



**CENTRAL TEXAS
Regional Mobility Authority**

AGENDA ITEM #5 SUMMARY

Authorize installation of traffic signals at the intersection of Scottsdale Drive with the northbound and southbound 183A frontage roads.

Strategic Plan Relevance: Regional Mobility

Department: Engineering

Associated Costs: approximately \$200,000

Funding Source: General Funds (\$100,000 is to be reimbursed by Developer, Pecan Grove - SPVEF, L.P., to the Mobility Authority per an executed Developer's Agreement for the signal at Scottsdale Drive)

Board Action Required: Yes

Description of Matter: The intersection of 183A and Scottsdale Drive is currently stop-controlled. A Traffic Signal Warrant Analysis was performed in September 2013 and indicates that a signal is warranted.

The results of the warrant are based on the data collected in accordance with the TxDOT standard process for signals. The vehicular volume criteria (Warrant 2 - Four-Hour Vehicular Volume) and peak hour criteria (Warrant 3 - Peak Hour) were met. It is recommended that a traffic signal be installed.

Reference documentation: Traffic Signal Warrant
Developer's Agreement with Pecan Grove

Contact for further information: Wesley M. Burford, P.E., Director of Engineering

**GENERAL MEETING OF THE BOARD OF DIRECTORS
OF THE
CENTRAL TEXAS REGIONAL MOBILITY AUTHORITY**

RESOLUTION NO. 14-___

**AUTHORIZING INSTALLATION OF TRAFFIC SIGNALS AT
THE INTERSECTION OF SCOTTSDALE DRIVE WITH THE NORTHBOUND
AND SOUTHBOUND 183A FRONTAGE ROADS**

WHEREAS, under that certain Development Agreement between the Mobility Authority and Pecan Grove – SPVEF, L.P. (the “Developer”), effective March 8, 2013, the Developer has agreed to pay \$100,000.00 towards the cost of installing a traffic signal at the intersection of the northbound 183A frontage road and Scottsdale Drive when the Mobility Authority determines that the installation of the traffic signal is warranted; and

WHEREAS, the Director of Engineering has recently completed an engineering and traffic study for the intersection of the 183A frontage roads and Scottsdale Drive to determine if traffic signals at the intersections are now warranted; and

WHEREAS, based on the results of the engineering and traffic study and the resources now available to the Mobility Authority, the Executive Director recommends the installation of traffic signals at the intersections of the 183A frontage roads and Scottsdale Drive.

NOW, THEREFORE, BE IT RESOLVED that the Board hereby approves the installation of traffic signals at the intersection of the 183A frontage roads and Scottsdale Drive as recommended by the Executive Director, and authorizes and directs the Executive Director to complete the installation of those traffic signals within a reasonable time.

Adopted by the Board of Directors of the Central Texas Regional Mobility Authority on the 26th day of February, 2014.

Submitted and reviewed by:

Approved:

Andrew Martin
General Counsel for the Central
Texas Regional Mobility Authority

Ray A. Wilkerson
Chairman, Board of Directors
Resolution Number: 14-___
Date Passed: 02/26/14

Traffic Signal Warrant
183A Frontage Road
And Scottsdale Drive



CENTRAL TEXAS
Regional Mobility Authority



[Handwritten signature] 2-14-14

February 2014

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I. PROJECT DESCRIPTION

This report presents a summary of findings for a Traffic Signal Warrant Analysis performed by HNTB Corporation, Inc. for the intersection of 183A Frontage Road and Scottsdale Drive in Cedar Park, Williamson County, Texas. A Site Location Map has been included in the Appendix of this report as *Exhibit 1*.

In order to conduct the signal warrant analysis 24-hour traffic counts were collected for the intersection of 183A and Scottsdale Drive on September 18-19, 2013. In addition to the 24-hour traffic counts, turning movements counter were collected on September 19, 2013 and updated turning movement counts were collected on December 13, 2013. This data can be found in the Appendix of this report as *Exhibit 2*. A site visit was also conducted to observe the geometric configuration of the intersection as well as any unique characteristics about the approaches.

The intersection of 183A and Scottsdale Drive is currently a diamond interchange with the frontage road divided with 183A mainlanes. The 183A northbound and southbound frontage roads speed limit is 60 mph and Scottsdale Drive approach is 25 mph. Scottsdale Drive approach is currently stop-controlled at both intersections.

II. ANALYSIS

The 2011 Texas Manual on Uniform Traffic Control Devices (TMUTCD) strongly recommends at least one warrant be met prior to the installation of a traffic signal. These warrants are summarized as follows:

- | | |
|--------------------------------|---------------------------------------|
| 1. Eight-Hour Vehicular Volume | 5. School Crossing |
| 2. Four-Hour Vehicular Volume | 6. Coordinated Signal System |
| 3. Peak Hour | 7. Crash Experience |
| 4. Pedestrian Volume | 8. Roadway Network |
| | 9. Intersection Near a Grade Crossing |

Below are the TMUTCD descriptions of the Traffic Signal Warrants. In addition to the descriptions, TMUTCD also considers sound engineering judgment and recommendations as enough evidence to warrant the necessity of a traffic signal.

A. Warrant 1 – Eight-Hour Vehicular Volume

This warrant involves three (3) conditions (A, B, or a combination of A and B) which can individually satisfy the conditions of Warrant 1. Condition A is the Minimum Vehicular Volume which is intended for application at locations where a large volume of intersecting traffic is the principal reason to consider installing a traffic control signal. Condition B is the Interruption of Continuous Traffic which is intended for application where the traffic volume on a major street is so heavy that traffic on a minor street suffers excessively.

B. Warrant 2 – Four-Hour Vehicular Volume

This warrant is intended to be applied where the volumes of intersecting traffic is the principal reason to consider installing a traffic control signal.

C. Warrant 3 – Peak Hour

This warrant is intended for use at a location where traffic conditions are such that for a minimum of one (1) hour of an average day, the minor-street traffic suffers undue delay when entering or crossing the major street.

D. Warrant 4 – Pedestrian Volume

This warrant is intended for application where the traffic volume on a major street is so heavy that pedestrians experience excessive delay in crossing the major street.

E. Warrant 5 – School Crossing

This warrant is intended for application where the fact that school children cross the major street is the principal reason to consider installing a traffic control signal.

F. Warrant 6 – Coordinated Signal System

This warrant is when progressive movement in a coordinated signal system sometimes necessitates installing traffic control signals at intersections where they would not otherwise be needed in order to maintain proper platooning of vehicles.

G. Warrant 7 – Crash Experience

This warrant is intended for application where the severity and frequency of crashes are the principal reasons to consider installing a traffic control signal.

H. Warrant 8 – Roadway Network

This warrant is analyzed when installing a traffic control signal at some intersections might be justified to encourage concentration and organization of traffic flow on a roadway.

I. Warrant 9 – Intersection Near a Grade Crossing

This warrant is analyzed when installing a traffic control signal at some intersections might be justified to encourage concentration and organization of traffic flow on a roadway.

III. RESULTS AND RECOMMENDATIONS

The following results and recommendations are based on data that has been collected, standards set by the TMUTCD. Due to the high volume of accidents, Warrant 7 was analyzed but did not meet the minimum volumes criteria. Warrants 2 (Four-hour Vehicular Volume) and 3 (Peak Hour) satisfied the volume criteria set by TMUTCD therefore a traffic signal installation is recommended to be installed. For analysis purposes, Scottsdale Drive was evaluated as a single lane approach and the WB right turning vehicles were not considered because the right-turn lane is currently free-flowing. Please refer to *Exhibit 3* within the Appendix of this report for the detailed Signal Warrant Worksheets.

