

June 13, 2017

Mr. Carter Scherff
Chief Operations Officer
Hays Consolidated Independent School District
21003 Interstate 35
Kyle, TX 78640

Re: Barton Middle School and Hays High School Traffic Study
RPS Klotz Associates Project No. 007570

Dear Mr. Scherff:

This letter presents a summary of findings of traffic volumes and speeds by RPS Klotz Associates along FM 2770/Jack C Hays Trail near Barton Middle School and Hays High School in Hays County, Texas. The study methodology included a field investigation within the study area during peak and off periods and an evaluation of existing traffic volumes and speeds with existing roadway characteristics.

Existing Conditions

The study area is located along FM 2770/Jack C Hays Trail near its intersection with CR 171/Kohlers Crossing in Hays County, Texas. FM 2770 is a three-lane asphalt roadway with one 12-foot lane and a 12-foot shoulder in each direction separated by a 14-foot two-way left-turn lane (TWLTL). Drainage is provided by storm sewer via curb and gutter. The posted speed limit is 50 mph. There is a 35 mph school speed zone for Barton Middle School and Hays High School. CR 171/Kohlers Crossing intersects from the east across from a Barton Middle School entrance only driveway to form a signalized intersection. At the intersection, FM 2770 widens to include southbound dual left-turn lanes, a northbound left-turn lane, and a northbound right-turn lane. The CR 171/Kohlers Crossing approach includes a left-turn lane, a through lane, and a right-turn lane.

Both roadways are relatively straight within the study area. FM 2770/Jack C Hays Trail vertically rises in the northbound direction through the intersection with CR 171/Kohlers Crossing and crests about 1,200 feet north of the intersection. It remains relatively flat through the remainder of the study area. The existing pavement, signs, and pavement markings in the study area appear to be in good condition.

Field Observations

A field investigation was conducted to observe current traffic characteristics. It was observed that pedestrians walking to school would cross south of Barton Middle School near Grace Street and travel along the shoulder on the west side of FM 2770/Jack C Hays Trail. However, it was observed that construction for sidewalk and drainage improvements were currently underway along the east side of FM 2770/Jack C Hays Trail south of CR 171/Kohlers Crossing. The shoulder remained closed during the entirety of the field investigations and the northbound right-turn lane would sometimes be closed during off peak periods. This would have a direct impact on the normal path of pedestrians and may have had an effect on the vehicular speeds at the second location south of Barton Middle School.

Data Collection

24-Hour bi-directional traffic volumes were collected along FM 2770/Jack C Hays Trail in the study area. The counts are attached in Appendix A. In addition, spot speed surveys were conducted at two locations along FM 2770/Jack C Hays Trail in the study area using radar. Spot speed surveys were completed on Tuesday, May 16th, 2017 during both the AM peak period and the off peak period at Location #1, north of Hays High School. Spot speed surveys were completed on Tuesday, May 23rd, 2017 during the AM peak period and the off peak period at Location #2, south of Barton Middle School. The Radar Motor Vehicle Speed Field Tally Sheets for all four situations are attached in Appendix A. A summary of the spot speed survey data is presented in Tables 1 and 2 at the two locations, respectively.

Table 1: Summary of Spot Speed Survey Data – Location #1 – North of Hays High School

Statistics	FM 2770/Jack C Hays Trail	
	Northbound	Southbound
AM Peak Period		
Existing Posted Speed (mph)	35 (School Zone)	35 (School Zone)
Number of Observations	158	144
85 th Percentile (mph)	39	35
Off Peak Period		
Existing Posted Speed (mph)	50	50
Number of Observations	136	126
85 th Percentile (mph)	53	51

Table 2: Summary of Spot Speed Survey Data – Location #2 - South of Barton Middle School

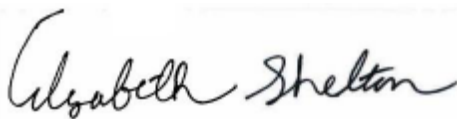
Statistics	FM 2770/Jack C Hays Trail	
	Northbound	Southbound
AM Peak Period		
Existing Posted Speed (mph)	35 (School Zone)	35 (School Zone)
Number of Observations	151	127
85 th Percentile (mph)	35	40
Off Peak Period		
Existing Posted Speed (mph)	50	50
Number of Observations	131	141
85 th Percentile (mph)	43	48

An exhibit showing the limits of the school zone as well as the results of the speed data can be found attached in Appendix A.

