Location:	Richland Hills Dr and School Driveway #1
Project #:	7190-19
North-South street:	Richland Hills Dr
East-West street:	School Driveway #1 /
Time Period:	9 7:00 AM - 9:00 AM
Date recorded:	Wednesday October 30, 2013
Traffic Count Sub	GRAM Traffic
Path to Raw Data	P:\79\12\40\Data\RAW\site1695-11am.xls

Pape Dawson Engineers, Inc.
555 E. Ramsey
San Antonio, TX 78216

Time		Northbound						Southbound						Eastbound						Westbound					
Movement		left		thru		right		left		thru		right		left		thru		right		left		thru		right	
Vehicle Type		C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T
7:00 AM	7:15 AM	50		28		0		0		74		88		30		0		38		0		0		0	
7:15 AM	7:30 AM	73		17		0		0		67		82		48		0		67		0		0		0	
7:30 AM	7:45 AM	56		24		0		0		35		104		47		0		96		0		0		0	
7:45 AM	8:00 AM	37		35		0		0		48		81		78		0		67		0		0		0	
8:00 AM	8:15 AM	32		65		0		0		49		70		71		0		36		0		0		0	
8:15 AM	8:30 AM	40		49		0		0		59		72		47		0		47		0		0		0	
8:30 AM	8:45 AM	6		62		0		0		45		10		42		0		25		0		0		0	
8:45 AM	9:00 AM	2		25		0		0		54		2		1		0		2		0		0		0	
Total		296	0	305	0	0	0	0	0	431	0	509	0	364	0	0	0	378	0	0	0	0	0	0	0
Peak Movement Total		198		141		0		0		199		337		244		0		266		0		0		0	
Peak Turn Percent		58%		42%		0%		0%		37%		63%		48%		0%		52%		0%		0%		0%	
Peak Approach Total		339						536						510						0					

Peak Hour 7:15 AM - 8:15 AM
Percent Trucks 0%

Time		Pedestrians			
	Approach	NB	SB	EB	WB
7:00 AM	7:15 AM	0	0	0	0
7:15 AM	7:30 AM	0	0	0	0
7:30 AM	7:45 AM	0	0	0	0
7:45 AM	8:00 AM	0	0	0	0
8:00 AM	8:15 AM	0	0	0	0
8:15 AM	8:30 AM	0	0	0	0
8:30 AM	8:45 AM	0	0	0	0
8:45 AM	9:00 AM	0	0	0	0
Total		0	0	0	0
Peak Total		0	0	0	0

Peak Hour Approach Traffic Volume and Percentage

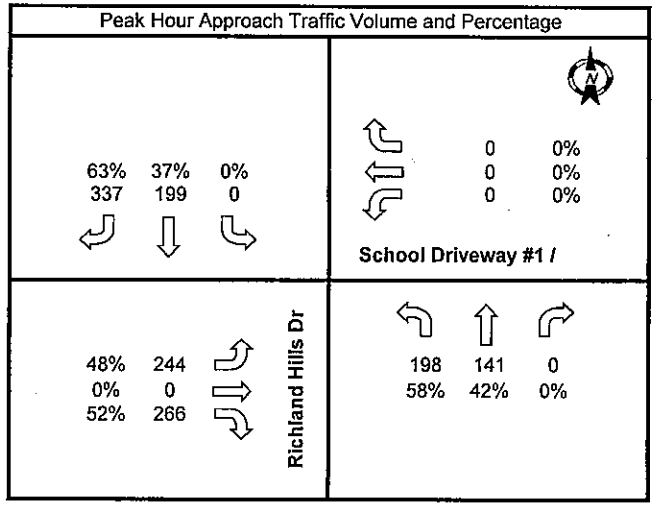


EXHIBIT (C) - TRAFFIC IMPACT ANALYSIS
PART 2 OF 4

Location:	Richland Hills Dr and School Driveway #1
Project #:	7190-19
North-South street:	Richland Hills Dr
East-West street:	School Driveway #1 /
Time Period:	45 | 4:00 PM - 6:00 PM
Date recorded:	Wednesday October 30, 2013
Traffic Count Sub	GRAM Traffic
Path to Raw Data	P:\79\12\40\Data\RAW\site1695-11pm.xls

Pape Dawson Engineers, Inc.
555 E. Ramsey
San Antonio, TX 78216

Time		Northbound						Southbound						Eastbound						Westbound					
Movement		left		thru		right		left		thru		right		left		thru		right		left		thru		right	
Vehicle Type		C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T
4:00 PM	4:15 PM	7		78		0		0		45		18		28		0		23		0		0		0	
4:15 PM	4:30 PM	14		85		0		0		94		19		10		0		8		0		0		0	
4:30 PM	4:45 PM	11		64		0		0		59		20		22		0		9		0		0		0	
4:45 PM	5:00 PM	11		90		0		0		55		20		21		0		7		0		0		0	
5:00 PM	5:15 PM	3		88		0		0		62		17		16		0		7		0		0		0	
5:15 PM	5:30 PM	11		74		0		0		68		15		11		0		7		0		0		0	
5:30 PM	5:45 PM	15		101		0		0		71		14		12		0		7		0		0		0	
5:45 PM	6:00 PM	9		86		0		0		91		9		16		0		8		0		0		0	
Total		81	0	666	0	0	0	0	0	545	0	132	0	136	0	0	0	76	0	0	0	0	0	0	0
Peak Movement Total		38		349		0		0		292		55		55		0		29		0		0		0	
Peak Turn Percent		10%		90%		0%		0%		84%		16%		65%		0%		35%		0%		0%		0%	
Peak Approach Total		387						347						84						0					

Peak Hour 5:00 PM - 6:00 PM
Percent Trucks 0%

Time		Pedestrians			
	Approach:	NB	SB	EB	WB
4:00 PM	4:15 PM	0	0	0	0
4:15 PM	4:30 PM	0	0	0	0
4:30 PM	4:45 PM	0	0	0	0
4:45 PM	5:00 PM	0	0	0	0
5:00 PM	5:15 PM	0	0	0	0
5:15 PM	5:30 PM	0	0	0	0
5:30 PM	5:45 PM	0	0	0	0
5:45 PM	6:00 PM	0	0	0	0
Total		0	0	0	0
Peak Total		0	0	0	0

Peak Hour Approach Traffic Volume and Percentage

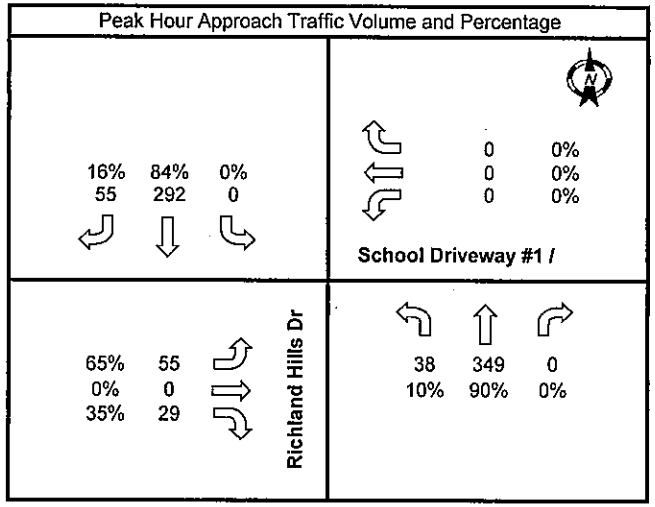


EXHIBIT (C) - TRAFFIC IMPACT ANALYSIS
PART 2 OF 4

Location:	Richland Hills Dr and School Driveway #2
Project #:	7190-19
North-South street:	Richland Hills Dr
East-West street:	School Driveway #2 /
Time Period:	9 7:00 AM - 9:00 AM
Date recorded:	Wednesday October 30, 2013
Traffic Count Sub	GRAM Traffic
Path to Raw Data	P:\79\12\40\Data\RAW\site1695-12am.xls

Pape Dawson Engineers, Inc.
555 E. Ramsey
San Antonio, TX 78216

Time		Northbound						Southbound						Eastbound						Westbound					
Movement		left		thru		right		left		thru		right		left		thru		right		left		thru		right	
Vehicle Type		C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T
7:00 AM	7:15 AM	6		69		0		0		106		6		2		0		6		0		0		0	
7:15 AM	7:30 AM	2		116		0		0		120		1		3		0		5		0		0		0	
7:30 AM	7:45 AM	9		93		0		0		116		6		3		0		3		0		0		0	
7:45 AM	8:00 AM	10		83		0		0		124		13		12		0		16		0		0		0	
8:00 AM	8:15 AM	1		110		0		0		112		5		9		0		16		0		0		0	
8:15 AM	8:30 AM	1		105		0		0		85		2		3		0		18		0		0		0	
8:30 AM	8:45 AM	0		80		0		0		101		0		4		0		15		0		0		0	
8:45 AM	9:00 AM	0		39		0		0		62		0		0		0		0		0		0		0	
Total		29	0	695	0	0	0	0	0	826	0	33	0	36	0	0	0	79	0	0	0	0	0	0	0
Peak Movement Total		22		402		0		0		472		25		27		0		40		0		0		0	
Peak Turn Percent		5%		95%		0%		0%		95%		5%		40%		0%		60%		0%		0%		0%	
Peak Approach Total		424						497						67						0					

Peak Hour 7:15 AM - 8:15 AM
Percent Trucks 0%

Time		Pedestrians			
	Approach:	NB	SB	EB	WB
7:00 AM	7:15 AM	0	0	0	0
7:15 AM	7:30 AM	0	0	0	0
7:30 AM	7:45 AM	0	0	0	0
7:45 AM	8:00 AM	0	0	0	0
8:00 AM	8:15 AM	0	0	0	0
8:15 AM	8:30 AM	0	0	0	0
8:30 AM	8:45 AM	0	0	0	0
8:45 AM	9:00 AM	0	0	0	0
Total		0	0	0	0
Peak Total		0	0	0	0

