2	16:30	*	38	61
4:45		12	1	16:45	*	33	54
5:00		6 24	0 4	17:00	*	37 142	66 225
5:15		3	0	17:15	*	26	53
5:30		5	5	17:30		29	51
5:45		14	2	17:45		30	57
6:00		21 43	4 11	18:00		24 109	56 217
6:15		21	10	18:15		23	44
6:30		28	11	18:30		28	47
6:45		29	6	18:45		22	46
7:00		52 130	11 38	19:00		19 92	44 181
7:15	*	51	17	19:15		20	34
7:30	*	42	32	19:30		19	32
7:45	*	37	34	19:45		19	29
8:00	*	33 163	39 122	20:00		9 67	45 140
8:15		35	32	20:15		13	27
8:30		28	21	20:30		11	22
8:45		19	25	20:45		9	28
9:00		22 104	20 98	21:00		10 43	16 93
9:15		21	5	21:15		7	19
9:30		22	17	21:30		5	21
9:45		16	15	21:45		7	18
10:00		15 74	20 57	22:00		7 26	13 71
10:15		15	15	22:15		4	6
10:30		16	16	22:30		3	10
10:45		27	13	22:45		3	6
11:00		14 72	15 59	23:00		2 12	4 26
11:15		28	19	23:15		3	10
11:30		16	22	23:30		1	3
11:45		25	20	23:45		0	1
12:00		21 90	29 90	24:00		2 6	2 16
AM Peak Hour		7:15-8:15	Directional Volumes			1,557	1,952
% of ADT		8.1%				24-Hour Volume	3,509
PM Peak Hour		16:30-17:30					
% of ADT		10.5%					

Project No. : 061166098
 Station No. :
 Counter No. :

City/State: Burleson, TX
 Date: August 16, 2023
 Day of Week: Wednesday

Site: Greenridge Drive, North Leg



Time	Peak	Northbound	Southbound	Time	Peak	Northbound	Southbound
24:00				12:00			
0:15		1	1	12:15		29	30
0:30		0	2	12:30		18	31
0:45		3	1	12:45		30	29
1:00		1 5	1 5	13:00		17 94	23 113
1:15		0	0	13:15		23	29
1:30		0	1	13:30		12	28
1:45		1	0	13:45		20	23
2:00		0 1	1 2	14:00		20 75	26 106
2:15		0	0	14:15		21	32
2:30		1	1	14:30		26	37
2:45		0	1	14:45		36	20
3:00		0 1	0 2	15:00		21 104	34 123
3:15		0	2	15:15		22	30
3:30		0	1	15:30		18	44
3:45		0	1	15:45		28	42
4:00		1 1	0 4	16:00		29 97	42 158
4:15		1	1	16:15		26	37
4:30		2	0	16:30	*	33	62
4:45		10	2	16:45	*	28	50
5:00		1 14	0 3	17:00	*	40 127	53 202
5:15		1	2	17:15	*	23	59
5:30		2	3	17:30		27	52
5:45		9	2	17:45		23	59
6:00		8 20	3 10	18:00		26 99	50 220
6:15		13	6	18:15		20	38
6:30		9	8	18:30		20	39
6:45		21	8	18:45		22	32
7:00		34 77	7 29	19:00		13 75	37 146
7:15	*	44	16	19:15		15	31
7:30	*	36	37	19:30		14	32
7:45	*	33	26	19:45		14	17
8:00	*	37 150	37 116	20:00		15 58	41 121
8:15		28	28	20:15		11	15
8:30		21	24	20:30		7	21
8:45		25	24	20:45		9	20
9:00		20 94	14 90	21:00		10 37	18 74
9:15		20	14	21:15		2	13
9:30		29	20	21:30		9	18
9:45		14	19	21:45		5	15
10:00		18 81	13 66	22:00		2 18	5 51
10:15		18	19	22:15		7	5
10:30		19	17	22:30		3	7
10:45		20	19	22:45		2	5
11:00		17 74	17 72	23:00		3 15	3 20
11:15		33	23	23:15		3	6
11:30		11	24	23:30		0	3
11:45		28	17	23:45		2	2
12:00		32 104	33 97	24:00		1 6	2 13
AM Peak Hour		7:15-8:15		Directional Volumes		1,427	1,843
% of ADT		8.1%				24-Hour Volume	3,270
PM Peak Hour		16:30-17:30					
% of ADT		10.6%					