It was observed that vehicles entering the school zone (southbound from Location #1 and northbound from Location #2) did appear to be travelling at the appropriate speed of 35 mph. However, it was observed that vehicles exiting the school zone (northbound from Location #1 and southbound from Location #2) would start speeding up before reaching the end of the school zone. This is a typical response to changing speed zones. During the off-peak periods, the count locations and directions mostly indicated compliance with the speed limit of 50 mph. The speeds at Location #1 were slightly higher than the posted speed limit but not of any excess to be concerned.

If you have any questions or would like to further discuss our findings, please do not hesitate to contact me at your convenience. Thank you for the opportunity to assist you on this project.

Sincerely,



Beth Shelton, P.E.
Project Manager - Traffic & ITS
Texas P.E. Firm Registration No. F-929

INTERIM REVIEW ONLY

DOCUMENT INCOMPLETE.
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PERMIT OR CONSTRUCTION

ENGINEER: ELIZABETH SHELTON,
P.E.

LICENSE NUMBER: I07729

DATE: 06/13/2017

APPENDIX A

SPEED DATA
COLLECTION
LOCATION #2

35 MPH
SCHOOL
ZONE LIMIT

BARTON
MIDDLE
SCHOOL

HAYS
HIGH
SCHOOL

35 MPH
SCHOOL
ZONE LIMIT

FM 2770/JACK C HAYS TRAIL

SPEED DATA
COLLECTION
LOCATION #1

Table 1: Summary of Spot Speed Survey Data – Location #2 - South of Barton Middle School

Statistics	FM 2770/Jack C Hays Trail	
	Northbound	Southbound
AM Peak Period		
Existing Posted Speed (mph)	35 (School Zone)	35 (School Zone)
Number of Observations	151	127
85 th Percentile (mph)	35	40
Off Peak Period		
Existing Posted Speed (mph)	50	50
Number of Observations	131	141
85 th Percentile (mph)	43	48

Table 1: Summary of Spot Speed Survey Data – Location #1 – North of Hays High School

Statistics	FM 2770/Jack C Hays Trail	
	Northbound	Southbound
AM Peak Period		
Existing Posted Speed (mph)	35 (School Zone)	35 (School Zone)
Number of Observations	158	144
85 th Percentile (mph)	39	35
Off Peak Period		
Existing Posted Speed (mph)	50	50
Number of Observations	136	126
85 th Percentile (mph)	53	51

CR 171/KOHLERS CROSSING

POSTED SPEED LIMIT = 50 MPH

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SPEED LIMITS AND
SPEED DATA RESULTS

Barton Middle School
and Hays High School
Traffic Study

RPS Klotz Proj. No: 007570
Scale: NTS
Date: June 2017

Exhibit
I

Table A1. 24 Hour Volumes - Northbound FM 2770 North of Kohlers Crossing

Date Began:
05/09/17

TIME	0:00	0:15	0:30	0:45	TOTAL
0:00	6	3	1	1	11
1:00	1	2	0	1	4
2:00	0	1	1	0	2
3:00	1	0	1	1	3
4:00	2	6	5	10	23
5:00	10	26	24	43	103
6:00	47	65	95	99	306
7:00	111	96	114	141	462
8:00	155	191	171	57	574
9:00	54	63	61	35	213
10:00	46	49	38	42	175
11:00	41	58	47	40	186
12:00	53	59	42	38	192
13:00	52	48	47	41	188
14:00	44	43	44	26	157
15:00	66	53	62	88	269
16:00	78	82	71	53	284
17:00	82	74	66	45	267
18:00	49	54	48	57	208
19:00	29	23	16	13	81
20:00	8	9	8	17	42
21:00	10	14	13	5	42
22:00	3	8	3	1	15
23:00	0	1	1	1	3
	TOTAL:				3,810