Peak Hour Approach Traffic Volume and Percentage

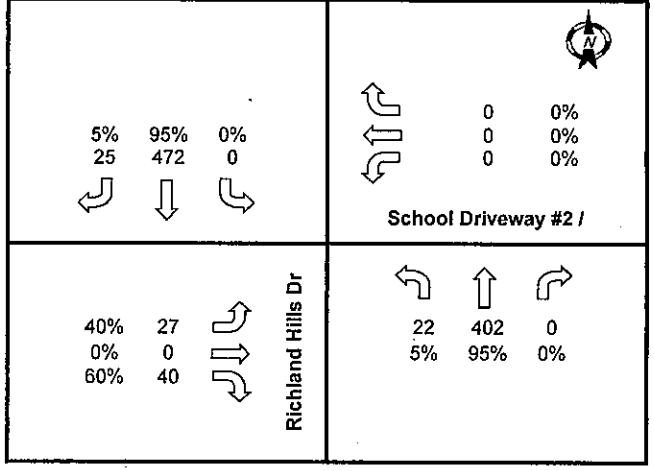


EXHIBIT (C) - TRAFFIC IMPACT ANALYSIS
PART 2 OF 4

Location:	Richland Hills Dr and School Driveway #2
Project #:	7190-19
North-South street:	Richland Hills Dr
East-West street:	School Driveway #2 /
Time Period:	45 4:00 PM - 6:00 PM
Date recorded:	Wednesday October 30, 2013
Traffic Count Sub	GRAM Traffic
Path to Raw Data	P:\79\12\40\Data\RAW\site1695-12pm.xls

Pape Dawson Engineers, Inc.
555 E. Ramsey
San Antonio, TX 78216

Time		Northbound						Southbound						Eastbound						Westbound					
Movement		left		thru		right		left		thru		right		left		thru		right		left		thru		right	
Vehicle Type		C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T
4:00 PM	4:15 PM	1		87		0		0		66		0		9		0		18		0		0		0	
4:15 PM	4:30 PM	3		85		0		0		88		4		7		0		9		0		0		0	
4:30 PM	4:45 PM	7		91		0		0		83		3		7		0		5		0		0		0	
4:45 PM	5:00 PM	2		96		0		0		43		5		6		0		10		0		0		0	
5:00 PM	5:15 PM	9		104		0		0		66		3		8		0		9		0		0		0	
5:15 PM	5:30 PM	6		105		0		0		80		3		7		0		10		0		0		0	
5:30 PM	5:45 PM	7		129		0		0		59		6		8		0		9		0		0		0	
5:45 PM	6:00 PM	13		104		0		0		80		3		6		0		11		0		0		0	
Total		48	0	801	0	0	0	0	0	565	0	27	0	58	0	0	0	81	0	0	0	0	0	0	0
Peak Movement Total		35		442		0		0		285		15		29		0		39		0		0		0	
Peak Turn Percent		7%		93%		0%		0%		95%		5%		43%		0%		57%		0%		0%		0%	
Peak Approach Total		477						300						68						0					

Peak Hour 5:00 PM - 6:00 PM
Percent Trucks 0%

Time		Pedestrians			
	Approach:	NB	SB	EB	WB
4:00 PM	4:15 PM	0	0	0	0
4:15 PM	4:30 PM	0	0	0	0
4:30 PM	4:45 PM	0	0	0	0
4:45 PM	5:00 PM	0	0	0	0
5:00 PM	5:15 PM	0	0	0	0
5:15 PM	5:30 PM	0	0	0	0
5:30 PM	5:45 PM	0	0	0	0
5:45 PM	6:00 PM	0	0	0	0
Total		0	0	0	0
Peak Total		0	0	0	0

Peak Hour Approach Traffic Volume and Percentage

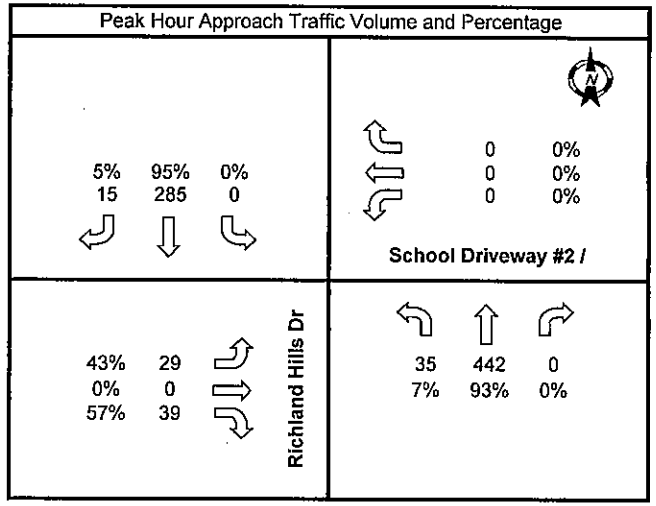


EXHIBIT (C) - TRAFFIC IMPACT ANALYSIS
PART 2 OF 4

Location:	SH 151 and Potranco Rd
Project #:	7897-52
North-South street:	SH 151
East-West street:	Potranco Rd
Time Period:	1 7:00 - 9:00 AM
Date recorded:	Thursday March 22, 2012
Traffic Count Sub	GRAM Traffic
Comments:	None

Pape Dawson Engineers, Inc.
555 E. Ramsey
San Antonio, TX 78216

Time		Northbound						Southbound						Eastbound						Westbound					
Movement		left		thru		right		left		thru		right		left		thru		right		left		thru		right	
Vehicle Type		C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T
7:00 AM	7:15 AM	65		46		19		0		0		0		22		335		0		0		74		18	
7:15 AM	7:30 AM	91		48		14		0		0		0		26		391		0		0		84		44	
7:30 AM	7:45 AM	102		70		13		0		0		0		27		370		0		0		87		47	
7:45 AM	8:00 AM	93		98		24		0		0		0		47		357		0		0		85		58	
8:00 AM	8:15 AM	87		81		16		0		0		0		34		282		0		0		97		30	
8:15 AM	8:30 AM	68		47		19		0		0		0		32		274		0		0		81		32	
8:30 AM	8:45 AM	105		52		12		0		0		0		19		217		0		0		96		48	
8:45 AM	9:00 AM	83		52		13		0		0		0		19		216		0		0		88		36	
Total		694	0	494	0	130	0	0	0	0	0	0	0	226	0	2442	0	0	0	0	0	692	0	313	0
Peak Total		373	0	297	0	67	0	0	0	0	0	0	0	134	0	1400	0	0	0	0	0	353	0	179	0
Peak Movement Total		373		297		67		0		0		0		134		1400		0		0		353		179	
Peak Turn Percent		51%		40%		9%		0%		0%		0%		9%		91%		0%		0%		66%		34%	
Peak Approach Total		737						0						1534						532					

Peak Hour 7:15 AM - 8:15 AM
Percent Trucks 0%

Time		U-Turns			
Approach:		Northbound		Southbound	
Vehicle Type		C	T	C	T
7:00 AM	7:15 AM				
7:15 AM	7:30 AM				
7:30 AM	7:45 AM				
7:45 AM	8:00 AM				
8:00 AM	8:15 AM				
8:15 AM	8:30 AM				
8:30 AM	8:45 AM				
8:45 AM	9:00 AM				
Total		0	0	0	0
Peak Total		0	0	0	0
Peak Movement Total		0		0	
Peak Turn Percent		#DIV/0!		#DIV/0!	

Peak Hour Approach Traffic Volume and Percentage

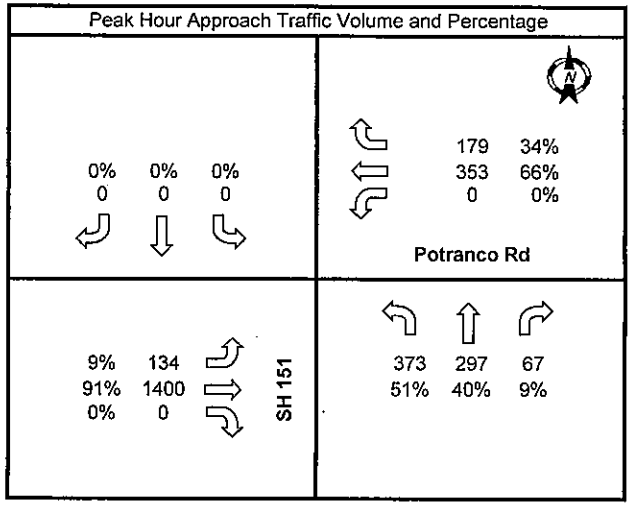


EXHIBIT (C) - TRAFFIC IMPACT ANALYSIS
PART 2 OF 4

Location:	SH 151 and Potranco Rd
Project #:	7897-52
North-South street:	SH 151
East-West street:	Potranco Rd
Time Period:	3 4:00 - 6:00 PM
Date recorded:	Thursday March 22, 2012
Traffic Count Sub	GRAM Traffic
Comments:	None

Pape Dawson Engineers, Inc.
555 E. Ramsey
San Antonio, TX 78216

Time		Northbound						Southbound						Eastbound						Westbound					
Movement		left		thru		right		left		thru		right		left		thru		right		left		thru		right	
Vehicle Type		C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T
4:00 PM	4:15 PM	253		79		32		0		0		0		45		130		0		0		179		83	
4:15 PM	4:30 PM	220		69		30		0		0		0		30		195		0		0		191		67	
4:30 PM	4:45 PM	204		94		26		0		0		0		41		202		0		0		199		79	
4:45 PM	5:00 PM	205		94		32		0		0		0		44		224		0		0		178		62	
5:00 PM	5:15 PM	231		101		30		0		0		0		41		204		0		0		210		76	
5:15 PM	5:30 PM	240		110		29		0		0		0		39		194		0		0		202		74	
5:30 PM	5:45 PM	245		107		21		0		0		0		39		218		0		0		194		64	
5:45 PM	6:00 PM	241		101		19		0		0		0		41		209		0		0		199		69	
Total		1839	0	755	0	219	0	0	0	0	0	0	0	320	0	1576	0	0	0	0	0	1552	0	574	0
Peak Total		957	0	419	0	99	0	0	0	0	0	0	0	160	0	825	0	0	0	0	0	805	0	283	0
Peak Movement Total		957		419		99		0		0		0		160		825		0		0		805		283	
Peak Turn Percent		65%		28%		7%		0%		0%		0%		16%		84%		0%		0%		74%		26%	
Peak Approach Total		1475						0						985						1088					

Peak Hour 5:00 PM - 6:00 PM
Percent Trucks 0%

Time		U-Turns			
Approach:		Northbound		Southbound	
Vehicle Type		C	T	C	T
4:00 PM	4:15 PM				
4:15 PM	4:30 PM				
4:30 PM	4:45 PM				
4:45 PM	5:00 PM				
5:00 PM	5:15 PM				
5:15 PM	5:30 PM				
5:30 PM	5:45 PM				
5:45 PM	6:00 PM				
Total		0	0	0	0
Peak Total		0	0	0	0
Peak Movement Total		0		0	
Peak Turn Percent		#DIV/0!		#DIV/0!	