APPENDIX

EXHIBIT 1

SITE LOCATION MAP

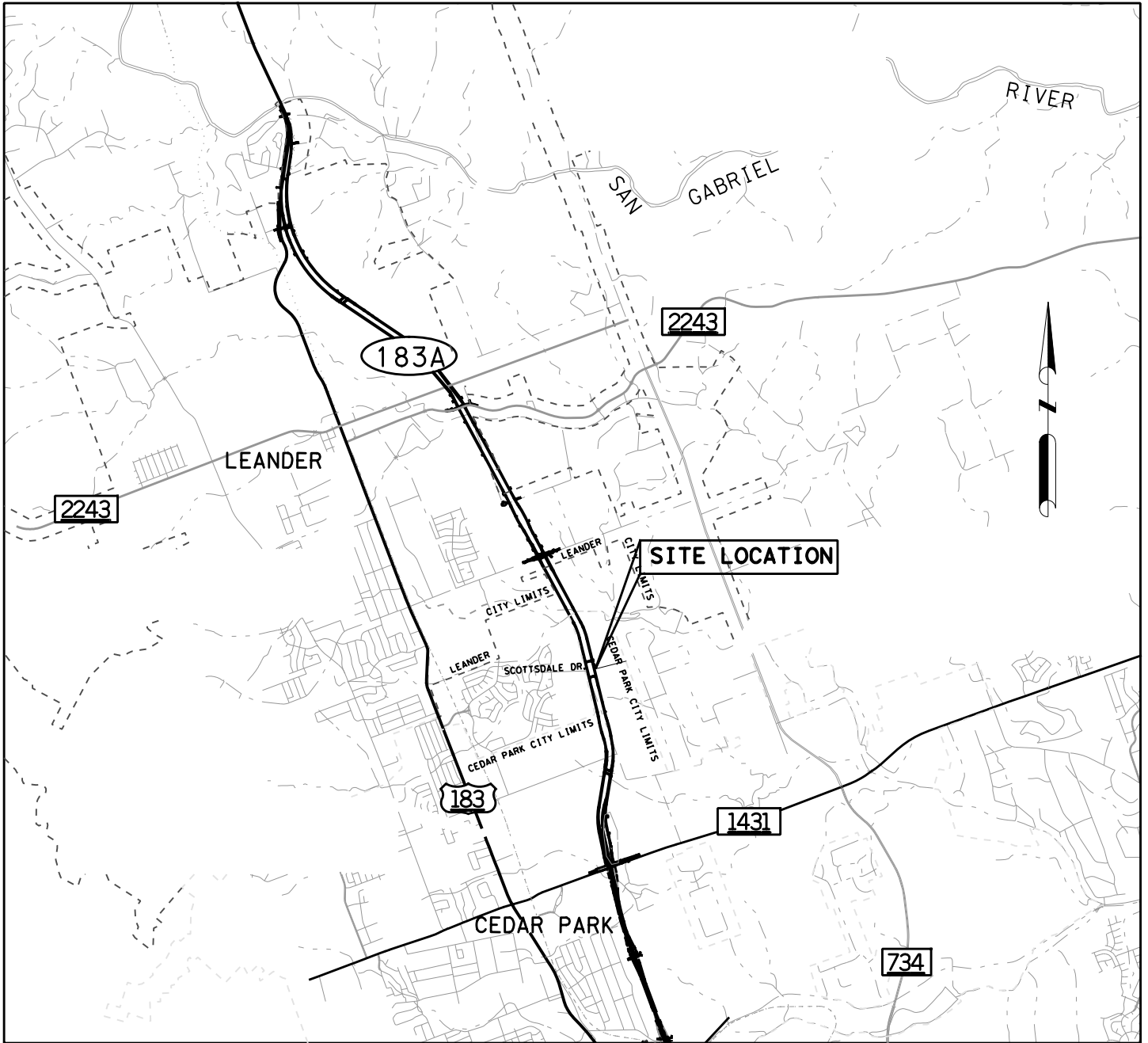


EXHIBIT 1
SITE LOCATION

EXHIBIT 2

24-HOUR TRAFFIC COUNTS

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1				GRAM Traffic, Inc.											Page 1	
2				21220 Jakes Hill Rd												
3				Hutto, TX 78634												
4				51											Scottsdale Dr	
5															Just east of Northbound Frontage	
6															Site Code:	
7																
8																
9																
10		18-Sep-13	Eastbound	Hour Totals		Westbound		Hour Totals		Combined Totals						
11		Wed	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon				
12	12:00		0	2			0	4								
13	12:15		0	3			0	2								
14	12:30		0	7			0	4								
15	12:45		0	3	0	15	0	1	0	11	0	26				
16	01:00		0	2			0	1								
17	01:15		0	4			0	2								
18	01:30		0	10			0	2								
19	01:45		0	2	0	18	0	4	0	9	0	27				
20	02:00		0	2			0	4								
21	02:15		0	7			0	3								
22	02:30		2	3			1	3								
23	02:45		0	0	2	12	0	2	1	12	3	24				
24	03:00		0	5			0	0								
25	03:15		0	4			0	6								
26	03:30		0	0			0	2								
27	03:45		0	4	0	13	0	1	0	9	0	22				
28	04:00		0	0			0	4								
29	04:15		0	2			0	1								
30	04:30		0	0			0	2								
31	04:45		0	3	0	5	0	1	0	8	0	13				
32	05:00		0	0			0	1								
33	05:15		0	2			0	3								
34	05:30		2	4			0	2								
35	05:45		2	3	4	9	0	1	0	7	4	16				
36	06:00		0	0			0	2								
37	06:15		0	2			0	2								
38	06:30		2	0			0	2								
39	06:45		1	4	3	6	0	2	0	8	3	14				
40	07:00		1	0			0	3								
41	07:15		2	0			1	0								
42	07:30		0	0			0	0								
43	07:45		3	0	6	0	0	1	1	4	7	4				
44	08:00		4	0			2	0								
45	08:15		0	0			1	0								
46	08:30		2	0			0	0								
47	08:45		5	0	11	0	0	0	3	0	14	0				
48	09:00		6	0			1	0								
49	09:15		4	0			0	0								
50	09:30		6	0			0	0								
51	09:45		6	0	22	0	4	0	5	0	27	0				
52	10:00		0	0			2	0								
53	10:15		0	0			2	0								
54	10:30		2	0			5	0								
55	10:45		4	0	6	0	4	0	13	0	19	0				
56	11:00		5	0			0	0								
57	11:15		2	0			0	0								
58	11:30		5	0			4	0								
59	11:45		2	0	14	0	0	0	4	0	18	0				
60	Total		68	78			27	68			95	146				
61	Percent		46.6%	53.4%			28.4%	71.6%			39.4%	60.6%				

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	
1				GRAM Traffic, Inc.											Page 1		
2				21220 Jakes Hill Rd													
3				Hutto, TX 78634													
4				51											Scottsdale Dr		
5														In between NB and SB Frontage R			
6														Site Code:			
7																	
8																	
9																	
10		18-Sep-13	Westbound	Hour Totals		Eastbound		Hour Totals		Combined Totals							
11		Wed	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon					
12	12:00		2	30			2	7									
13	12:15		5	30			0	7									
14	12:30		5	24			0	12									
15	12:45		1	33	13	117	1	24	3	50	16	167					
16	01:00		4	26			1	10									
17	01:15		3	37			0	17									
18	01:30		1	39			0	10									
19	01:45		3	34	11	136	0	8	1	45	12	181					
20	02:00		0	27			0	9									
21	02:15		1	42			0	8									
22	02:30		3	39			0	8									
23	02:45		1	40	5	148	0	3	0	28	5	176					
24	03:00		3	41			0	8									
25	03:15		0	42			0	8									
26	03:30		1	50			0	10									
27	03:45		0	48	4	181	0	11	0	37	4	218					
28	04:00		0	60			1	4									
29	04:15		0	70			1	7									
30	04:30		0	71			1	8									
31	04:45		4	80	4	281	1	5	4	24	8	305					
32	05:00		1	79			2	9									
33	05:15		1	98			1	11									
34	05:30		3	114			4	16									
35	05:45		7	90	12	381	1	24	8	60	20	441					
36	06:00		3	73			3	19									
37	06:15		8	70			6	21									
38	06:30		6	63			16	14									
39	06:45		2	55	19	261	21	9	46	63	65	324					
40	07:00		4	60			39	7									
41	07:15		18	60			23	8									
42	07:30		9	62			28	8									
43	07:45		9	63	40	245	39	6	129	29	169	274					
44	08:00		18	66			36	7									
45	08:15		8	56			54	3									
46	08:30		7	49			25	4									
47	08:45		15	52	48	223	19	5	134	19	182	242					
48	09:00		14	49			7	7									
49	09:15		16	45			4	4									
50	09:30		4	32			8	5									
51	09:45		20	27	54	153	3	1	22	17	76	170					
52	10:00		12	19			6	3									
53	10:15		17	18			2	1									
54	10:30		12	13			10	1									
55	10:45		27	13	68	63	2	0	20	5	88	68					
56	11:00		20	6			7	0									
57	11:15		21	16			1	0									
58	11:30		21	9			9	1									
59	11:45		31	6	93	37	5	1	22	2	115	39					
60	Total			371	2226		389	379			760	2605					
61	Percent			14.3%	85.7%		50.7%	49.3%			22.6%	77.4%					

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1																
2								GRAM Traffic, Inc. 21220 Jakes Hill Rd Hutto, TX 78634 512-832-8650						Page 2		
3																
4																
5														Scottsdale Dr		
6														In between NB and SB Frontage R		
7														Site Code:		
8																
9																
10		19-Sep-13	Westbound	Hour Totals		Eastbound		Hour Totals		Combined Totals						
11		Thu	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon				
12	12:00		11	27			0	5								
13	12:15		10	22			1	2								
14	12:30		4	29			0	5								
15	12:45		9	22	34	100	2	5	3	17	37	117				
16	01:00		7	25			1	6								
17	01:15		5	24			0	6								
18	01:30		10	26			0	7								
19	01:45		1	32	23	107	0	6	1	25	24	132				
20	02:00		2	25			0	4								
21	02:15		2	47			0	5								
22	02:30		2	31			0	7								
23	02:45		0	37	6	140	0	11	0	27	6	167				
24	03:00		2	33			0	12								
25	03:15		1	39			0	10								
26	03:30		0	24			1	17								
27	03:45		0	42	3	138	0	21	1	60	4	198				
28	04:00		0	58			2	21								
29	04:15		1	60			0	7								
30	04:30		1	55			0	16								
31	04:45		5	73	7	246	2	16	4	60	11	306				
32	05:00		1	88			1	18								
33	05:15		1	106			1	18								
34	05:30		3	93			4	19								
35	05:45		4	97	9	384	2	27	8	82	17	466				
36	06:00		6	73			2	18								
37	06:15		6	69			4	22								
38	06:30		5	82			10	13								
39	06:45		8	64	25	288	16	14	32	67	57	355				
40	07:00		13	51			25	12								
41	07:15		15	55			45	4								
42	07:30		14	54			27	2								
43	07:45		16	58	58	218	35	4	132	22	190	240				
44	08:00		9	71			41	5								
45	08:15		11	51			62	7								
46	08:30		14	45			31	2								
47	08:45		15	34	49	201	11	10	145	24	194	225				
48	09:00		7	43			8	5								
49	09:15		10	35			1	5								
50	09:30		15	34			6	2								
51	09:45		12	35	44	147	3	2	18	14	62	161				
52	10:00		8	23			5	1								
53	10:15		10	23			6	2								
54	10:30		16	16			9	0								
55	10:45		11	17	45	79	5	1	25	4	70	83				
56	11:00		19	8			3	2								
57	11:15		11	6			4	0								
58	11:30		16	10			6	2								
59	11:45		27	10	73	34	2	1	15	5	88	39				
60	Total		376	2082			384	407			760	2489				
61	Percent		15.3%	84.7%			48.5%	51.5%			23.4%	76.6%				
63	Grand Total		747	4308			773	786			1520	5094				
64	Percent		14.8%	85.2%			49.6%	50.4%			23.0%	77.0%				

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1				GRAM Traffic, Inc.											Page 1
2				21220 Jakes Hill Rd											
3				Hutto, TX 78634											
4				51											
5															Scottsdale Dr
6															Between 183A S
7															Site Code:
8															
9															
10		18-Sep-13	Eastbound		Hour Totals		Westbound		Hour Totals		Combined Totals				
11		Wed	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon			
12	12:00			4	52			3	47						
13	12:15			1	59			5	59						
14	12:30			0	49			2	74						
15	12:45			2	47	7	207	3	42	13	222	20	429		
16	01:00			2	37			0	35						
17	01:15			0	48			1	40						
18	01:30			0	35			3	44						
19	01:45			1	36	3	156	0	48	4	167	7	323		
20	02:00			1	54			3	44						
21	02:15			1	42			0	53						
22	02:30			2	50			1	47						
23	02:45			7	56	11	202	0	59	4	203	15	405		
24	03:00			5	35			0	69						
25	03:15			7	51			1	78						
26	03:30			8	44			2	85						
27	03:45			17	45	37	175	3	94	6	326	43	501		
28	04:00			13	49			2	86						
29	04:15			25	70			2	105						
30	04:30			36	68			4	115						
31	04:45			34	80	108	267	10	91	18	397	126	664		
32	05:00			50	71			4	87						
33	05:15			91	76			10	76						
34	05:30			121	74			12	77						
35	05:45			131	58	393	279	20	56	46	296	439	575		
36	06:00			191	34			25	65						
37	06:15			135	48			40	58						
38	06:30			143	37			32	74						
39	06:45			144	35	613	154	21	78	118	275	731	429		
40	07:00			146	31			30	88						
41	07:15			152	28			23	63						
42	07:30			93	30			37	54						
43	07:45			78	32	469	121	28	63	118	268	587	389		
44	08:00			52	33			21	54						
45	08:15			55	20			22	49						
46	08:30			55	17			8	42						
47	08:45			43	9	205	79	20	29	71	174	276	253		
48	09:00			27	13			17	18						
49	09:15			29	8			19	20						
50	09:30			40	7			16	15						
51	09:45			36	4	132	32	26	13	78	66	210	98		
52	10:00			33	3			25	9						
53	10:15			29	2			19	16						
54	10:30			37	4			30	9						
55	10:45			40	7	139	16	42	6	116	40	255	56		
56	11:00			44	5			27	12						
57	11:15			43	7			31	10						
58	11:30			49	1			35	4						
59	11:45			65	6	201	19	38	9	131	35	332	54		max
60	Total			2318	1707			723	2469			3041	4176		
61	Percent			57.6%	42.4%			22.7%	77.3%			42.1%	57.9%		