Figure A1. 24 Hour Volumes - Northbound FM 2770 North of Kohlers Crossing

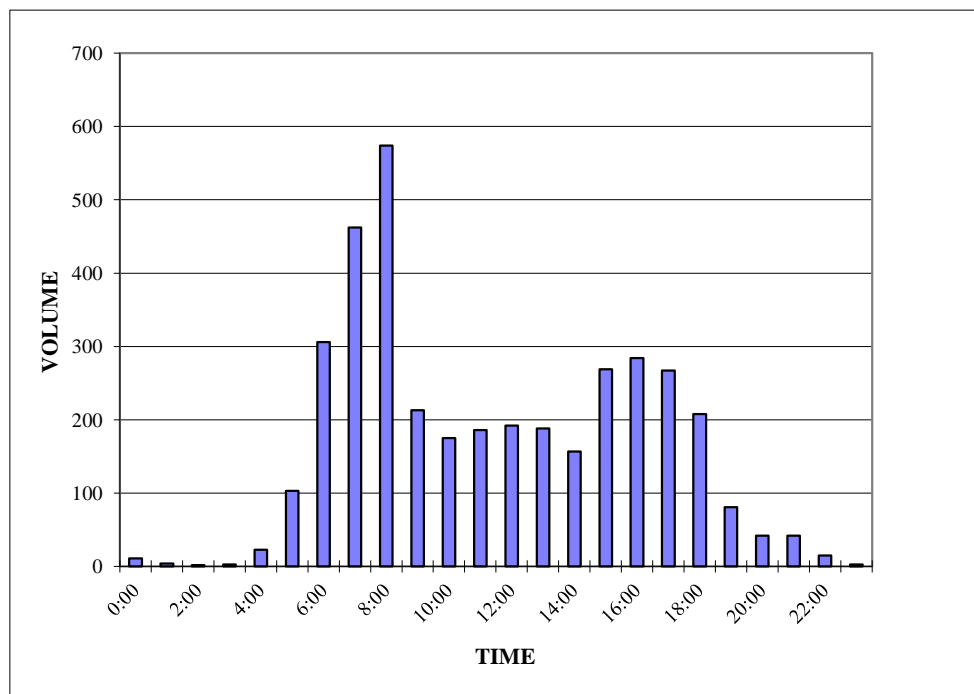
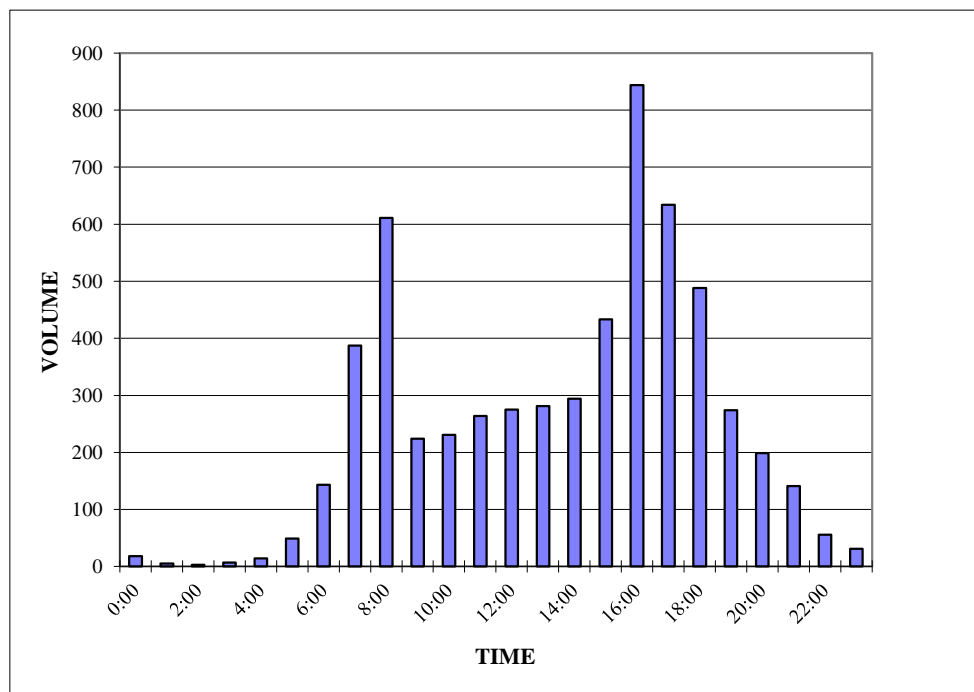