Peak Hour Approach Traffic Volume and Percentage

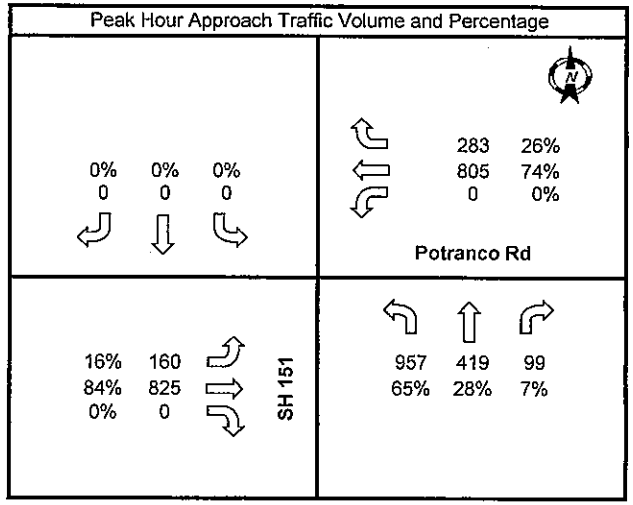


EXHIBIT (C) - TRAFFIC IMPACT ANALYSIS
PART 2 OF 4

Location:	SH 151 and Potranco Rd
Project #:	7897-52
North-South street:	SH 151
East-West street:	Potranco Rd
Time Period:	1 7:00 - 9:00 AM
Date recorded:	Thursday March 22, 2012
Traffic Count Sub	GRAM Traffic
Comments:	None

Pape Dawson Engineers, Inc.
555 E. Ramsey
San Antonio, TX 78216

Time		Northbound						Southbound						Eastbound						Westbound					
Movement		left		thru		right		left		thru		right		left		thru		right		left		thru		right	
Vehicle Type		C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T
7:00 AM	7:15 AM	0		0		0		153		83		43		0		222		123		39		95		0	
7:15 AM	7:30 AM	0		0		0		195		106		53		0		234		136		52		139		0	
7:30 AM	7:45 AM	0		0		0		183		110		34		0		220		123		38		151		0	
7:45 AM	8:00 AM	0		0		0		179		80		42		0		222		110		37		136		0	
8:00 AM	8:15 AM	0		0		0		113		67		42		0		211		124		40		123		0	
8:15 AM	8:30 AM	0		0		0		94		18		37		0		208		136		32		149		0	
8:30 AM	8:45 AM	0		0		0		63		22		36		0		179		160		34		174		0	
8:45 AM	9:00 AM	0		0		0		42		34		31		0		177		146		35		133		0	
Total		0	0	0	0	0	0	1022	0	520	0	318	0	0	0	1673	0	1058	0	307	0	1100	0	0	0
Peak Total		0	0	0	0	0	0	710	0	379	0	172	0	0	0	898	0	492	0	166	0	521	0	0	0
Peak Movement Total		0		0		0		710		379		172		0		898		492		166		521		0	
Peak Turn Percent		0%		0%		0%		56%		30%		14%		0%		65%		35%		24%		76%		0%	
Peak Approach Total		0						1261						1390						687					

Peak Hour 7:00 AM - 8:00 AM
Percent Trucks 0%

Time		U-Turns			
Approach:		Northbound		Southbound	
Vehicle Type		C	T	C	T
7:00 AM	7:15 AM			-	
7:15 AM	7:30 AM				
7:30 AM	7:45 AM				
7:45 AM	8:00 AM				
8:00 AM	8:15 AM				
8:15 AM	8:30 AM				
8:30 AM	8:45 AM				
8:45 AM	9:00 AM				
Total		0	0	0	0
Peak Total		0	0	0	0
Peak Movement Total		0		0	
Peak Turn Percent		0%		0%	

Peak Hour Approach Traffic Volume and Percentage

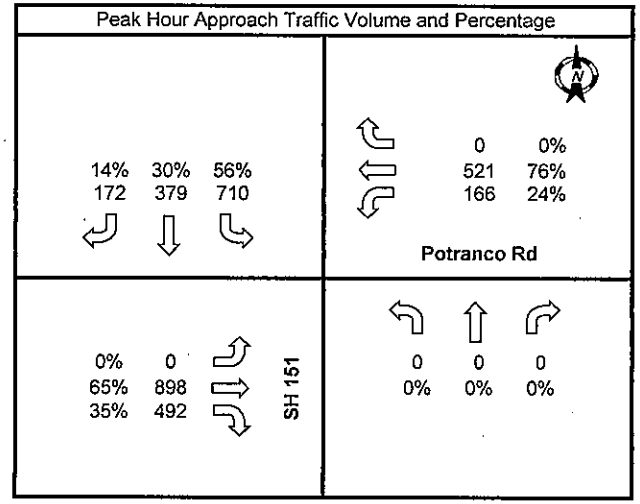


EXHIBIT (C) - TRAFFIC IMPACT ANALYSIS
PART 2 OF 4

Location:	SH 151 and Potranco Rd
Project #:	7897-52
North-South street:	SH 151
East-West street:	Potranco Rd
Time Period:	3 4:00 - 6:00 PM
Date recorded:	Thursday March 22, 2012
Traffic Count Sub	GRAM Traffic
Comments:	None

Pape Dawson Engineers, Inc.
555 E. Ramsey
San Antonio, TX 78216

Time		Northbound						Southbound						Eastbound						Westbound					
Movement		left		thru		right		left		thru		right		left		thru		right		left		thru		right	
Vehicle Type		C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T
4:00 PM	4:15 PM	0		0		0		47		42		43		0		173		123		46		379		0	
4:15 PM	4:30 PM	0		0		0		58		63		46		0		168		130		49		345		0	
4:30 PM	4:45 PM	0		0		0		68		57		53		0		206		118		40		378		0	
4:45 PM	5:00 PM	0		0		0		74		72		72		0		217		103		30		350		0	
5:00 PM	5:15 PM	0		0		0		62		54		52		0		173		116		34		400		0	
5:15 PM	5:30 PM	0		0		0		70		86		61		0		175		153		35		401		0	
5:30 PM	5:45 PM	0		0		0		63		68		41		0		207		115		39		386		0	
5:45 PM	6:00 PM	0		0		0		53		62		66		0		200		135		41		404		0	
Total		0	0	0	0	0	0	495	0	504	0	434	0	0	0	1519	0	993	0	314	0	3043	0	0	0
Peak Total		0	0	0	0	0	0	248	0	270	0	220	0	0	0	755	0	519	0	149	0	1591	0	0	0
Peak Movement Total		0		0		0		248		270		220		0		755		519		149		1591		0	
Peak Turn Percent		0%		0%		0%		34%		37%		30%		0%		59%		41%		9%		91%		0%	
Peak Approach Total		0						738						1274						1740					

Peak Hour 5:00 PM - 6:00 PM
Percent Trucks 0%

Time		U-Turns			
Approach:		Northbound		Southbound	
Vehicle Type		C	T	C	T
4:00 PM	4:15 PM				
4:15 PM	4:30 PM				
4:30 PM	4:45 PM				
4:45 PM	5:00 PM				
5:00 PM	5:15 PM				
5:15 PM	5:30 PM				
5:30 PM	5:45 PM				
5:45 PM	6:00 PM				
Total		0	0	0	0
Peak Total		0	0	0	0
Peak Movement Total		0		0	
Peak Turn Percent		0%		0%	

Peak Hour Approach Traffic Volume and Percentage

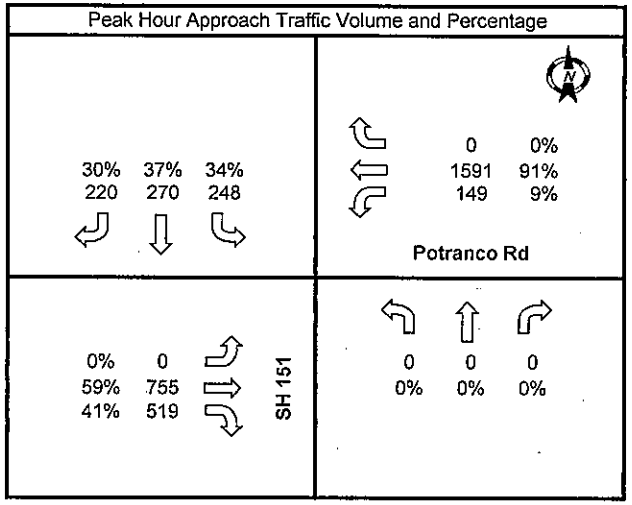


EXHIBIT (C) - TRAFFIC IMPACT ANALYSIS
PART 2 OF 4

Location:	Richland Hills Dr and Potranco Rd
Project #:	7897-52
North-South street:	Richland Hills Dr
East-West street:	Potranco Rd
Time Period:	1 7:00 - 9:00 AM
Date recorded:	Thursday March 22, 2012
Traffic Count Sub:	GRAM Traffic
Comments:	None

Pape Dawson Engineers, Inc.
555 E. Ramsey
San Antonio, TX 78216

Time		Northbound						Southbound						Eastbound						Westbound					
Movement		left		thru		right		left		thru		right		left		thru		right		left		thru		right	
Vehicle Type		C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T
7:00 AM	7:15 AM	3		22		19		68		62		64		9		446		36		5		77		19	
7:15 AM	7:30 AM	12		26		23		61		44		44		21		313		48		4		86		42	
7:30 AM	7:45 AM	7		23		29		52		44		36		10		274		30		20		76		29	
7:45 AM	8:00 AM	12		16		27		66		31		45		14		258		38		12		95		26	
8:00 AM	8:15 AM	7		25		13		31		27		25		12		224		32		11		71		32	
8:15 AM	8:30 AM	10		14		19		37		30		35		9		211		33		7		93		35	
8:30 AM	8:45 AM	10		14		16		33		15		17		18		197		28		3		89		17	
8:45 AM	9:00 AM	12		17		17		19		27		17		9		203		20		3		74		20	
Total		73	0	157	0	163	0	367	0	280	0	283	0	102	0	2126	0	265	0	65	0	661	0	220	0
Peak Total		34	0	87	0	98	0	247	0	181	0	189	0	54	0	1291	0	152	0	41	0	334	0	116	0
Peak Movement Total		34		87		98		247		181		189		54		1291		152		41		334		116	
Peak Turn Percent		16%		40%		45%		40%		29%		31%		4%		86%		10%		8%		68%		24%	
Peak Approach Total		219						617						1497						491					