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1				GRAM Traffic, Inc.										Page 2
2				21220 Jakes Hill Rd										
3				Hutto, TX 78634										
4				512-832-8650										
5														Scottsdale
6														Between 18
7														Site Code:
8														
9														
10		19-Sep-13	Eastbound		Hour Totals		Westbound		Hour Totals		Combined Totals			
11		Thu	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon		
12	12:00		5	35			8	31						
13	12:15		3	26			5	27						
14	12:30		3	25			10	31						
15	12:45		1	30	12	116	2	32	25	121	37	237		
16	01:00		3	39			2	28						
17	01:15		2	35			2	50						
18	01:30		2	46			2	34						
19	01:45		2	28	9	148	0	44	6	156	15	304		
20	02:00		1	62			3	42						
21	02:15		1	36			1	40						
22	02:30		2	48			0	35						
23	02:45		3	52	7	198	0	57	4	174	11	372		
24	03:00		4	53			1	84						
25	03:15		11	50			1	96						
26	03:30		4	60			2	76						
27	03:45		16	57	35	220	4	92	8	348	43	568		
28	04:00		13	73			0	103						
29	04:15		19	93			1	122						
30	04:30		26	72			4	102						
31	04:45		39	87	97	325	5	100	10	427	107	752		
32	05:00		44	74			7	84						
33	05:15		100	78			9	89						
34	05:30		97	66			10	100						
35	05:45		137	54	378	272	28	70	54	343	432	615		
36	06:00		158	49			29	70						
37	06:15		168	40			24	81						
38	06:30		138	32			34	67						
39	06:45		154	30	618	151	30	62	117	280	735	431		
40	07:00		142	42			24	81						
41	07:15		159	22			37	61						
42	07:30		101	17			38	58						
43	07:45		85	33	487	114	35	40	134	240	621	354		
44	08:00		58	26			12	54						
45	08:15		42	19			15	45						
46	08:30		42	13			14	36						
47	08:45		55	9	197	67	18	40	59	175	256	242		
48	09:00		37	14			18	29						
49	09:15		45	12			16	23						
50	09:30		40	6			18	16						
51	09:45		41	5	163	37	13	17	65	85	228	122		
52	10:00		36	4			21	12						
53	10:15		34	4			16	7						
54	10:30		30	7			21	9						
55	10:45		24	5	124	20	31	12	89	40	213	60		
56	11:00		35	1			31	6						
57	11:15		36	4			25	4						
58	11:30		33	2			32	4						
59	11:45		44	5	148	12	29	13	117	27	265	39		
60	Total		2275	1680			688	2416			2963	4096		
61	Percent		57.5%	42.5%			22.2%	77.8%			42.0%	58.0%		
63	Grand Total		4593	3387			1411	4885			6004	8272		
64	Percent		57.6%	42.4%			22.4%	77.6%			42.1%	57.9%		

GRAM Traffic, Inc.

21220 Jakes Hill Rd
Hutto, TX 78634
512-832-8650

File Name : Scottsdale-NBpm
Site Code : 00000003
Start Date : 9/19/2013
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Start Time	Southbound						Scottsdale Westbound						US 183A Frontage Northbound						Scottsdale Eastbound					
	Left	Thru	Right	Peds	App. Total	Int. Total	Left	Thru	Right	Peds	App. Total	Int. Total	Left	Thru	Right	Uturn	App. Total	Int. Total	Left	Thru	Right	Peds	App. Total	Int. Total
15:30	0	0	0	0	0	0	2	1	2	0	4	34	97	102	1	0	132	16	0	0	0	0	16	152
15:45	0	0	0	0	0	0	1	0	0	1	53	102	159	22	0	159	22	0	0	0	0	22	182	
Total	0	0	0	0	0	0	3	2	2	0	5	87	199	2	3	291	38	0	0	0	0	38	334	
16:00	0	0	0	0	0	0	1	0	0	1	42	93	94	1	0	136	14	0	0	0	0	14	151	
16:15	0	0	0	0	0	0	0	0	0	0	75	94	172	9	2	172	9	0	0	0	0	9	181	
16:30	0	0	0	0	0	0	0	1	0	1	76	140	220	7	2	220	7	0	0	0	0	7	228	
16:45	0	0	0	0	0	0	2	0	0	2	72	161	236	28	2	236	28	0	0	0	0	28	266	
Total	0	0	0	0	0	0	3	1	0	4	265	488	764	58	6	764	58	0	0	0	0	58	826	
17:00	0	0	0	0	0	0	4	0	0	4	77	148	225	20	0	225	20	0	0	0	0	20	249	
17:15	0	0	0	0	0	0	1	0	0	1	100	167	268	21	1	268	21	0	0	0	0	22	291	
17:30	0	0	0	0	0	0	0	0	0	0	90	161	252	21	1	252	21	0	0	0	0	21	273	
17:45	0	0	0	0	0	0	0	0	0	0	81	124	207	15	2	207	15	1	0	0	0	16	223	
Total	0	0	0	0	0	0	5	0	0	5	348	600	952	77	4	952	77	2	0	0	0	79	1036	
18:00	0	0	0	0	0	0	0	1	0	1	82	130	215	20	3	215	20	0	0	0	0	20	236	
18:15	0	0	0	0	0	0	0	0	0	0	59	127	190	15	4	190	15	0	0	0	0	15	205	
18:30	0	0	0	0	0	0	0	0	0	0	86	108	196	12	2	196	12	0	0	0	0	12	208	
18:45	0	0	0	0	0	0	0	0	0	0	63	91	155	9	0	155	9	0	0	0	0	9	164	
Total	0	0	0	0	0	0	0	1	0	1	290	456	756	56	9	756	56	0	0	0	0	56	813	
19:00	0	0	0	0	0	0	2	1	0	3	61	104	168	7	2	168	7	1	0	0	0	8	179	
19:15	0	0	0	0	0	0	2	0	0	2	43	85	129	8	1	129	8	2	0	0	0	10	141	
19:30	0	0	0	0	0	0	2	0	0	2	53	90	144	5	0	144	5	1	0	0	0	6	152	
19:45	0	0	0	0	0	0	0	1	0	1	52	63	115	9	0	115	9	2	0	0	0	11	127	
Total	0	0	0	0	0	0	6	2	0	8	209	342	556	29	3	556	29	6	0	0	0	35	599	
Grand Total	0	0	0	0	0	0	17	6	0	23	1199	2085	3319	258	25	3319	258	8	0	0	0	266	3608	
Approch %	0	0	0	0	0	0	73.9	26.1	0	0.6	36.1	62.8	97	7.2	0.8	97	7.2	3	0	0	0	7.4		
Total %	0	0	0	0	0	0	0.5	0.2	0	0.6	33.2	57.8	92	7.2	0.7	92	7.2	0.2	0	0	0	7.4		

GRAM Traffic, Inc.

21220 Jakes Hill Rd
Hutto, TX 78634
512-832-8650

File Name : Scottsdale-NBpm
Site Code : 00000003
Start Date : 9/19/2013
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Start Time	Southbound					Scottsdale Westbound					US 183A Frontage Northbound					Scottsdale Eastbound					Int. Total	
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Uturm	App. Total	Left	Thru	Right	Peds	App. Total		
Peak Hour Analysis From 15:30 to 19:45 - Peak 1 of 1																						
Peak Hour for Entire Intersection Begins at 16:45																						
16:45	0	0	0	0	0	0	2	0	0	0	2	72	161	1	2	236	28	0	0	0	28	266
17:00	0	0	0	0	0	0	4	0	0	4	77	148	0	0	225	20	0	0	0	0	20	249
17:15	0	0	0	0	0	0	1	0	0	1	100	167	0	1	268	21	1	0	0	0	22	291
17:30	0	0	0	0	0	0	0	0	0	0	90	161	0	1	252	21	0	0	0	0	21	273
Total Volume	0	0	0	0	0	0	7	0	0	7	339	637	1	4	981	90	1	0	0	0	91	1079
% App. Total	0	0	0	0	0	0	100	0	0	0	34.6	64.9	0.1	0.4	98.9	98.9	1.1	0	0	0	91.3	927
PHF	.000	.000	.000	.000	.000	.000	.438	.000	.000	.438	.848	.954	.250	.500	.915	.804	.250	.000	.000	.000	.813	.927
Peak Hour Analysis From 15:30 to 19:45 - Peak 1 of 1																						
Peak Hour for Each Approach Begins at:																						
15:30					16:30					16:45					16:45							
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	2	0	0	2	77	148	0	0	225	20	0	0	0	0	20	20
+30 mins.	0	0	0	0	0	0	4	0	0	4	100	167	0	1	268	21	1	0	0	0	22	22
+45 mins.	0	0	0	0	0	0	1	0	0	1	90	161	0	1	252	21	0	0	0	0	21	21
Total Volume	0	0	0	0	0	0	7	0	0	8	339	637	1	4	981	90	1	0	0	0	91	91
% App. Total	0	0	0	0	0	0	87.5	0	0	8	34.6	64.9	0.1	0.4	98.9	98.9	1.1	0	0	0	91	91
PHF	.000	.000	.000	.000	.000	.000	.438	.250	.000	.500	.848	.954	.250	.500	.915	.804	.250	.000	.000	.000	.813	.927

GRAM Traffic, Inc.