Table A2. 24 Hour Volumes - Southbound FM 2770 North of Kohlers Crossing

Date Began:
05/09/17

TIME	0:00	0:15	0:30	0:45	TOTAL
0:00	10	2	4	2	18
1:00	1	3	0	1	5
2:00	1	2	0	0	3
3:00	1	2	0	4	7
4:00	1	3	2	8	14
5:00	10	9	16	14	49
6:00	15	27	49	52	143
7:00	67	85	109	126	387
8:00	154	192	181	84	611
9:00	54	63	58	49	224
10:00	60	52	47	72	231
11:00	56	71	72	65	264
12:00	74	54	72	75	275
13:00	63	79	68	71	281
14:00	73	66	82	73	294
15:00	76	151	108	98	433
16:00	145	252	264	183	844
17:00	183	148	164	139	634
18:00	107	117	141	123	488
19:00	111	72	42	49	274
20:00	70	50	35	44	199
21:00	41	44	34	22	141
22:00	21	11	11	13	56
23:00	7	7	7	10	31
TOTAL:					5,906

Figure A2. 24 Hour Volumes - Southbound FM 2770 North of Kohlers Crossing





RADAR MOTOR VEHICLE SPEED
Field Tally Sheet

Location #1

Form 1882
(Rev. 02/12)
Page 1 of 2

Date: 5/16 County: Hays Hwy: FM 2770 Location: Hays High School

Time (from): 7:57 (to): 8:35 Weather: Cloudy

Surface type: Asphalt Surface condition: ☐ Wet or ☒ Dry / ☒ Smooth or ☐ Rough

M.P.H.	AUTOMOBILES	M.P.H.	AUTOMOBILES	M.P.H.	AUTOMOBILES	M.P.H.
	Direction: <u>NB</u>		Direction: <u>SB</u>		Direction:	
>80						>80
79						79
78						78
77						77
76						76
75						75
74						74
73						73
72						72
71						71
70						70
69						69
68						68
67						67
66						66
65						65
64						64
63						63
62						62
61						61
60						60
59						59
58						58
57						57
56						56
55						55
54						54
53						53
52						52
51						51
50						50
49			I			49
48	I	158			144	48
47	I	157				47
46						46
45						45
44	I	156				44
43	I	155	I		143	43
42	IIII	154				42
41	IIII	150				41
40	IIII	148	III		142	40
39	IIII	138				39
38	IIII	131	IIII		139	38
37	IIII	124	IIII		132	37
36	IIII	114	IIII		129	36
35	IIII	107	IIII		123	35
34	IIII	98	IIII		111	34
33	IIII	80	IIII		98	33
32	IIII	66	IIII		79	32
31	IIII	56	IIII		56	31
<30	IIII	46	IIII		41	<30
Total Automobiles		153	Total Automobiles		144	
x 0.85			x 0.85			
85th Percentile Automobile:		134	85th Percentile Automobile:		122	
85th Percentile Speed (m.p.h.):		39	85th Percentile Speed (m.p.h.):		35	