Peak Hour 7:00 AM - 8:00 AM
Percent Trucks 0%

Time		U-Turns			
Approach:					
Vehicle Type		C	T	C	T
7:00 AM	7:15 AM				
7:15 AM	7:30 AM				
7:30 AM	7:45 AM				
7:45 AM	8:00 AM				
8:00 AM	8:15 AM				
8:15 AM	8:30 AM				
8:30 AM	8:45 AM				
8:45 AM	9:00 AM				
Total		0	0	0	0
Peak Total		0	0	0	0
Peak Movement Total		0		0	
Peak Turn Percent		0%		0%	

Peak Hour Approach Traffic Volume and Percentage

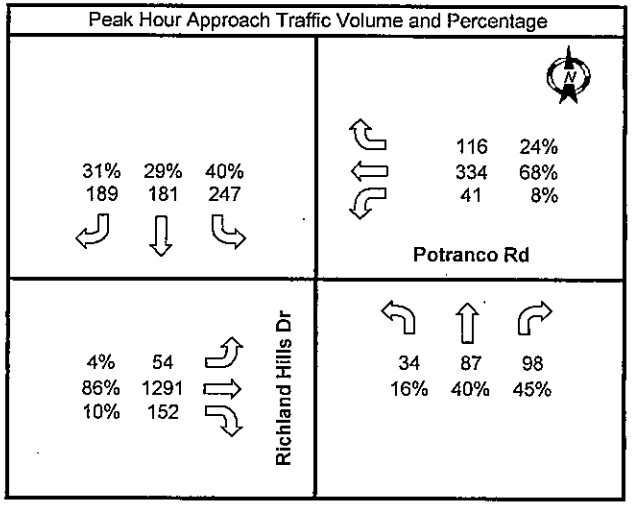


EXHIBIT (C) - TRAFFIC IMPACT ANALYSIS
PART 2 OF 4

Location:	Richland Hills Dr and Potranco Rd
Project #:	7897-52
North-South street:	Richland Hills Dr
East-West street:	Potranco Rd
Time Period:	3 4:00 - 6:00 PM
Date recorded:	Thursday March 22, 2012
Traffic Count Sub	GRAM Traffic
Comments:	None

Pape Dawson Engineers, Inc.
555 E. Ramsey
San Antonio, TX 78216

Time	Northbound						Southbound						Eastbound						Westbound					
Movement	left		thru		right		left		thru		right		left		thru		right		left		thru		right	
Vehicle Type	C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T
4:00 PM 4:15 PM	39		51		20		48		24		22		23		114		25		8		189		43	
4:15 PM 4:30 PM	32		64		18		41		40		34		28		153		32		4		182		31	
4:30 PM 4:45 PM	47		65		24		31		28		20		34		193		27		19		218		51	
4:45 PM 5:00 PM	35		62		26		32		41		23		34		150		26		9		193		42	
5:00 PM 5:15 PM	47		75		23		30		37		19		44		149		24		22		223		44	
5:15 PM 5:30 PM	55		65		28		43		32		25		39		194		35		23		167		39	
5:30 PM 5:45 PM	34		87		22		28		21		20		39		191		20		21		185		40	
5:45 PM 6:00 PM	27		59		17		39		32		22		32		145		26		33		226		45	
Total	316	0	528	0	178	0	292	0	255	0	185	0	273	0	1289	0	215	0	139	0	1583	0	335	0
Peak Total	184	0	267	0	101	0	136	0	138	0	87	0	151	0	686	0	112	0	73	0	801	0	176	0
Peak Movement Total	184		267		101		136		138		87		151		686		112		73		801		176	
Peak Turn Percent	33%		48%		18%		38%		38%		24%		16%		72%		12%		7%		76%		17%	
Peak Approach Total	552						361						949						1050					

Peak Hour 4:30 PM - 5:30 PM
Percent Trucks 0%

Time	U-Turns			
Approach:				
Vehicle Type	C	T	C	T
4:00 PM 4:15 PM				
4:15 PM 4:30 PM				
4:30 PM 4:45 PM				
4:45 PM 5:00 PM				
5:00 PM 5:15 PM				
5:15 PM 5:30 PM				
5:30 PM 5:45 PM				
5:45 PM 6:00 PM				
Total	0	0	0	0
Peak Total	0	0	0	0
Peak Movement Total	0		0	
Peak Turn Percent	0%		0%	

Peak Hour Approach Traffic Volume and Percentage

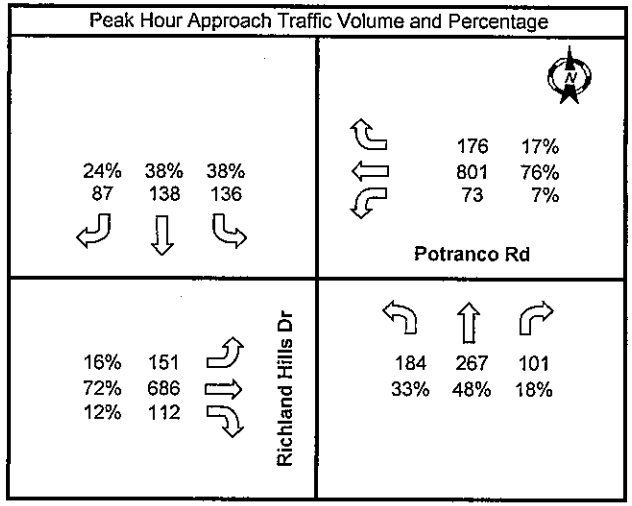


EXHIBIT (C) - TRAFFIC IMPACT ANALYSIS
PART 2 OF 4

Location:	Hunt Ln and Potranco Rd
Project #:	7897-52
North-South street:	Hunt Ln
East-West street:	Potranco Rd
Time Period:	1 7:00 - 9:00 AM
Date recorded:	Thursday March 22, 2012
Traffic Count Sub	GRAM Traffic
Comments:	None

Pape Dawson Engineers, Inc.
555 E. Ramsey
San Antonio, TX 78216

Time		Northbound						Southbound						Eastbound						Westbound					
Movement		left		thru		right		left		thru		right		left		thru		right		left		thru		right	
Vehicle Type		C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T
7:00 AM	7:15 AM	35		0		30		0		0		0		0		327		20		26		113		0	
7:15 AM	7:30 AM	48		0		43		0		0		0		0		293		16		42		128		0	
7:30 AM	7:45 AM	41		0		36		0		0		0		0		307		34		31		142		0	
7:45 AM	8:00 AM	49		0		54		0		0		0		0		270		47		37		136		0	
8:00 AM	8:15 AM	38		0		33		0		0		0		0		323		41		28		142		0	
8:15 AM	8:30 AM	43		0		25		0		0		0		0		250		56		24		152		0	
8:30 AM	8:45 AM	43		0		21		0		0		0		0		293		32		32		170		0	
8:45 AM	9:00 AM	28		0		34		0		0		0		0		274		30		21		150		0	
Total		325	0	0	0	276	0	0	0	0	0	0	0	0	0	2337	0	276	0	241	0	1133	0	0	0
Peak Total		176	0	0	0	166	0	0	0	0	0	0	0	0	0	1193	0	138	0	138	0	548	0	0	0
Peak Movement Total		176		0		166		0		0		0		0		1193		138		138		548		0	
Peak Turn Percent		51%		0%		49%		0%		0%		0%		0%		90%		10%		20%		80%		0%	
Peak Approach Total		342						0						1331						686					

Peak Hour 7:15 AM - 8:15 AM
Percent Trucks 0%

Time		U-Turns			
Approach:		Northbound		Southbound	
Vehicle Type		C	T	C	T
7:00 AM	7:15 AM				
7:15 AM	7:30 AM				
7:30 AM	7:45 AM				
7:45 AM	8:00 AM				
8:00 AM	8:15 AM				
8:15 AM	8:30 AM				
8:30 AM	8:45 AM				
8:45 AM	9:00 AM				
Total		0	0	0	0
Peak Total		0	0	0	0
Peak Movement Total		0		0	
Peak Turn Percent		#DIV/0!		#DIV/0!	

Peak Hour Approach Traffic Volume and Percentage

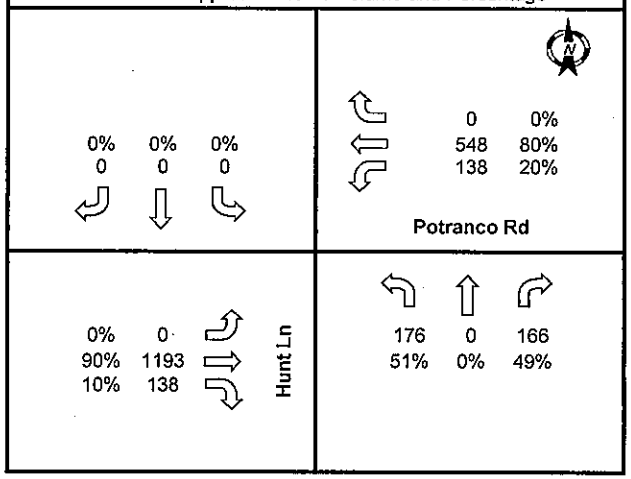


EXHIBIT (C) - TRAFFIC IMPACT ANALYSIS
PART 2 OF 4

Location:	Hunt Ln and Potranco Rd		
Project #:	7897-52		
North-South street:	Hunt Ln		
East-West street:	Potranco Rd		
Time Period:	3	4:00 - 6:00 PM	
Date recorded:	Thursday	March 22, 2012	
Traffic Count Sub	GRAM Traffic		
Comments:	None		

Pape Dawson Engineers, Inc.
555 E. Ramsey
San Antonio, TX 78216

Time		Northbound						Southbound						Eastbound						Westbound					
Movement		left		thru		right		left		thru		right		left		thru		right		left		thru		right	
Vehicle Type		C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T
4:00 PM	4:15 PM	37		0		27		0		0		0		0		247		45		31		386		0	
4:15 PM	4:30 PM	40		0		31		0		0		0		0		284		54		29		346		0	
4:30 PM	4:45 PM	29		0		25		0		0		0		0		282		38		28		367		0	
4:45 PM	5:00 PM	33		0		24		0		0		0		0		271		50		32		371		0	
5:00 PM	5:15 PM	44		0		26		0		0		0		0		286		40		35		411		0	
5:15 PM	5:30 PM	40		0		28		0		0		0		0		295		24		33		399		0	
5:30 PM	5:45 PM	36		0		26		0		0		0		0		311		47		31		389		0	
5:45 PM	6:00 PM	42		0		30		0		0		0		0		266		37		30		443		0	
Total		301	0	0	0	217	0	0	0	0	0	0	0	0	0	2242	0	335	0	249	0	3112	0	0	0
Peak Total		162	0	0	0	110	0	0	0	0	0.	0	0	0	0	1158	0	148	0	129	0	1642	0	0	0
Peak Movement Total		162		0		110		0		0		0		0		1158		148		129		1642		0	
Peak Turn Percent		60%		0%		40%		0%		0%		0%		0%		89%		11%		7%		93%		0%	
Peak Approach Total		272						0						1306						1771					

Peak Hour 5:00 PM - 6:00 PM
Percent Trucks 0%

Time		U-Turns			
Approach:		Northbound		Southbound	
Vehicle Type		C	T	C	T
4:00 PM	4:15 PM				
4:15 PM	4:30 PM				
4:30 PM	4:45 PM				
4:45 PM	5:00 PM				
5:00 PM	5:15 PM				
5:15 PM	5:30 PM				
5:30 PM	5:45 PM				
5:45 PM	6:00 PM				
Total		0	0	0	0
Peak Total		0	0	0	0
Peak Movement Total		0		0	
Peak Turn Percent		#DIV/0!		#DIV/0!	