21220 Jakes Hill Rd
Hutto, TX 78634
512-832-8650

File Name : scottsdales-nbam
Site Code : 00000003
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Groups Printed- Autos

Start Time	Southbound					Scottsdale Westbound					US 183A Frontage Northbound					Scottsdale Eastbound									
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Uturn	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total				
06:00	0	0	0	0	0	0	0	0	0	0	4	19	0	0	0	2	35	5	0	0	2	25			
06:15	0	0	0	0	0	0	0	0	0	0	2	32	0	1	1	35	5	0	0	0	5	40			
06:30	0	0	0	0	0	0	0	0	0	0	6	21	2	0	0	29	15	0	0	0	15	44			
06:45	0	0	0	0	0	0	0	0	0	0	11	32	0	0	0	43	15	0	0	0	15	58			
Total	0	0	0	0	0	0	0	0	0	0	23	104	2	1	1	130	37	0	0	0	37	167			
07:00	0	0	0	0	0	0	0	0	0	0	7	39	1	1	2	49	23	0	0	0	23	72			
07:15	0	0	0	0	0	0	0	0	0	0	10	50	0	3	3	63	36	0	0	0	36	99			
07:30	0	0	0	0	0	0	0	0	0	0	9	75	0	0	0	84	32	0	0	0	32	116			
07:45	0	0	0	0	0	0	0	0	0	0	14	74	0	3	3	91	52	0	0	0	52	143			
Total	0	0	0	0	0	0	0	0	0	0	40	238	1	8	8	287	143	0	0	0	143	430			
08:00	0	0	0	0	0	0	0	0	0	0	12	75	1	1	1	89	33	0	0	0	33	122			
08:15	0	0	0	0	0	0	0	0	0	0	15	76	2	3	3	96	46	1	0	0	47	143			
08:30	0	0	0	0	0	0	0	0	0	0	9	48	1	0	0	58	47	0	0	0	47	105			
08:45	0	0	0	0	0	0	0	0	0	0	14	38	1	0	0	53	10	0	0	0	10	63			
Total	0	0	0	0	0	0	0	0	0	0	50	237	5	4	4	296	136	1	0	0	137	433			
Grand Total	0	0	0	0	0	0	0	0	0	0	113	579	8	13	13	713	316	1	0	0	317	1030			
Approch %	0	0	0	0	0	0	0	0	0	0	15.8	81.2	1.1	1.8	1.8	99.7	99.7	0.3	0	0	30.8				
Total %	0	0	0	0	0	0	0	0	0	0	11	56.2	0.8	1.3	69.2	30.7	30.7	0.1	0	0	30.8				
Southbound											Scottsdale Westbound					US 183A Frontage Northbound					Scottsdale Eastbound				
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Uturn	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total				
Peak Hour Analysis From 06:00 to 08:45 - Peak 1 of 1																									
Peak Hour for Entire Intersection Begins at 07:30																									
07:30	0	0	0	0	0	0	0	0	0	0	9	75	0	0	0	84	32	0	0	0	32	116			
07:45	0	0	0	0	0	0	0	0	0	0	14	74	0	3	3	91	52	0	0	0	52	143			
08:00	0	0	0	0	0	0	0	0	0	0	12	75	1	1	1	89	33	0	0	0	33	122			
08:15	0	0	0	0	0	0	0	0	0	0	15	76	2	3	3	96	46	1	0	0	47	143			
Total Volume	0	0	0	0	0	0	0	0	0	0	50	300	3	7	7	360	163	1	0	0	164	524			
% App. Total	0	0	0	0	0	0	0	0	0	0	13.9	83.3	0.8	1.9	1.9	99.4	99.4	0.6	0	0	164	524			
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.833	.987	.375	.583	.938	.784	.250	.000	.000	.788	.916				

GRAM Traffic, Inc.

21220 Jakes Hill Rd
Hutto, TX 78634
512-832-8650

File Name : scottsdale-nbam
Site Code : 00000003
Start Date : 9/19/2013
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Start Time	Southbound					Scottsdale Westbound					US 183A Frontage Northbound					Scottsdale Eastbound					Int. Total																			
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Utturn	App. Total	Left	Thru	Right	Peds	App. Total																				
Peak Hour Analysis From 06:00 to 08:45 - Peak 1 of 1																																								
Peak Hour for Each Approach Begins at:																																								
	06:00										06:00										07:30										07:45									
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	75	0	0	0	84	52	0	0	0	52	0	0	0	0	52									
+15 mins.	0	0	0	0	0	0	0	0	0	0	14	74	0	0	3	14	74	0	0	3	91	33	0	0	0	33	0	0	0	0	33									
+30 mins.	0	0	0	0	0	0	0	0	0	0	12	75	1	1	1	12	75	1	1	1	89	46	1	0	0	47	1	0	0	0	47									
+45 mins.	0	0	0	0	0	0	0	0	0	0	15	76	2	3	3	15	76	2	3	3	96	47	0	0	0	47	0	0	0	0	47									
Total Volume	0	0	0	0	0	0	0	0	0	0	50	300	3	7	7	50	300	3	7	7	360	178	1	0	0	178	1	0	0	0	179									
% App. Total	0	0	0	0	0	0	0	0	0	0	13.9	83.3	0.8	1.9	1.9	13.9	83.3	0.8	1.9	1.9	99.4	99.4	0.6	0	0	99.4	0.6	0	0	0	99.4									
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.833	.987	.375	.583	.938	.833	.987	.375	.583	.938	.856	.250	.000	.000	.861	.856	.250	.000	.000	.861										

GRAM Traffic, Inc.

21220 Jakes Hill Rd
Hutto, TX 78634
512-832-8650

File Name : Scottsdale-SBpm
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Start Time	US 183A Frontage						Scottsdale						Scottsdale															
	Southbound			Westbound			Northbound			Eastbound			Southbound			Westbound			Northbound			Eastbound						
	Left	Thru	Right	Uturn	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total		
15:30	0	51	11	0	62	3	44	0	0	47	0	0	0	0	0	0	10	36	0	0	46	0	10	36	0	0	46	155
15:45	4	68	11	0	83	3	48	0	0	51	0	0	0	0	0	0	4	42	0	0	46	0	4	42	0	0	46	180
Total	4	119	22	0	145	6	92	0	0	98	0	0	0	0	0	0	14	78	0	0	92	0	14	78	0	0	92	335
16:00	0	78	10	0	88	1	56	0	0	57	0	0	0	0	0	0	6	33	0	0	39	0	6	33	0	0	39	184
16:15	0	70	14	0	84	2	62	0	0	64	0	0	0	0	0	0	5	36	0	0	41	0	5	36	0	0	41	189
16:30	0	69	14	0	83	0	68	0	0	68	0	0	0	0	0	0	10	26	0	0	36	0	10	26	0	0	36	187
16:45	0	86	19	2	107	0	78	0	0	78	0	0	0	0	0	0	5	44	0	0	49	0	5	44	0	0	49	234
Total	0	303	57	2	362	3	264	0	0	267	0	0	0	0	0	0	26	139	0	0	165	0	26	139	0	0	165	794
17:00	0	76	7	0	83	2	84	0	0	86	0	0	0	0	0	0	9	34	0	0	43	0	9	34	0	0	43	212
17:15	0	108	15	0	123	3	84	0	0	87	0	0	0	0	0	0	8	48	0	0	56	0	8	48	0	0	56	266
17:30	0	91	11	2	104	1	109	0	0	110	0	0	0	0	0	0	14	47	0	0	61	0	14	47	0	0	61	275
17:45	0	83	9	0	92	1	87	0	0	88	0	0	0	0	0	0	27	50	0	0	77	0	27	50	0	0	77	257
Total	0	358	42	2	402	7	364	0	0	371	0	0	0	0	0	0	58	179	0	0	237	0	58	179	0	0	237	1010
18:00	0	85	19	1	105	1	73	0	0	74	0	0	0	0	0	0	16	40	0	0	56	0	16	40	0	0	56	235
18:15	0	75	7	0	82	0	70	0	0	70	0	0	0	0	0	0	20	43	0	0	63	0	20	43	0	0	63	215
18:30	0	76	19	3	98	0	61	0	0	61	0	0	0	0	0	0	16	52	0	0	68	0	16	52	0	0	68	227
18:45	1	72	5	0	78	1	54	0	0	55	0	0	0	0	0	0	6	48	0	0	54	0	6	48	0	0	54	187
Total	1	308	50	4	363	2	258	0	0	260	0	0	0	0	0	0	58	183	0	0	241	0	58	183	0	0	241	864
19:00	0	61	7	0	68	1	57	0	0	58	0	0	0	0	0	0	6	23	0	0	29	0	6	23	0	0	29	155
19:15	0	51	5	2	58	1	51	0	0	52	0	0	0	0	0	0	7	36	0	0	43	0	7	36	0	0	43	153
19:30	0	37	7	2	46	1	65	0	0	66	0	0	0	0	0	0	8	21	0	0	29	0	8	21	0	0	29	141
19:45	0	51	18	1	70	0	57	0	0	57	0	0	0	0	0	0	8	27	0	0	35	0	8	27	0	0	35	162
Total	0	200	37	5	242	3	230	0	0	233	0	0	0	0	0	0	29	107	0	0	136	0	29	107	0	0	136	611
Grand Total	5	1288	208	13	1514	21	1208	0	0	1229	0	0	0	0	0	0	185	686	0	0	871	0	185	686	0	0	871	3614
Approach %	0.3	85.1	13.7	0.9	41.9	1.7	98.3	0	0	34	0	0	0	0	0	0	21.2	78.8	0	0	24.1	0	21.2	78.8	0	0	24.1	
Total %	0.1	35.6	5.8	0.4	41.9	0.6	33.4	0	0	34	0	0	0	0	0	0	5.1	19	0	0	24.1	0	5.1	19	0	0	24.1	

GRAM Traffic, Inc.

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File Name : Scottsdale-SBpm
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US 183A Frontage Southbound						Scottsdale Westbound						Northbound						Scottsdale Eastbound					
Start Time	Left	Thru	Right	Uturn	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total		
Peak Hour Analysis From 15:30 to 19:45 - Peak 1 of 1																							
Peak Hour for Entire Intersection Begins at 17:15																							
17:15	0	108	15	0	123	3	84	0	0	87	0	0	0	0	0	0	8	48	0	0	56	266	
17:30	0	91	11	2	104	1	109	0	0	110	0	0	0	0	0	0	14	47	0	0	61	275	
17:45	0	83	9	0	92	1	87	0	0	88	0	0	0	0	0	0	27	50	0	0	77	257	
18:00	0	85	19	1	105	1	73	0	0	74	0	0	0	0	0	0	16	40	0	0	56	235	
Total Volume	0	367	54	3	424	6	353	0	0	359	0	0	0	0	0	0	65	185	0	0	250	1033	
% App. Total	0	86.6	12.7	0.7	.862	1.7	98.3	0	0	.816	0	0	0	0	.000	.000	26	74	0	0	.812	.939	
PHF	.000	.850	.711	.375	.862	.500	.810	.000	.000	.816	.000	.000	.000	.000	.000	.000	.602	.925	.000	.000	.812	.939	
Peak Hour Analysis From 15:30 to 19:45 - Peak 1 of 1																							
Peak Hour for Each Approach Begins at:																							
17:15						17:00						15:30						17:45					
+0 mins.	0	108	15	0	123	2	84	0	0	86	0	0	0	0	0	0	0	27	50	0	0	77	
+15 mins.	0	91	11	2	104	3	84	0	0	87	0	0	0	0	0	0	0	16	40	0	0	56	
+30 mins.	0	83	9	0	92	1	109	0	0	110	0	0	0	0	0	0	0	20	43	0	0	63	
+45 mins.	0	85	19	1	105	1	87	0	0	88	0	0	0	0	0	0	0	16	52	0	0	68	
Total Volume	0	367	54	3	424	7	364	0	0	371	0	0	0	0	0	0	0	79	185	0	0	264	
% App. Total	0	86.6	12.7	0.7	.862	1.9	98.1	0	0	.843	0	0	0	0	0	0	0	29.9	70.1	0	0	.857	
PHF	.000	.850	.711	.375	.862	.583	.835	.000	.000	.843	.000	.000	.000	.000	.000	.000	.000	.731	.889	.000	.857	.939	

GRAM Traffic, Inc.