RADAR MOTOR VEHICLE SPEED
Field Tally Sheet

Location #1

Form 1882
(Rev. 02/12)
Page 1 of 2

Date: 5/16 County: Hays Hwy: FM 2770 Location: Hays High School

Time (from): 10:10 (to): 11:10 Weather: Cloudy

Surface type: Asphalt Surface condition: ☐ Wet or ☒ Dry / ☒ Smooth or ☐ Rough

M.P.H.	AUTOMOBILES	M.P.H.	AUTOMOBILES	M.P.H.	AUTOMOBILES	M.P.H.
	Direction: <u>NB</u>		Direction: <u>SB</u>		Direction:	Direction:
>80						>80
79						79
78						78
77						77
76						76
75						75
74						74
73						73
72						72
71						71
70						70
69						69
68						68
67						67
66						66
65						65
64						64
63						63
62						62
61						61
60		136				60
59		135				59
58		133		126		58
57		129		125		57
56		126		124		56
55		124		123		55
54		121		119		54
53		116		117		53
52		114		111		52
51		102		107		51
50		98		91		50
49		90		78		49
48		83		59		48
47		68		50		47
46		54		40		46
45		44		36		45
44		40		27		44
43		29		19		43
42		20		13		42
41		17		9		41
40		11		5		40
39		6		4		39
38				1		38
37		4				37
36						36
35						35
34						34
33						33
32						32
31						31
<30		1				<30
Total Automobiles		136	Total Automobiles		126	
		x 0.85			x 0.85	
85th Percentile Automobile:		116	85th Percentile Automobile:		107	
85th Percentile Speed (m.p.h.):		93	85th Percentile Speed (m.p.h.):		51	



RADAR MOTOR VEHICLE SPEED
Field Tally Sheet

Location #2

Form 1882
(Rev. 02/12)
Page 1 of 2

Date: 5/23 County: Hays Hwy: FM 2770 Location: Barton Middle School

Time (from): 8:05 (to): 8:40 Weather: Overcast

Surface type: Asphalt Surface condition: ☐ Wet or ☒ Dry / ☒ Smooth or ☐ Rough

M.P.H.	AUTOMOBILES	M.P.H.	AUTOMOBILES	M.P.H.	AUTOMOBILES	M.P.H.
	Direction: <u>NB</u>		Direction: <u>SB</u>		Direction:	Direction:
>80						>80
79						79
78						78
77						77
76						76
75						75
74						74
73						73
72						72
71						71
70						70
69						69
68						68
67						67
66						66
65						65
64						64
63						63
62						62
61						61
60						60
59						59
58						58
57						57
56						56
55						55
54						54
53						53
52						52
51						51
50						50
49						49
48						48
47						47
46						46
45		151			127	45
44		150			124	44
43					123	43
42					122	42
41		149			120	41
40		148			117	40
39		145			111	39
38		144			102	38
37		141			97	37
36		138			91	36
35		131			79	35
34		122			72	34
33		113			62	33
32		101			51	32
31		91			40	31
<30		82			35	<30
	Total Automobiles	151	Total Automobiles	127		
		x 0.85		x 0.85		
	85th Percentile Automobile:	128	85th Percentile Automobile:	108		
	85th Percentile Speed (m.p.h.):	35	85th Percentile Speed (m.p.h.):	40		



RADAR MOTOR VEHICLE SPEED
Field Tally Sheet

Form 1882
(Rev. 02/12)
Page 1 of 2

Location #2

Date: 5/23 County: HAYS Hwy: FM 2770 Location: Barton Middle School

Time (from): 10:30 (to): 11:20 Weather: Sunny / Cloudy

Surface type: Asphalt Surface condition: ☐ Wet or ☒ Dry / ☒ Smooth or ☐ Rough

M.P.H.	AUTOMOBILES	M.P.H.	AUTOMOBILES	M.P.H.	AUTOMOBILES	M.P.H.
	Direction: <u>NB</u>		Direction: <u>SB</u>		Direction:	Direction:
>80						>80
79						79
78						78
77						77
76						76
75						75
74						74
73						73
72						72
71						71
70						70
69						69
68						68
67						67
66						66
65						65
64						64
63						63
62						62
61						61
60						60
59				141		59
58				140		58
57						57
56				139		56
55				137		55
54						54
53				135		53
52				134		52
51				133		51
50				132		50
49		131		129		49
48				124		48
47		130		118		47
46				114		46
45		124		106		45
44		121		95		44
43		113		85		43
42		106		76		42
41		92		68		41
40		79		56		40
39		69		48		39
38		56		35		38
37		47		24		37
36		35		15		36
35		26		7		35
34		18		4		34
33		14		3		33
32		9				32
31		7				31
<30		5		2		<30
Total Automobiles		151	Total Automobiles		141	
		x 0.85			x 0.85	
85th Percentile Automobile:		111	85th Percentile Automobile:		120	
85th Percentile Speed (m.p.h.):		43	85th Percentile Speed (m.p.h.):		48	