Peak Hour Approach Traffic Volume and Percentage

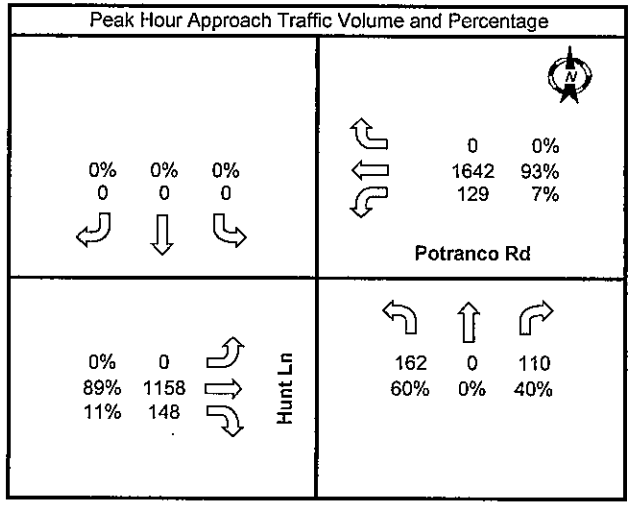


EXHIBIT (C) - TRAFFIC IMPACT ANALYSIS
PART 2 OF 4

Location:	SH 151 and Hunt Ln
Project #:	7897-52
North-South street:	SH 151
East-West street:	Hunt Ln
Time Period:	1 7:00 - 9:00 AM
Date recorded:	Thursday March 22, 2012
Traffic Count Sub	GRAM Traffic
Comments:	None

Pape Dawson Engineers, Inc.
555 E. Ramsey
San Antonio, TX 78216

Time		Northbound						Southbound						Eastbound						Westbound					
Movement		left		thru		right		left		thru		right		left		thru		right		left		thru		right	
Vehicle Type		C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T
7:00 AM	7:15 AM	0		71		35		0		0		0		2		3		0		0		247		5	
7:15 AM	7:30 AM	3		89		65		0		0		0		6		0		0		0		317		2	
7:30 AM	7:45 AM	2		108		81		0		0		0		7		3		0		0		252		7	
7:45 AM	8:00 AM	4		140		104		0		0		0		1		1		0		0		194		7	
8:00 AM	8:15 AM	4		105		99		0		0		0		2		4		0		0		163		3	
8:15 AM	8:30 AM	4		88		75		0		0		0		0		2		0		0		150		6	
8:30 AM	8:45 AM	4		98		74		0		0		0		3		2		0		0		162		7	
8:45 AM	9:00 AM	5		68		44		0		0		0		0		1		0		0		130		4	
Total		26	0	767	0	577	0	0	0	0	0	0	0	21	0	16	0	0	0	0	0	1615	0	41	0
Peak Total		13	0	442	0	349	0	0	0	0	0	0	0	16	0	8	0	0	0	0	0	926	0	19	0
Peak Movement Total		13		442		349		0		0		0		16		8		0		0		926		19	
Peak Turn Percent		2%		55%		43%		0%		0%		0%		67%		33%		0%		0%		98%		2%	
Peak Approach Total		804						0						24						945					

Peak Hour 7:15 AM - 8:15 AM
Percent Trucks 0%

Time		U-Turns			
Approach:		Northbound		Southbound	
Vehicle Type		C	T	C	T
7:00 AM	7:15 AM				
7:15 AM	7:30 AM				
7:30 AM	7:45 AM				
7:45 AM	8:00 AM				
8:00 AM	8:15 AM				
8:15 AM	8:30 AM				
8:30 AM	8:45 AM				
8:45 AM	9:00 AM				
Total		0	0	0	0
Peak Total		0	0	0	0
Peak Movement Total		0		0	
Peak Turn Percent		#DIV/0!		#DIV/0!	

Peak Hour Approach Traffic Volume and Percentage

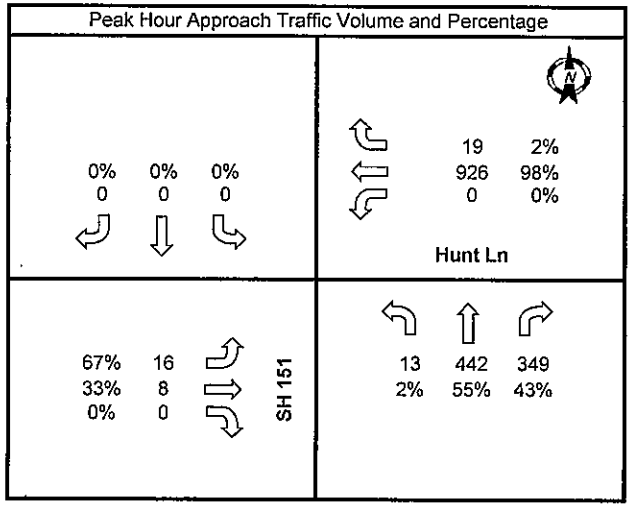


EXHIBIT (C) - TRAFFIC IMPACT ANALYSIS
PART 2 OF 4

Location:	SH 151 and Hunt Ln
Project #:	7897-52
North-South street:	SH 151
East-West street:	Hunt Ln
Time Period:	3 4:00 - 6:00 PM
Date recorded:	Thursday March 22, 2012
Traffic Count Sub	GRAM Traffic
Comments:	None

Pape Dawson Engineers, Inc.
555 E. Ramsey
San Antonio, TX 78216

Time		Northbound						Southbound						Eastbound						Westbound					
Movement		left		thru		right		left		thru		right		left		thru		right		left		thru		right	
Vehicle Type		C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T
4:00 PM	4:15 PM	6		175		190		0		0		0		15		13		0		0		86		4	
4:15 PM	4:30 PM	5		181		165		0		0		0		17		6		0		0		108		13	
4:30 PM	4:45 PM	6		168		194		0		0		0		12		6		0		0		90		9	
4:45 PM	5:00 PM	6		144		199		0		0		0		12		7		0		0		124		8	
5:00 PM	5:15 PM	6		179		157		0		0		0		9		8		0		0		118		6	
5:15 PM	5:30 PM	8		189		184		0		0		0		14		10		0		0		105		6	
5:30 PM	5:45 PM	2		140		189		0		0		0		8		7		0		0		111		12	
5:45 PM	6:00 PM	6		154		189		0		0		0		8		11		0		0		86		5	
Total		45	0	1330	0	1467	0	0	0	0	0	0	0	95	0	68	0	0	0	0	0	828	0	63	0
Peak Total		26	0	680	0	734	0	0	0	0	0	0	0	47	0	31	0	0	0	0	0	437	0	29	0
Peak Movement Total		26		680		734		0		0		0		47		31		0		0		437		29	
Peak Turn Percent		2%		47%		51%		0%		0%		0%		60%		40%		0%		0%		94%		6%	
Peak Approach Total		1440						0						78						466					

Peak Hour 4:30 PM - 5:30 PM
Percent Trucks 0%

Time		U-Turns			
Approach:		Northbound		Southbound	
Vehicle Type		C	T	C	T
4:00 PM	4:15 PM				
4:15 PM	4:30 PM				
4:30 PM	4:45 PM				
4:45 PM	5:00 PM				
5:00 PM	5:15 PM				
5:15 PM	5:30 PM				
5:30 PM	5:45 PM				
5:45 PM	6:00 PM				
Total		0	0	0	0
Peak Total		0	0	0	0
Peak Movement Total		0		0	
Peak Turn Percent		#DIV/0!		#DIV/0!	

Peak Hour Approach Traffic Volume and Percentage

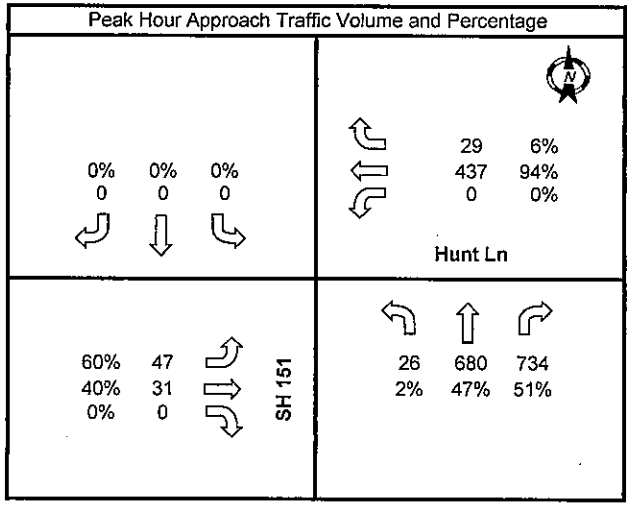


EXHIBIT (C) - TRAFFIC IMPACT ANALYSIS
PART 2 OF 4

Location:	SH 151 and Hunt Ln
Project #:	7897-52
North-South street:	SH 151
East-West street:	Hunt Ln
Time Period:	1 7:00 - 9:00 AM
Date recorded:	Thursday March 22, 2012
Traffic Count Sub	GRAM Traffic
Comments:	None

Pape Dawson Engineers, Inc.
555 E. Ramsey
San Antonio, TX 78216

Time		Northbound						Southbound					
Movement		left		thru		right		left		thru		right	
Vehicle Type		C	T	C	T	C	T	C	T	C	T	C	T
7:00 AM	7:15 AM	0		0		0		5		292		0	
7:15 AM	7:30 AM	0		0		0		7		323		0	
7:30 AM	7:45 AM	0		0		0		9		313		0	
7:45 AM	8:00 AM	0		0		0		3		173		0	
8:00 AM	8:15 AM	0		0		0		5		118		0	
8:15 AM	8:30 AM	0		0		0		2		122		0	
8:30 AM	8:45 AM	0		0		0		5		79		0	
8:45 AM	9:00 AM	0		0		0		3		67		0	
Total		0	0	0	0	0	0	39	0	1487	0	0	0
Peak Total		0	0	0	0	0	0	24	0	1101	0	0	0
Peak Movement Total		0		0		0		24		1101		0	
Peak Turn Percent		0%		0%		0%		2%		98%		0%	
Peak Approach Total		0						1125					