21220 Jakes Hill Rd
Hutto, TX 78634
512-832-8650

File Name : scottsdalesbam
Site Code : 0000003
Start Date : 9/18/2013
Page No : 1

Groups Printed- Autos

Start Time	US 183A Frontage Southbound					Scottsdale Westbound					Northbound					Scottsdale Eastbound																				
	Left	Thru	Right	Uturn	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total															
06:00	0	54	1	0	55	1	5	0	0	6	0	0	0	0	0	0	3	42	0	45	106															
06:15	0	80	0	0	80	0	8	0	0	8	0	0	0	0	0	0	4	70	0	74	162															
06:30	0	98	4	0	102	0	5	0	0	5	0	0	0	0	0	0	17	92	0	109	216															
06:45	1	105	11	1	118	0	4	0	0	4	0	0	0	0	0	0	19	101	0	120	242															
Total	1	337	16	1	355	1	22	0	0	23	0	0	0	0	0	0	43	305	0	348	726															
07:00	0	101	14	0	115	0	1	0	0	1	0	0	0	0	0	0	33	140	0	173	289															
07:15	0	138	15	0	153	0	17	0	0	17	0	0	0	0	0	0	29	108	0	137	307															
07:30	0	107	20	2	129	0	11	0	0	11	0	0	0	0	0	0	28	101	0	129	269															
07:45	1	137	9	0	147	0	6	0	0	6	0	0	0	0	0	0	38	87	0	125	278															
Total	1	483	58	2	544	0	35	0	0	35	0	0	0	0	0	0	128	436	0	564	1143															
08:00	0	138	13	2	153	2	15	0	0	17	0	0	0	0	0	0	32	88	0	120	290															
08:15	0	113	16	0	129	1	10	0	0	11	0	0	0	0	0	0	53	76	0	129	269															
08:30	0	124	23	4	151	0	6	0	0	6	0	0	0	0	0	0	32	63	0	95	252															
08:45	0	107	19	1	127	0	13	0	0	13	0	0	0	0	0	0	19	71	0	90	230															
Total	0	482	71	7	560	3	44	0	0	47	0	0	0	0	0	0	136	298	0	434	1041															
Grand Total	2	1302	145	10	1459	4	101	0	0	105	0	0	0	0	0	0	307	1039	0	1346	2910															
Approch %	0.1	89.2	9.9	0.7	50.1	3.8	96.2	0	0	3.6	0	0	0	0	0	0	22.8	77.2	0	46.3																
Total %	0.1	44.7	5	0.3	50.1	0.1	3.5	0	0	3.6	0	0	0	0	0	0	10.5	35.7	0	46.3																
US 183A Frontage Southbound																						Scottsdale Westbound					Northbound					Scottsdale Eastbound				
Start Time	Left	Thru	Right	Uturn	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total															
Peak Hour Analysis From 06:00 to 08:45 - Peak 1 of 1																																				
Peak Hour for Entire Intersection Begins at 07:15																																				
07:15	0	138	15	0	153	0	17	0	0	17	0	0	0	0	0	0	29	108	0	137	307															
07:30	0	107	20	2	129	0	11	0	0	11	0	0	0	0	0	0	28	101	0	129	269															
07:45	1	137	9	0	147	0	6	0	0	6	0	0	0	0	0	0	38	87	0	125	278															
08:00	0	138	13	2	153	2	15	0	0	17	0	0	0	0	0	0	32	88	0	120	290															
Total Volume	1	520	57	4	582	2	49	0	0	51	0	0	0	0	0	0	127	384	0	511	1144															
% App. Total	0.2	89.3	9.8	0.7	95.1	3.9	96.1	0	0	51	0	0	0	0	0	0	24.9	75.1	0	93.2																
PHF	.250	.942	.713	.500	.951	.250	.721	.000	.000	.750	.000	.000	.000	.000	.000	.000	.836	.889	.000	.932																

GRAM Traffic, Inc.

21220 Jakes Hill Rd
Hutto, TX 78634
512-832-8650

File Name : scottsdale-sbam
Site Code : 00000003
Start Date : 9/18/2013
Page No : 2

	US 183A Frontage Southbound					Scottsdale Westbound					Northbound					Scottsdale Eastbound					Int. Total	
	Start Time	Left	Thru	Right	Uturn	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds		App. Total
Peak Hour Analysis From 06:00 to 08:45 - Peak 1 of 1																						
Peak Hour for Each Approach Begins at:																						
	07:15					07:15					06:00					07:00						
+0 mins.	0	138	15	0	0	153	0	17	0	0	0	0	0	0	0	0	0	33	140	0	0	173
+15 mins.	0	107	20	2	2	129	0	11	0	0	11	0	0	0	0	0	0	29	108	0	0	137
+30 mins.	1	137	9	0	0	147	0	6	0	0	6	0	0	0	0	0	0	28	101	0	0	129
+45 mins.	0	138	13	2	2	153	2	15	0	0	17	0	0	0	0	0	0	38	87	0	0	125
Total Volume	1	520	57	4	4	582	2	49	0	0	51	0	0	0	0	0	0	128	436	0	0	564
% App. Total	0.2	89.3	9.8	0.7	0.7	951	3.9	96.1	0	0	750	0	0	0	0	0	0	22.7	77.3	0	0	815
PHF	.250	.942	.713	.500	.951	.250	.721	.000	.000	.750	.000	.000	.000	.000	.000	.000	.000	.842	.779	.000	.815	

Location	183A SBFR and Scottsdale Drive		
	Cedar Park, Texas		
North-South street	183A SBFR	Speed Limit	
East-West street	Scottsdale Drive	Speed Limit	
Time period	3:00 pm - 8:00 pm		
Counted By			
Date	December 12, 2013		



Auto- Heavy Vehicle Counts

Start Time	Northbound				Southbound				Eastbound				Westbound			
	Left	Thru	Right	RTOR	Left	Thru	Right	RTOR	Left	Thru	Right	RTOR	Left	Thru	Right	RTOR
3:00 PM	0	0	0	0	0	53	6	0	0	9	35	0	1	42	0	0
3:15 PM	0	0	0	0	1	78	10	0	0	15	30	0	5	51	0	0
3:30 PM	0	0	0	0	0	86	7	0	0	19	38	0	0	50	0	0
3:45 PM	0	0	0	0	0	93	24	0	0	19	28	0	2	53	0	0
Total	0	0	0	0	1	310	47	0	0	62	131	0	8	196	0	0
4:00 PM	0	0	0	0	0	118	31	0	0	25	22	0	3	53	0	0
4:15 PM	0	0	0	0	0	103	50	0	0	18	34	0	5	74	0	0
4:30 PM	0	0	0	0	0	105	40	0	0	15	30	0	2	88	0	0
4:45 PM	0	0	0	0	0	115	35	0	0	16	35	0	2	89	0	0
Total	0	0	0	0	0	441	156	0	0	74	121	0	12	304	0	0
5:00 PM	0	0	0	0	1	121	30	0	0	19	36	0	3	88	0	0
5:15 PM	0	0	0	0	0	126	12	0	0	19	35	0	2	87	0	0
5:30 PM	0	0	0	0	2	125	20	0	0	17	39	0	1	107	0	0
5:45 PM	0	0	0	0	3	124	21	0	0	28	52	0	2	104	0	0
Total	0	0	0	0	6	496	83	0	0	83	162	0	8	386	0	0
6:00 PM	0	0	0	0	0	128	14	0	0	26	50	0	3	105	0	0
6:15 PM	0	0	0	0	0	138	19	0	0	22	48	0	5	101	0	0
6:30 PM	0	0	0	0	3	142	13	0	0	23	49	0	3	74	0	0
6:45 PM	0	0	0	0	2	125	13	0	0	18	41	0	5	79	0	0
Total	0	0	0	0	5	533	59	0	0	89	188	0	16	359	0	0
7:00 PM	0	0	0	0	0	113	11	0	0	18	42	0	6	76	0	0
7:15 PM	0	0	0	0	2	103	13	0	0	16	33	0	2	66	0	0
7:30 PM	0	0	0	0	0	81	15	0	0	12	30	0	1	63	0	0
7:45 PM	0	0	0	0	0	86	12	0	0	15	32	0	2	61	0	0
Total	0	0	0	0	2	383	51	0	0	61	137	0	11	266	0	0

Peak Hour	5:30 PM - 6:30 PM															
Peak Hour Total	0	0	0	0	5	515	74	0	0	93	189	0	11	417	0	0
Peak Hour Turn Percent	#####	#####	#####	#####	1%	87%	12%	0%	0%	33%	67%	0%	3%	97%	0%	0%
Peak Hour Approach Total	0				594				282				428			
Peak Hour Intersection Total	1304															
Peak Hour Factor	0.98															
HV Percent	3%															

Location	183A SBFR and Scottsdale Drive		
	Cedar Park, Texas		
North-South street	183A NBFR	Speed Limit	
East-West street	Scottsdale Drive	Speed Limit	
Time period	3:00 pm - 8:00 pm		
Counted By			
Date	December 12, 2013		



Auto- Heavy Vehicle Counts

Start Time	Northbound				Southbound				Eastbound				Westbound			
	Left	Thru	Right	RTOR	Left	Thru	Right	RTOR	Left	Thru	Right	RTOR	Left	Thru	Right	RTOR
3:00 PM	42	110	2	0	0	0	0	0	9	0	0	0	0	1	5	0
3:15 PM	51	105	0	0	0	0	0	0	15	1	0	0	0	5	6	0
3:30 PM	50	103	2	0	0	0	0	0	19	0	0	0	0	0	5	0
3:45 PM	53	106	4	0	0	0	0	0	19	0	0	0	0	2	7	0
Total	196	424	8	0	0	0	0	0	62	1	0	0	0	8	23	0
4:00 PM	53	103	2	0	0	0	0	0	25	0	0	0	0	3	3	0
4:15 PM	74	103	3	0	0	0	0	0	18	0	0	0	0	5	2	0
4:30 PM	88	125	4	0	0	0	0	0	15	0	0	0	0	2	3	0
4:45 PM	89	153	3	0	0	0	0	0	16	0	0	0	0	2	2	0
Total	304	484	12	0	0	0	0	0	74	0	0	0	0	12	10	0
5:00 PM	88	150	0	0	0	0	0	0	19	1	0	0	0	3	3	0
5:15 PM	87	175	2	0	0	0	0	0	19	0	0	0	0	2	4	0
5:30 PM	107	179	2	0	0	0	0	0	17	2	0	0	0	1	4	0
5:45 PM	104	182	1	0	0	0	0	0	28	3	0	0	0	2	5	0
Total	386	686	5	0	0	0	0	0	83	6	0	0	0	8	16	0
6:00 PM	105	153	1	0	0	0	0	0	26	0	0	0	0	3	3	0
6:15 PM	101	163	4	0	0	0	0	0	22	0	0	0	0	5	1	0
6:30 PM	74	168	2	0	0	0	0	0	23	3	0	0	0	3	1	0
6:45 PM	79	125	1	0	0	0	0	0	18	2	0	0	0	5	3	0
Total	359	609	8	0	0	0	0	0	89	5	0	0	0	16	8	0
7:00 PM	76	110	3	0	0	0	0	0	18	0	0	0	0	6	1	0
7:15 PM	66	100	3	0	0	0	0	0	16	2	0	0	0	2	1	0
7:30 PM	63	103	2	0	0	0	0	0	12	0	0	0	0	1	0	0
7:45 PM	61	102	1	0	0	0	0	0	15	0	0	0	0	2	2	0
Total	266	415	9	0	0	0	0	0	61	2	0	0	0	11	4	0