Time		Eastbound						Westbound					
Movement		left		thru		right		left		thru		right	
Vehicle Type		C	T	C	T	C	T	C	T	C	T	C	T
7:00 AM	7:15 AM	0		0		0		259		0		0	
7:15 AM	7:30 AM	0		0		0		312		0		0	
7:30 AM	7:45 AM	0		0		0		260		0		0	
7:45 AM	8:00 AM	0		0		0		204		0		0	
8:00 AM	8:15 AM	0		0		0		166		0		0	
8:15 AM	8:30 AM	0		0		0		153		0		0	
8:30 AM	8:45 AM	0		0		0		166		0		0	
8:45 AM	9:00 AM	0		0		0		133		0		0	
Total		0	0	0	0	0	0	1653	0	0	0	0	0
Peak Total		0	0	0	0	0	0	1035	0	0	0	0	0
Peak Movement Total		0		0		0		1035		0		0	
Peak Turn Percent		0%		0%		0%		100%		0%		0%	
Peak Approach Total		0						1035					

Peak Hour 7:00 AM - 8:00 AM
Percent Trucks 0%

Time		U-Turns			
Approach:		Northbound		Southbound	
Vehicle Type		C	T	C	T
7:00 AM	7:15 AM				
7:15 AM	7:30 AM				
7:30 AM	7:45 AM				
7:45 AM	8:00 AM				
8:00 AM	8:15 AM				
8:15 AM	8:30 AM				
8:30 AM	8:45 AM				
8:45 AM	9:00 AM				
Total		0	0	0	0
Peak Total		0	0	0	0
Peak Movement Total		0		0	
Peak Turn Percent		0%		0%	

Peak Hour Approach Traffic Volume and Percentage

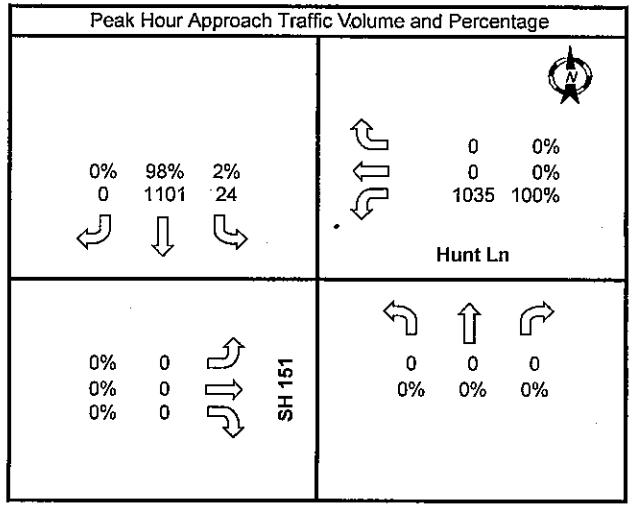


EXHIBIT (C) - TRAFFIC IMPACT ANALYSIS
PART 2 OF 4

Location:	SH 151 and Hunt Ln
Project #:	7897-52
North-South street:	SH 151
East-West street:	Hunt Ln
Time Period:	3 | 4:00 - 6:00 PM
Date recorded:	Thursday March 22, 2012
Traffic Count Sub	GRAM Traffic
Comments:	None

Pape Dawson Engineers, Inc.
555 E. Ramsey
San Antonio, TX 78216

Time		Northbound						Southbound						Eastbound						Westbound					
Movement		left		thru		right		left		thru		right		left		thru		right		left		thru		right	
Vehicle Type		C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T
4:00 PM	4:15 PM	0		0		0		30		119		0		0		0		0		93		0		0	
4:15 PM	4:30 PM	0		0		0		22		117		0		0		0		0		109		0		0	
4:30 PM	4:45 PM	0		0		0		18		130		0		0		0		0		107		0		0	
4:45 PM	5:00 PM	0		0		0		18		121		0		0		0		0		125		0		0	
5:00 PM	5:15 PM	0		0		0		17		142		0		0		0		0		116		0		0	
5:15 PM	5:30 PM	0		0		0		25		136		0		0		0		0		113		0		0	
5:30 PM	5:45 PM	0		0		0		15		135		0		0		0		0		112		0		0	
5:45 PM	6:00 PM	0		0		0		18		104		0		0		0		0		90		0		0	
Total		0	0	0	0	0	0	163	0	1004	0	0	0	0	0	0	0	0	0	865	0	0	0	0	0
Peak Total		0	0	0	0	0	0	75	0	534	0	0	0	0	0	0	0	0	0	466	0	0	0	0	0
Peak Movement Total		0		0		0		75		534		0		0		0		0		466		0		0	
Peak Turn Percent		0%		0%		0%		12%		88%		0%		0%		0%		0%		100%		0%		0%	
Peak Approach Total		0						609						0						466					

Peak Hour 4:45 PM - 5:45 PM
Percent Trucks 0%

Time		U-Turns			
Approach:		Northbound		Southbound	
Vehicle Type		C	T	C	T
4:00 PM	4:15 PM				
4:15 PM	4:30 PM				
4:30 PM	4:45 PM				
4:45 PM	5:00 PM				
5:00 PM	5:15 PM				
5:15 PM	5:30 PM				
5:30 PM	5:45 PM				
5:45 PM	6:00 PM				
Total		0	0	0	0
Peak Total		0	0	0	0
Peak Movement Total		0		0	
Peak Turn Percent		0%		0%	

Peak Hour Approach Traffic Volume and Percentage

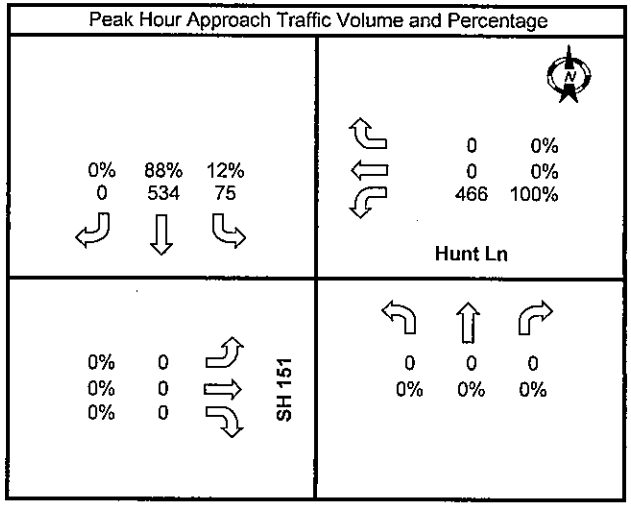


EXHIBIT (C) - TRAFFIC IMPACT ANALYSIS
PART 2 OF 4

Location:	SH 151 and Ingram Rd
Project #:	7897-52
North-South street:	SH 151
East-West street:	Ingram Rd
Time Period:	1 7:00 - 9:00 AM
Date recorded:	Thursday March 22, 2012
Traffic Count Sub	GRAM Traffic
Comments:	None

Pape Dawson Engineers, Inc.
555 E. Ramsey
San Antonio, TX 78216

Time		Northbound						Southbound						Eastbound						Westbound					
Movement		left		thru		right		left		thru		right		left		thru		right		left		thru		right	
Vehicle Type		C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T
7:00 AM	7:15 AM	62		67		14		0		0		0		45		86		0		0		66		5	
7:15 AM	7:30 AM	62		102		37		0		0		0		54		98		0		0		90		8	
7:30 AM	7:45 AM	56		113		30		0		0		0		72		116		0		0		59		11	
7:45 AM	8:00 AM	47		116		55		0		0		0		80		129		0		0		85		5	
8:00 AM	8:15 AM	47		133		43		0		0		0		64		91		0		0		60		12	
8:15 AM	8:30 AM	54		129		46		0		0		0		47		80		0		0		40		2	
8:30 AM	8:45 AM	59		133		35		0		0		0		41		54		0		0		44		6	
8:45 AM	9:00 AM	57		129		21		0		0		0		28		60		0		0		40		4	
Total		444	0	922	0	281	0	0	0	0	0	0	0	431	0	714	0	0	0	0	0	484	0	53	0
Peak Total		212	0	464	0	165	0	0	0	0	0	0	0	270	0	434	0	0	0	0	0	294	0	36	0
Peak Movement Total		212		464		165		0		0		0		270		434		0		0		294		36	
Peak Turn Percent		25%		55%		20%		0%		0%		0%		38%		62%		0%		0%		89%		11%	
Peak Approach Total		841						0						704						330					

Peak Hour 7:15 AM - 8:15 AM
Percent Trucks 0%

Time		U-Turns			
Approach		Northbound		Southbound	
Vehicle Type		C	T	C	T
7:00 AM	7:15 AM				
7:15 AM	7:30 AM				
7:30 AM	7:45 AM				
7:45 AM	8:00 AM				
8:00 AM	8:15 AM				
8:15 AM	8:30 AM				
8:30 AM	8:45 AM				
8:45 AM	9:00 AM				
Total		0	0	0	0
Peak Total		0	0	0	0
Peak Movement Total		0		0	
Peak Turn Percent		#DIV/0!		#DIV/0!	

Peak Hour Approach Traffic Volume and Percentage

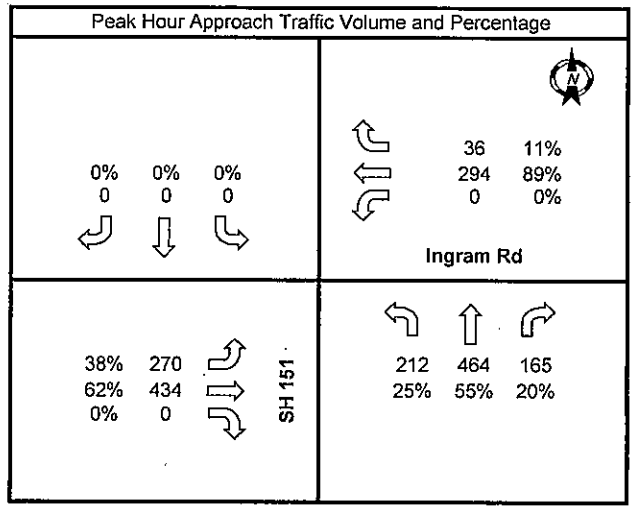


EXHIBIT (C) - TRAFFIC IMPACT ANALYSIS
PART 2 OF 4

Location:	SH 151 and Ingram Rd
Project #:	7897-52
North-South street:	SH 151
East-West street:	Ingram Rd
Time Period:	3 | 4:00 - 6:00 PM
Date recorded:	Thursday March 22, 2012
Traffic Count Sub	GRAM Traffic
Comments:	None

Pape Dawson Engineers, Inc.
555 E. Ramsey
San Antonio, TX 78216

Time		Northbound						Southbound						Eastbound						Westbound					
Movement		left		thru		right		left		thru		right		left		thru		right		left		thru		right	
Vehicle Type		C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T
4:00 PM	4:15 PM	170		337		63		0		0		0		53		74		0		0		87		45	
4:15 PM	4:30 PM	163		304		51		0		0		0		51		68		0		0		96		26	
4:30 PM	4:45 PM	167		280		49		0		0		0		49		116		0		0		126		42	
4:45 PM	5:00 PM	166		253		55		0		0		0		55		129		0		0		117		44	
5:00 PM	5:15 PM	172		275		45		0		0		0		59		124		0		0		156		51	
5:15 PM	5:30 PM	193		302		51		0		0		0		76		90		0		0		150		44	
5:30 PM	5:45 PM	200		279		40		0		0		0		55		110		0		0		142		43	
5:45 PM	6:00 PM	158		309		47		0		0		0		49		123		0		0		149		44	
Total		1389	0	2339	0	401	0	0	0	0	0	0	0	447	0	834	0	0	0	0	0	1023	0	339	0
Peak Total		723	0	1165	0	183	0	0	0	0	0	0	0	239	0	447	0	0	0	0	0	597	0	182	0
Peak Movement Total		723		1165		183		0		0		0		239		447		0		0		597		182	
Peak Turn Percent		35%		56%		9%		0%		0%		0%		35%		65%		0%		0%		77%		23%	
Peak Approach Total		2071						0						686						779					

Peak Hour 5:00 PM - 6:00 PM
Percent Trucks 0%

Time		U-Turns			
Approach:		Northbound		Southbound	
Vehicle Type		C	T	C	T
4:00 PM	4:15 PM				
4:15 PM	4:30 PM				
4:30 PM	4:45 PM				
4:45 PM	5:00 PM				
5:00 PM	5:15 PM				
5:15 PM	5:30 PM				
5:30 PM	5:45 PM				
5:45 PM	6:00 PM				
Total		0	0	0	0
Peak Total		0	0	0	0
Peak Movement Total		0		0	
Peak Turn Percent		#DIV/0!		#DIV/0!	

Peak Hour Approach Traffic Volume and Percentage

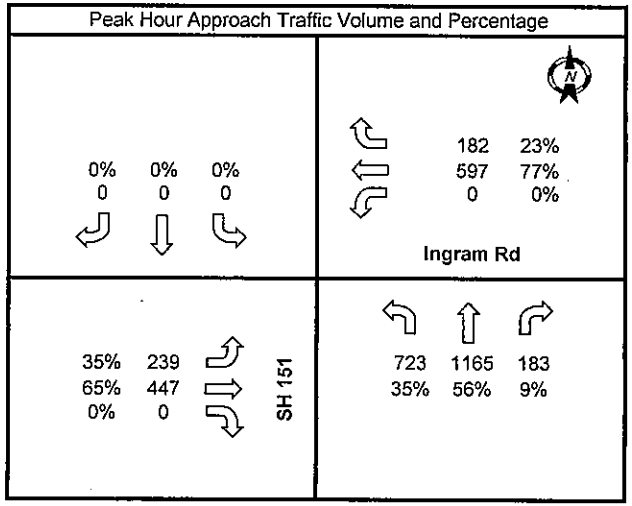


EXHIBIT (C) - TRAFFIC IMPACT ANALYSIS
PART 2 OF 4

Location:	SH 151 and Ingram Rd
Project #:	7897-52
North-South street:	SH 151
East-West street:	Ingram Rd
Time Period:	1 7:00 - 9:00 AM
Date recorded:	Thursday March 22, 2012
Traffic Count Sub	GRAM Traffic
Comments:	None

Pape Dawson Engineers, Inc.
555 E. Ramsey
San Antonio, TX 78216

Time		Northbound						Southbound						Eastbound						Westbound					
Movement		left		thru		right		left		thru		right		left		thru		right		left		thru		right	
Vehicle Type		C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T
7:00 AM	7:15 AM	0		0		0		12		195		58		0		133		159		73		45		0	
7:15 AM	7:30 AM	0		0		0		17		189		28		0		162		193		70		67		0	
7:30 AM	7:45 AM	0		0		0		29		208		28		0		149		120		67		46		0	
7:45 AM	8:00 AM	0		0		0		26		164		27		0		184		101		75		49		0	
8:00 AM	8:15 AM	0		0		0		20		198		16		0		129		93		45		60		0	
8:15 AM	8:30 AM	0		0		0		19		205		23		0		97		71		52		42		0	
8:30 AM	8:45 AM	0		0		0		7		179		14		0		74		72		54		44		0	
8:45 AM	9:00 AM	0		0		0		19		211		20		0		71		43		50		42		0	
Total		0	0	0	0	0	0	149	0	1549	0	214	0	0	0	999	0	852	0	486	0	395	0	0	0
Peak Total		0	0	0	0	0	0	84	0	756	0	141	0	0	0	628	0	573	0	285	0	207	0	0	0
Peak Movement Total		0		0		0		84		756		141		0		628		573		285		207		0	
Peak Turn Percent		0%		0%		0%		9%		77%		14%		0%		52%		48%		58%		42%		0%	
Peak Approach Total		0						981						1201						492					

Peak Hour 7:00 AM - 8:00 AM
Percent Trucks 0%

Time		U-Turns			
Approach:		Northbound		Southbound	
Vehicle Type		C	T	C	T
7:00 AM	7:15 AM				
7:15 AM	7:30 AM				
7:30 AM	7:45 AM				
7:45 AM	8:00 AM				
8:00 AM	8:15 AM				
8:15 AM	8:30 AM				
8:30 AM	8:45 AM				
8:45 AM	9:00 AM				
Total		0	0	0	0
Peak Total		0	0	0	0
Peak Movement Total		0		0	
Peak Turn Percent		0%		0%	

Peak Hour Approach Traffic Volume and Percentage

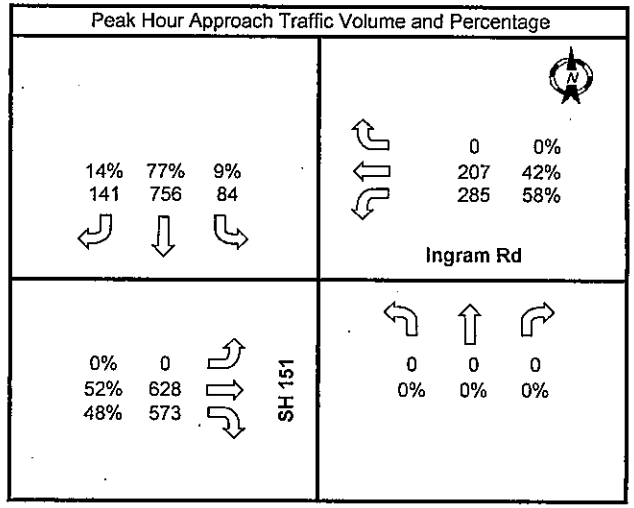


EXHIBIT (C) - TRAFFIC IMPACT ANALYSIS
PART 2 OF 4

Location:	SH 151 and Ingram Rd
Project #:	7897-52
North-South street:	SH 151
East-West street:	Ingram Rd
Time Period:	3 4:00 - 6:00 PM
Date recorded:	Thursday March 22, 2012
Traffic Count Sub	GRAM Traffic
Comments:	None

Pape Dawson Engineers, Inc.
555 E. Ramsey
San Antonio, TX 78216

Time		Northbound						Southbound						Eastbound						Westbound					
Movement		left		thru		right		left		thru		right		left		thru		right		left		thru		right	
Vehicle Type		C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T	C	T
4:00 PM	4:15 PM	0		0		0		29		165		44		0		106		48		106		131		0	
4:15 PM	4:30 PM	0		0		0		19		180		33		0		96		39		98		146		0	
4:30 PM	4:45 PM	0		0		0		30		143		51		0		117		46		120		157		0	
4:45 PM	5:00 PM	0		0		0		41		146		47		0		132		47		102		150		0	
5:00 PM	5:15 PM	0		0		0		37		190		51		0		150		53		104		195		0	
5:15 PM	5:30 PM	0		0		0		23		133		61		0		143		51		108		206		0	
5:30 PM	5:45 PM	0		0		0		30		154		43		0		133		48		117		213		0	
5:45 PM	6:00 PM	0		0		0		24		178		42		0		136		41		110		212		0	
Total		0	0	0	0	0	0	233	0	1289	0	372	0	0	0	1013	0	373	0	865	0	1410	0	0	0
Peak Total		0	0	0	0	0	0	114	0	655	0	197	0	0	0	562	0	193	0	439	0	826	0	0	0
Peak Movement Total		0		0		0		114		655		197		0		562		193		439		826		0	
Peak Turn Percent		0%		0%		0%		12%		68%		20%		0%		74%		26%		35%		65%		0%	
Peak Approach Total		0						966						755						1265					

Peak Hour 5:00 PM - 6:00 PM
Percent Trucks 0%

Time		U-Turns			
Approach:		Northbound		Southbound	
Vehicle Type		C	T	C	T
4:00 PM	4:15 PM				
4:15 PM	4:30 PM				
4:30 PM	4:45 PM				
4:45 PM	5:00 PM				
5:00 PM	5:15 PM				
5:15 PM	5:30 PM				
5:30 PM	5:45 PM				
5:45 PM	6:00 PM				
Total		0	0	0	0
Peak Total		0	0	0	0
Peak Movement Total		0		0	
Peak Turn Percent		0%		0%	