Peak Hour	5:30 PM		-		6:30 PM											
Peak Hour Total	417	677	8	0	0	0	0	0	93	5	0	0	0	11	13	0
Peak Hour Turn Percent	38%	61%	1%	0%	#####	#####	#DIV/0!	#DIV/0!	95%	5%	0%	0%	0%	46%	54%	0%
Peak Hour Approach Total	1102				0				98				24			
Peak Hour Intersection Total	1224															
Peak HourFactor	0.94															
HV Percent	2%															

Location	183A SBFR and Scottsdale Drive		
	Cedar Park, Texas		
North-South street	183A SBFR	Speed Limit	
East-West street	Scottsdale Drive	Speed Limit	
Time period	3:00 pm - 8:00 pm		
Counted By			
Date	December 13, 2013		



Auto- Heavy Vehicle Counts

Start Time	Northbound				Southbound				Eastbound				Westbound			
	Left	Thru	Right	RTOR	Left	Thru	Right	RTOR	Left	Thru	Right	RTOR	Left	Thru	Right	RTOR
3:00 PM	0	0	0	0	0	55	10	0	0	21	21	0	1	30	0	0
3:15 PM	0	0	0	0	0	69	10	0	0	28	22	0	1	54	0	0
3:30 PM	0	0	0	0	0	99	19	0	0	29	32	0	1	46	0	0
3:45 PM	0	0	0	0	0	107	43	0	0	20	44	0	4	59	0	0
Total	0	0	0	0	0	330	82	0	0	98	119	0	7	189	0	0
4:00 PM	0	0	0	0	0	120	37	0	0	8	38	0	0	90	0	0
4:15 PM	0	0	0	0	0	112	30	0	0	11	50	0	1	81	0	0
4:30 PM	0	0	0	0	0	124	20	0	0	15	43	0	2	71	0	0
4:45 PM	0	0	0	0	0	97	24	0	0	9	52	0	0	76	0	0
Total	0	0	0	0	0	453	111	0	0	43	183	0	3	318	0	0
5:00 PM	0	0	0	0	0	100	17	0	0	8	68	0	1	102	0	0
5:15 PM	0	0	0	0	0	91	21	0	0	17	53	0	0	95	0	0
5:30 PM	0	0	0	0	0	115	17	0	0	17	75	0	0	89	0	0
5:45 PM	0	0	0	0	0	77	19	0	0	12	58	0	0	74	0	0
Total	0	0	0	0	0	383	74	0	0	54	254	0	1	360	0	0
6:00 PM	0	0	0	0	0	90	19	0	0	21	53	0	2	86	0	0
6:15 PM	0	0	0	0	0	106	14	0	0	18	54	0	0	70	0	0
6:30 PM	0	0	0	0	0	88	11	0	0	9	62	0	3	62	0	0
6:45 PM	0	0	0	0	0	77	16	0	0	11	53	0	0	42	0	0
Total	0	0	0	0	0	361	60	0	0	59	222	0	5	260	0	0
7:00 PM	0	0	0	0	0	83	14	0	0	11	45	0	2	63	0	0
7:15 PM	0	0	0	0	0	57	10	0	0	4	32	0	3	50	0	0
7:30 PM	0	0	0	0	0	65	11	0	0	5	28	0	5	48	0	0
7:45 PM	0	0	0	0	0	60	12	0	0	3	40	0	5	51	0	0
Total	0	0	0	0	0	265	47	0	0	23	145	0	15	212	0	0

Peak Hour	4:45 PM - 5:45 PM															
Peak Hour Total	0	0	0	0	0	403	79	0	0	51	248	0	1	362	0	0
Peak Hour Turn Percent	#####	#####	#####	#####	0%	84%	16%	0%	0%	17%	83%	0%	0%	100%	0%	0%
Peak Hour Approach Total	0				482				299				363			
Peak Hour Intersection Total	1144															
Peak HourFactor	0.91															
HV Percent	0%															

Location	183A SBFR and Scottsdale Drive		
	Cedar Park, Texas		
North-South street	183A NBFR	Speed Limit	
East-West street	Scottsdale Drive	Speed Limit	
Time period	3:00 pm - 8:00 pm		
Counted By			
Date	December 13, 2013		



Auto- Heavy Vehicle Counts

Start Time	Northbound				Southbound				Eastbound				Westbound			
	Left	Thru	Right	RTOR	Left	Thru	Right	RTOR	Left	Thru	Right	RTOR	Left	Thru	Right	RTOR
3:00 PM	30	116	3	0	0	0	0	0	21	2	0	0	0	1	7	0
3:15 PM	54	111	0	0	0	0	0	0	28	3	0	0	0	1	7	0
3:30 PM	46	109	3	0	0	0	0	0	29	2	0	0	0	1	6	0
3:45 PM	59	112	5	0	0	0	0	0	20	0	0	0	0	4	9	0
Total	189	448	11	0	0	0	0	0	98	7	0	0	0	7	29	0
4:00 PM	90	109	3	0	0	0	0	0	8	0	0	0	0	0	4	0
4:15 PM	81	109	4	0	0	0	0	0	11	2	0	0	0	1	3	0
4:30 PM	71	132	5	0	0	0	0	0	15	0	0	0	0	2	4	0
4:45 PM	76	161	4	0	0	0	0	0	9	0	0	0	0	0	3	0
Total	318	511	16	0	0	0	0	0	43	2	0	0	0	3	14	0
5:00 PM	102	158	0	0	0	0	0	0	8	3	0	0	0	1	4	0
5:15 PM	95	184	3	0	0	0	0	0	17	2	0	0	0	0	6	0
5:30 PM	89	188	3	0	0	0	0	0	17	3	0	0	0	0	6	0
5:45 PM	74	192	2	0	0	0	0	0	12	0	0	0	0	0	7	0
Total	360	722	8	0	0	0	0	0	54	8	0	0	0	1	23	0
6:00 PM	86	161	2	0	0	0	0	0	21	0	0	0	0	2	5	0
6:15 PM	70	172	5	0	0	0	0	0	18	0	0	0	0	0	2	0
6:30 PM	62	177	3	0	0	0	0	0	9	2	0	0	0	3	2	0
6:45 PM	42	132	2	0	0	0	0	0	11	3	0	0	0	0	5	0
Total	260	642	12	0	0	0	0	0	59	5	0	0	0	5	14	0
7:00 PM	63	116	4	0	0	0	0	0	11	0	0	0	0	2	2	0
7:15 PM	50	105	4	0	0	0	0	0	4	0	0	0	0	3	2	0
7:30 PM	48	109	3	0	0	0	0	0	5	0	0	0	0	5	0	0
7:45 PM	51	108	2	0	0	0	0	0	3	2	0	0	0	5	4	0
Total	212	438	13	0	0	0	0	0	23	2	0	0	0	15	8	0

Peak Hour	5:15 PM				6:15 PM											
Peak Hour Total	344	725	10	0	0	0	0	0	67	5	0	0	0	2	24	0
Peak Hour Turn Percent	32%	67%	1%	0%	#####	#####	#DIV/0!	#DIV/0!	93%	7%	0%	0%	0%	8%	92%	0%
Peak Hour Approach Total	1079				0				72				26			
Peak Hour Intersection Total	1177															
Peak HourFactor	0.96															
HV Percent	1%															

EXHIBIT 3

SIGNAL WARRANT WORKSHEETS



Form Revised 2/27/2012

Traffic Survey — Count Analysis

2011 TMUTCD Warrants

County: Williamson District: Austin

City: Cedar Park Population: _____ Survey Date: 12-13-13

	Name	Control	Section	85% Speed
Major	183A 183A SBFR			60 MPH
Minor	Scottsdale Drive			

Eight Highest Hours: Include the same 8 hours for the Major and Minor St. volumes.

Time Ends	Major St. - Both App.		Minor St. - Hi. Vol. App.		Comments:
	Veh. Total	Ped. Total	Veh. Total	Ped. Total	
6:00 PM	585		386		
7:00 PM	597		359		
5:00 PM	597		304		
8:00 PM	436		266		
8:00 AM	453		126		
4:00 PM	358		196		
9:00 AM	450		101		
9:00 PM	168		254		

Warrant 1. Eight Hour Vehicular Volume

Yes No Meets 70%^c (and major-street speed exceeds 40 mph or population less than 10,000) *or* 100%^a (regardless of speed) of Condition A.
 – *or* –
 Yes No Meets 70%^c (and major-street speed exceeds 40 mph or population less than 10,000) *or* 100%^a (regardless of speed) of Condition B.
 – *or* –
 Yes No Meets 80%^d of Conditions A and B.
 – *or* –
 Yes No Meets 56%^d of Conditions A and B (and major-street speed exceeds 40 mph or population less than 10,000).

Condition A - Minimum Vehicle Volume

Number of Lanes		Vehicles per hour on Major St (Total of Both Approaches)				Vehicles per hour on higher-volume Minor St approach (One Direction Only)					
Major Street	Minor Street	Required				Existing	Required				Existing
		100% ^a	80% ^b	70% ^c	56% ^d		100% ^a	80% ^b	70% ^c	56% ^d	
						<u>40.0%</u>					<u>181.4%</u>
1	1	500	400	350	280		150	120	105	84	
2 or more	1	600	480	420	336		150	120	105	84	
2 or more	2 or more	600	480	420	336	168	200	160	140	112	254
1	2 or more	500	400	350	280		200	160	140	112	

Condition B - Interruption of Continuous Traffic

Number of Lanes		Vehicles per hour on Major St (Total of Both Approaches)				Vehicles per hour on higher-volume Minor St approach (One Direction Only)					
Major Street	Minor Street	Required				Existing	Required				Existing
		100% ^a	80% ^b	70% ^c	56% ^d		100% ^a	80% ^b	70% ^c	56% ^d	
						<u>26.7%</u>					<u>362.9%</u>
1	1	750	600	525	420		75	60	53	42	
2 or more	1	900	720	630	504		75	60	53	42	
2 or more	2 or more	900	720	630	504	168	100	80	70	56	254
1	2 or more	750	600	525	420		100	80	70	56	

^aBasic minimum hourly volume.

^bUsed for combination of Conditions A and B after adequate trial of other remedial measures.

^cMay be used when the major-street speed exceeds 40 mph or in a community with a population of less than 10,000.

^dMay be used for combination of Conditions A and B after adequate trial of other remedial measures when major street exceeds 40 mph or in an isolated community with a population of less than 10,000.

Warrant 2. Four Hour Volumes (70% Factor)

<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Meets each of 4 Highest Hours (Warrant 2 — see Figure 1).
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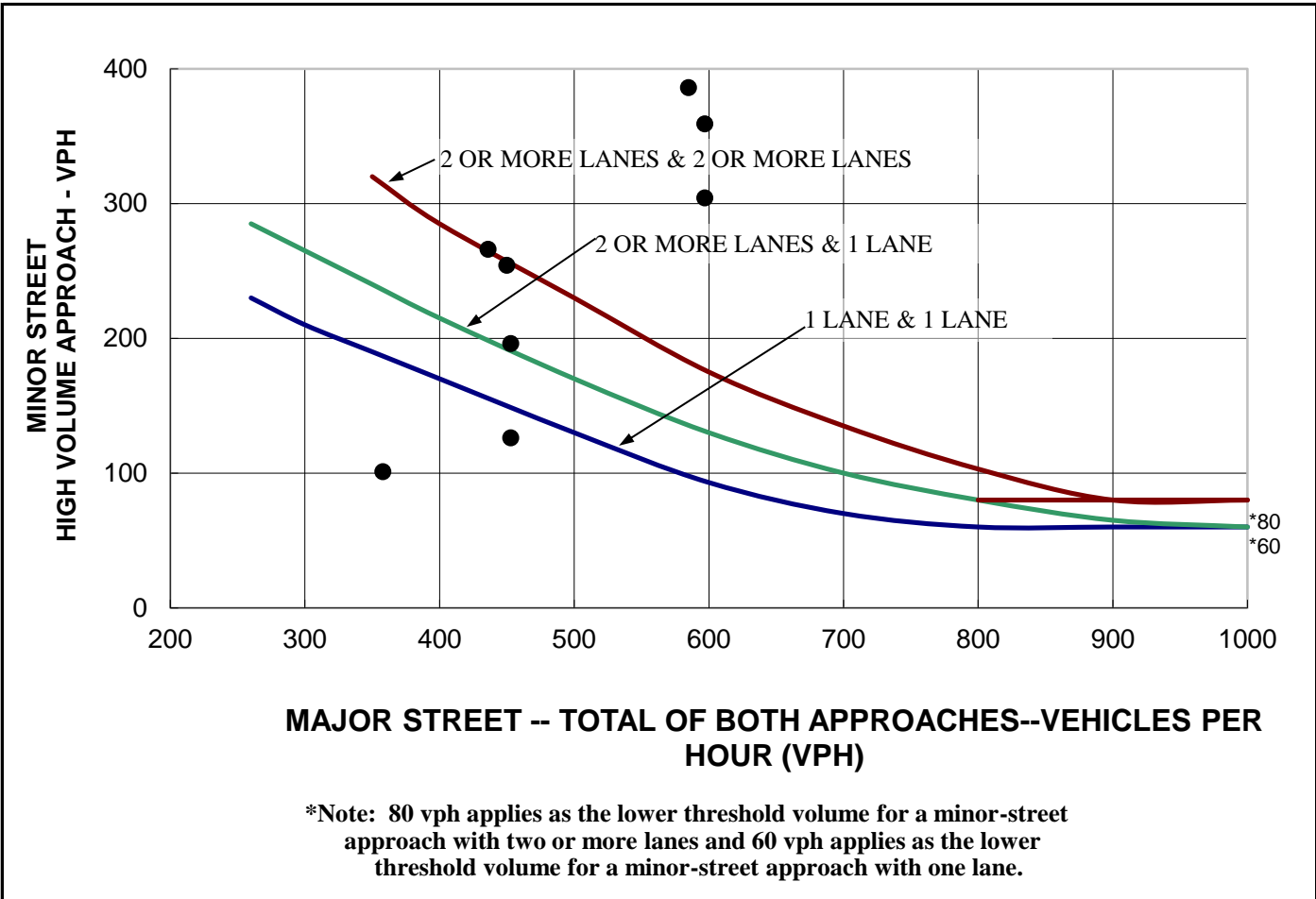


Figure 1. Four-hour volume warrant (community less than 10,000 population or above 40 MPH on major street). (Warrant 2.)

Warrant 3. Peak Hour (70% Factor)

<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Are all of the following conditions true for any four consecutive 15 minute periods? 1. The total stopped time delay experienced by the traffic on one minor street approach (one direction only) controlled by a stop sign equals or exceeds 4 vehicle-hours for a one-lane approach and 5 vehicle-hours for a two-lane approach, <i>and</i> 2. The volume of the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic or 150 vph for two moving lanes, <i>and</i> 3. The total entering volume serviced during the hour equals or exceeds 650 vph for intersections with three approaches or 800 vph for intersections with four (or more) approaches.
- <i>or</i> -	
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Meets one High Hour (Warrant 3 — see Figure 2).

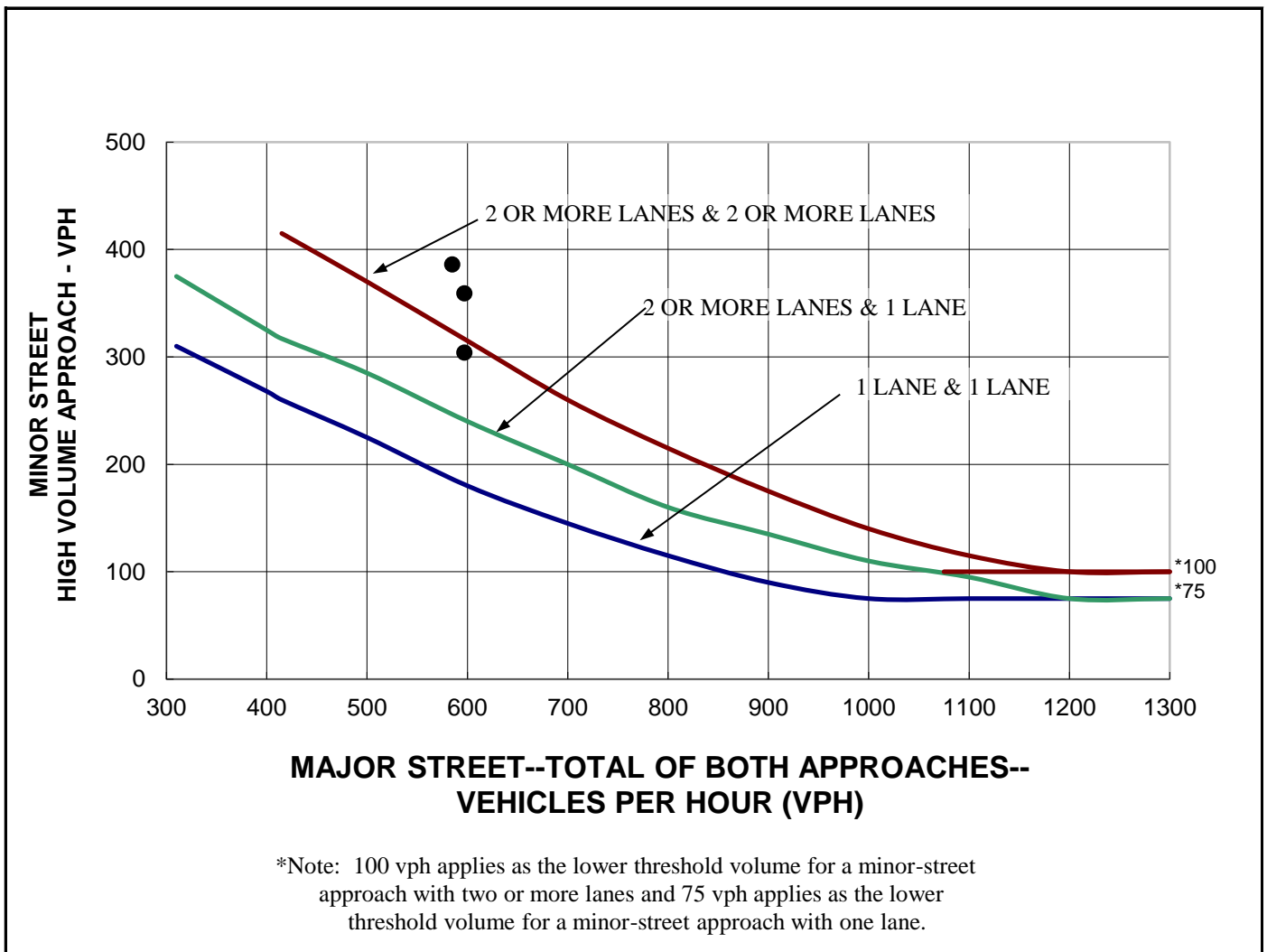


Figure 2. Peak hour volume warrant (community less than 10,000 population or above 40 MPH on major street). (Warrant 3.)

Warrant 4. Four Hour Pedestrian Volumes (70% Factor)

<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	Meets each of 4 Highest Hours (Warrant4 — see Figure 3).
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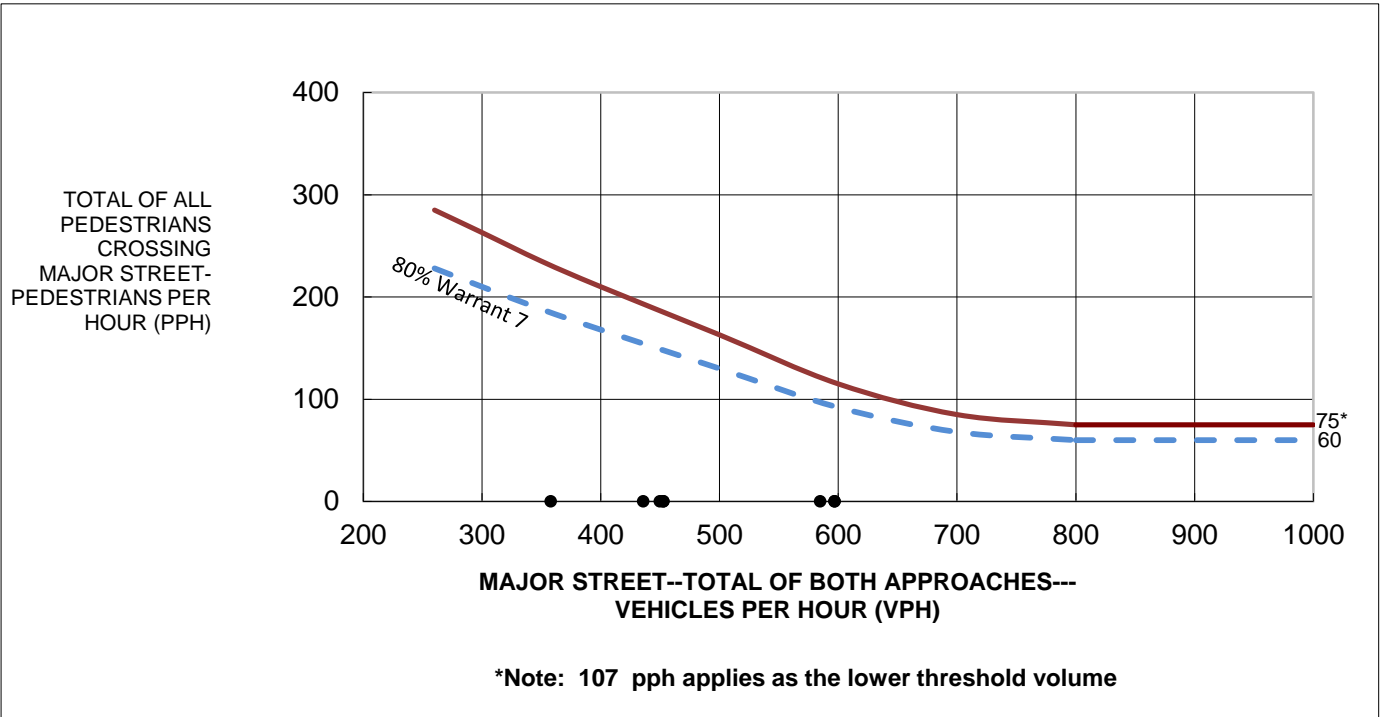


Figure 3. Four-hour pedestrian warrant (community less than 10,000 population or above 35 MPH on major street). (Warrant 4.)

Warrant 4. Peak Hour Pedestrian Volumes (70% Factor)

<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	Meets Peak Hour Pedestrian (Warrant4 — see Figure 4).
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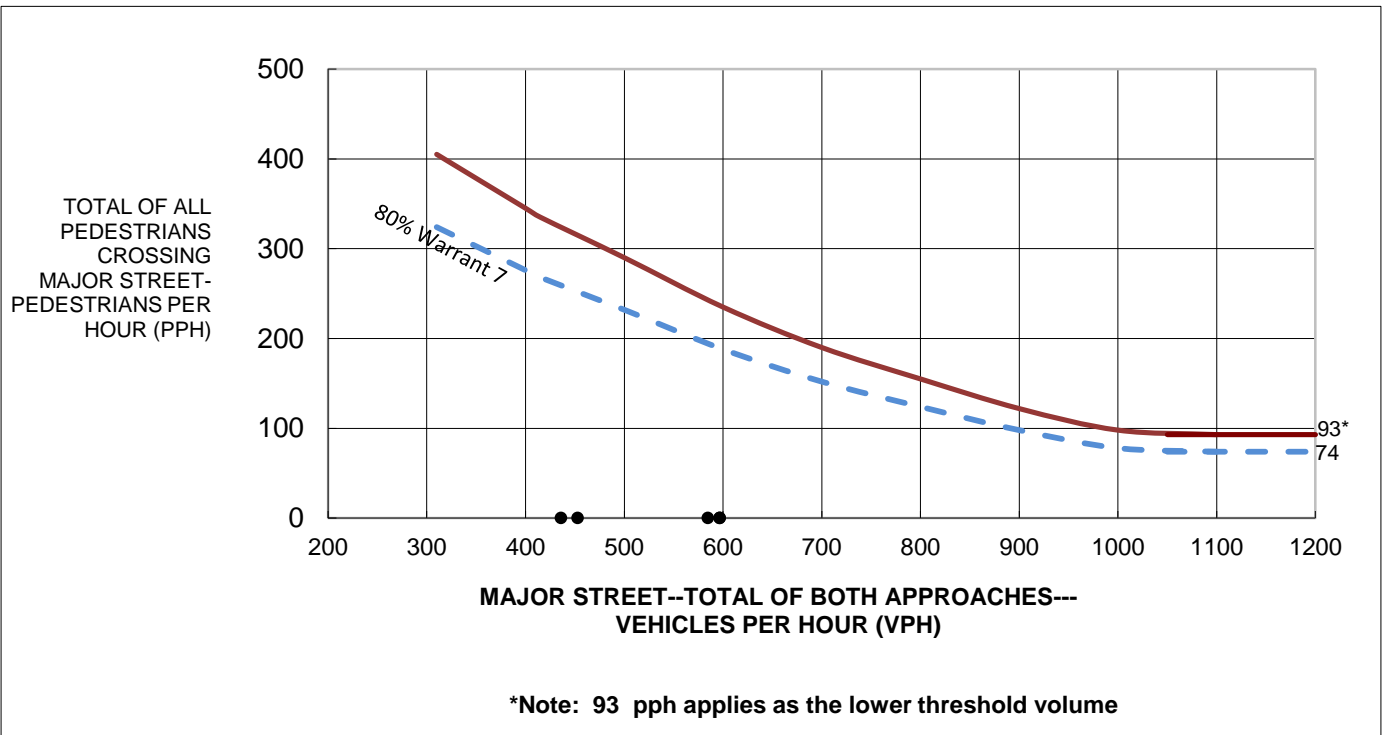


Figure 4. Peak hour pedestrian warrant (community less than 10,000 population or above 35 MPH on major street). (Warrant 4.)

Warrant 5. School Crossing

<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	N/A	Is the number of adequate gaps in traffic stream during the period when the children are using the crossing less than the number of minutes in the same period? – <i>and</i> –
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No		Is there a minimum of 20 students during the highest crossing hour? – <i>and</i> –
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No		Is the nearest signal located more than 300 feet away? (This warrant may be applied, if the proposed signal is less than 300 feet and does not restrict the progressive movement of traffic.)

Warrant 6. Coordinated Signal System

<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	N/A	On a one-way street or a street with traffic predominantly in one direction, are the adjacent signals far enough apart that the necessary degree of vehicle platooning does not occur? – <i>or</i> –
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No		On a two-way street, are the adjacent signals far enough apart that the necessary degree of vehicle platooning does not occur and would the proposed and adjacent traffic control signal provide a progressive operation?

Warrant 7. Crash Experience

<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	Is one of the following conditions met?: <ul style="list-style-type: none"> ◆ 80% of Condition A or Condition B in Warrant 1 ◆ 56% of Condition A or B in Warrant 1 (major-street speed exceeding 40 mph or population less than 10,000) ◆ 80 % or more of Warrant 4 met? – <i>and</i> –
<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Have there been 5 or more reportable crashes susceptible to correction by a traffic signal within a 12 month period?

Warrant 8. Roadway Network

<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	Is the total existing, or immediately projected, entering volume on all approaches greater than 1000 vehicles for each of any 5 hours of a Saturday and/or Sunday. – <i>or</i> –
<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	Is the total existing, or immediately projected, entering volume greater than 1000 vehicles for the peak hour of a typical weekday, and do the 5 year projected traffic volumes meet one or more of Warrants 1, 2, and 3 during an average weekday?

Check applicable characteristics of each route:

<u>Major Street</u>	<u>Minor Street</u>	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	It is part of street or highway system that serves as the principal roadway network for through traffic flow.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	It includes rural or suburban highways outside, entering, or traversing a city.
<input type="checkbox"/>	<input type="checkbox"/>	It appears as a major route on an official plan such as a major street plan in an urban area traffic and transportation study.

Remarks:

Warrant 9. Intersection Near a Grade Crossing (Two or More Approach Lanes at the Track Crossing)

<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	Meets one High Hour (Warrant 9 — see Figure 5).
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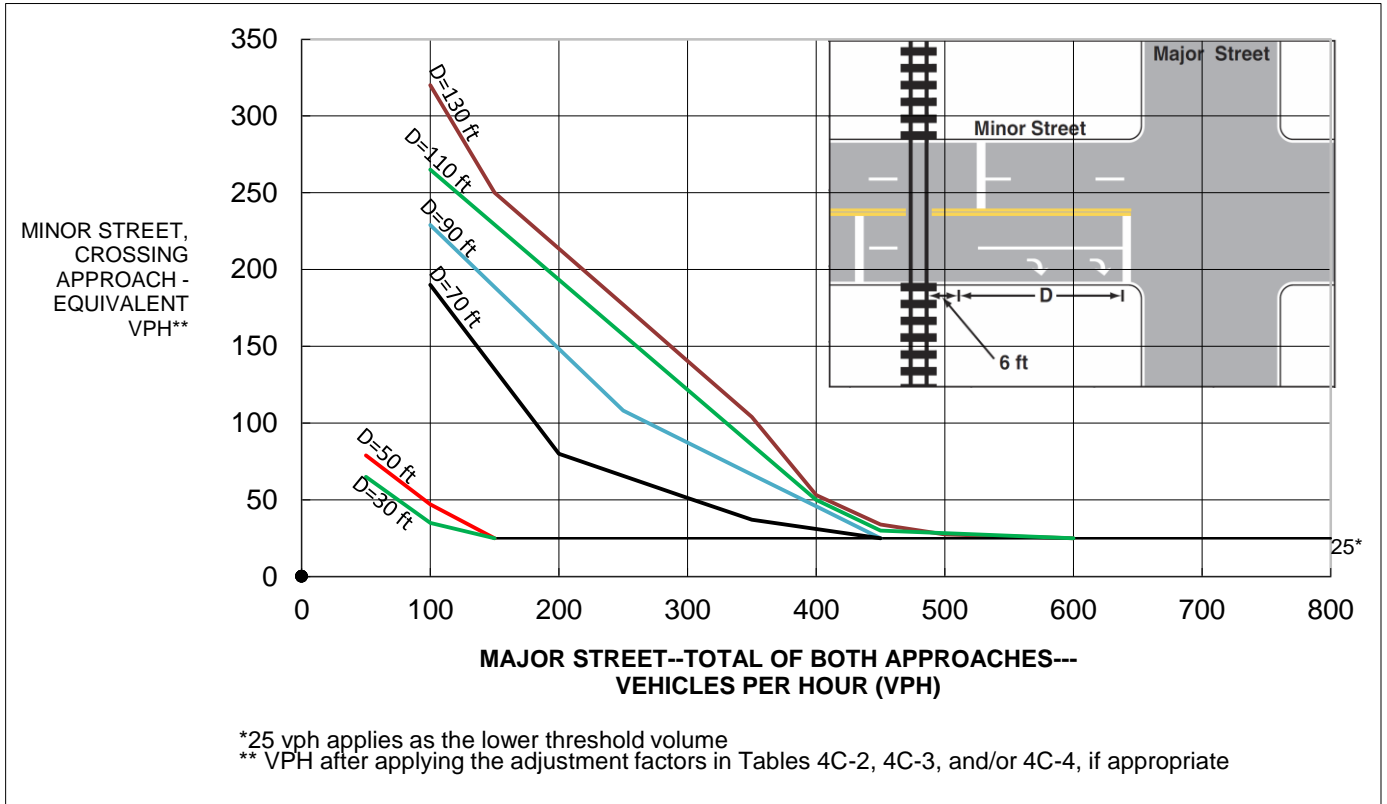


Figure 5. Railroad Grade Crossing (Two or More Approach Lanes at the Track Crossing).
 (Warrant 9.)