Peak Hour Approach Traffic Volume and Percentage

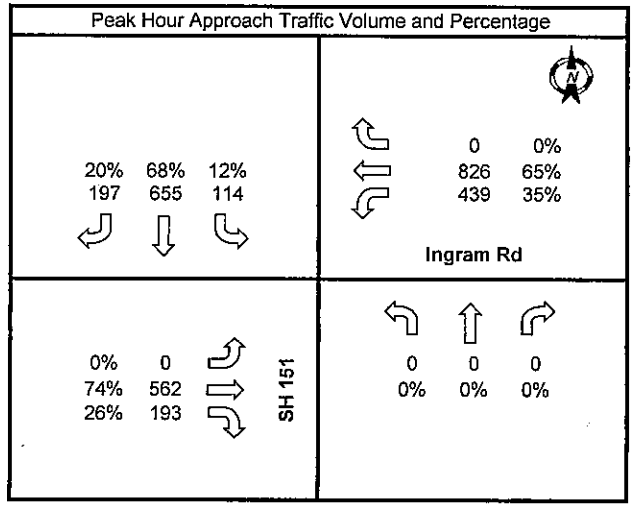


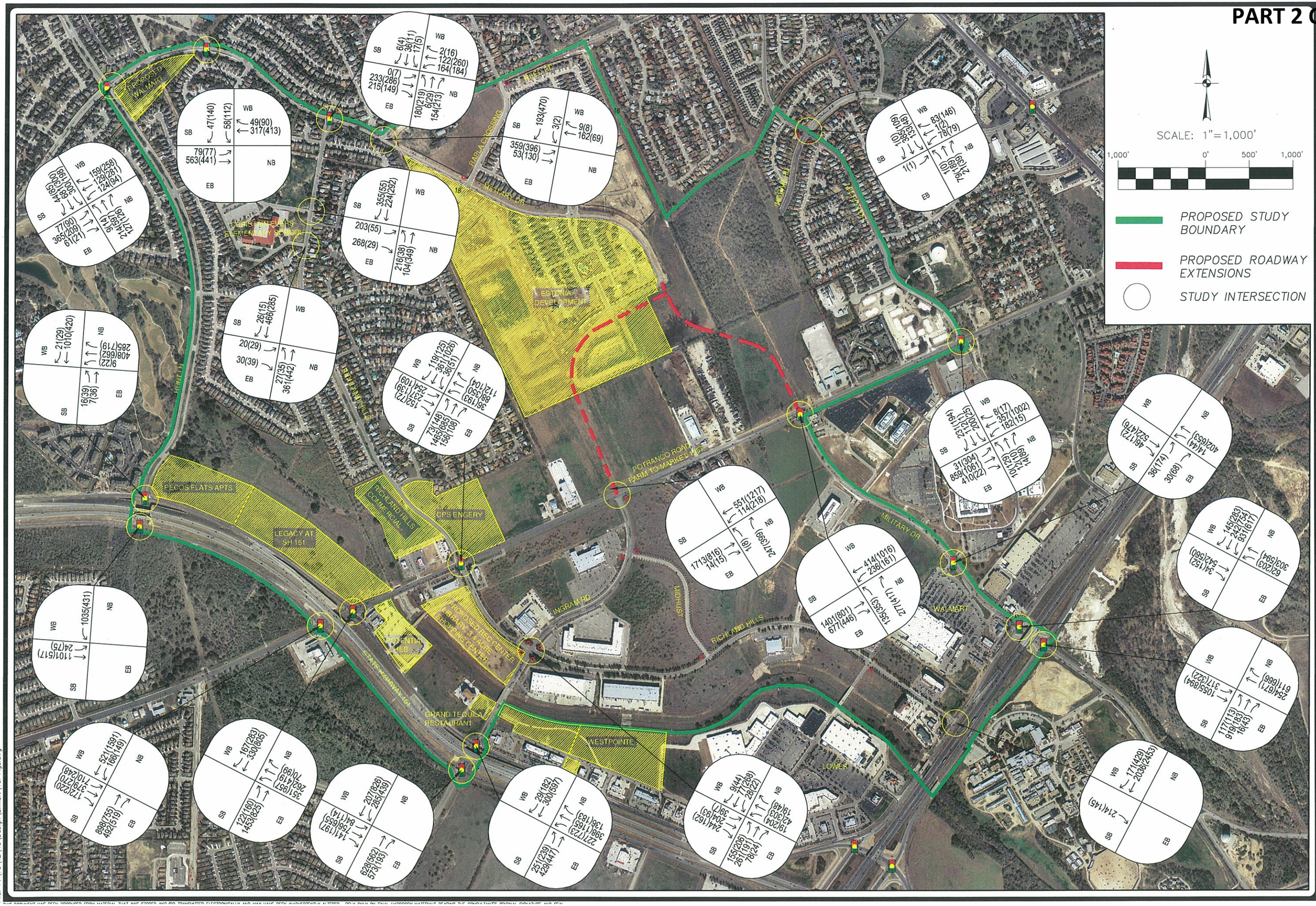
EXHIBIT (C) - TRAFFIC IMPACT ANALYSIS
PART 2 OF 4

Figures


SCALE: 1"=1,000'
1,000'
0'
500'
1,000'
PROPOSED STUDY BOUNDARY
PROPOSED ROADWAY EXTENSIONS
STUDY INTERSECTION
PAPE-DAWSON ENGINEERS
555 EAST RAMSEY | SAN ANTONIO, TEXAS 78216 | PHONE: 210.375.9000 FAX: 210.375.9010
TEXAS BOARD OF PROFESSIONAL ENGINEERS, FIRM REGISTRATION # 470
POTRANCO AND MILITARY TRAFFIC STUDY
CITY OF SAN ANTONIO, TEXAS
FIGURE 1: STUDY BOUNDARY
JOB NO. 7912-40
DATE NOV 2013
DESIGNER JWC
CHECKED KC
DRAWN JWC
SHEET 1 of 1
PROPOSED WALMART
JACK C. JORDAN MIDDLE SCHOOL
ESTONIA DEVELOPMENT
PECOS FLATS APTS
LEGACY AT SH 151
CPS ENGERY
POTRANCO ROAD FARM TO MARKET 1957
TEXAS CRYPTOLOGY CENTER
MILITARY DR
WALMART
INGRAM RD
RICHLAND HILLS
GRAND TEQUILA RESTAURANT
WESTPOINTE
CARL'S JR
TARGET
LOWES
Date: Jan 13, 2014, 9:11am User ID: JClark
File: P:\79\12\40\Design\Exhibit\Location Map-Study Boundary.dwg

EXHIBIT (C) - TRAFFIC IMPACT ANALYSIS

PART 2 OF 4



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POTRANCO AND MILITARY TRAFFIC STUDY

CITY OF SAN ANTONIO, TEXAS

FIGURE 2: EXISTING TRAFFIC VOLUMES-2013

JOB NO. 7912-40
DATE NOV 2013
DESIGNER JWC
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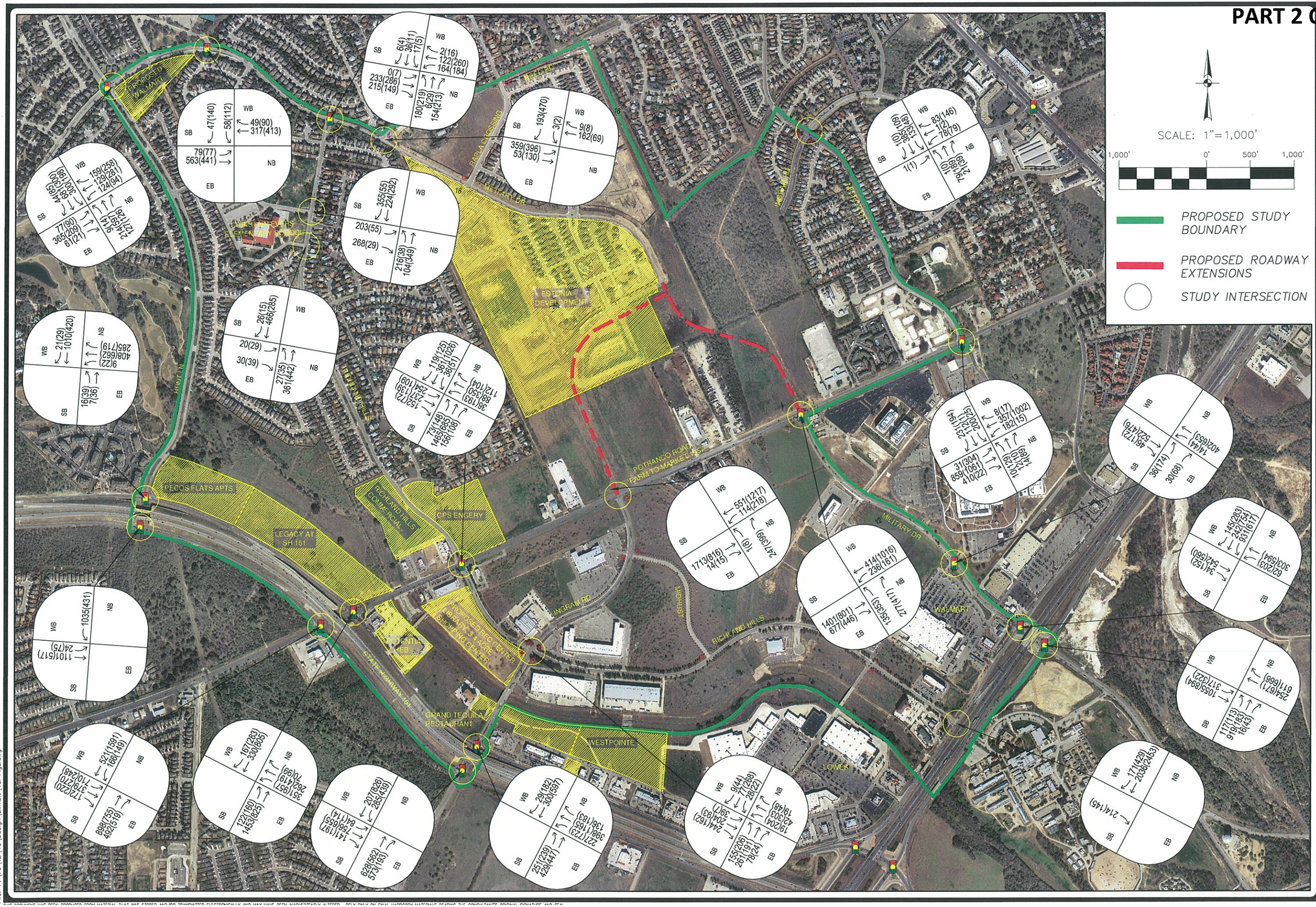
EXHIBIT (C) - TRAFFIC IMPACT ANALYSIS

PART 2 OF 4



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POTRANCO AND MILITARY TRAFFIC STUDY

CITY OF SAN ANTONIO, TEXAS

FIGURE 3: NO BUILD TRAFFIC VOLUMES-2023

JOB NO.	7912-40
DATE	NOV 2013
DESIGNER	JWC
CHECKED	KC
DRAWN	JWC
SHEET	1 of 1

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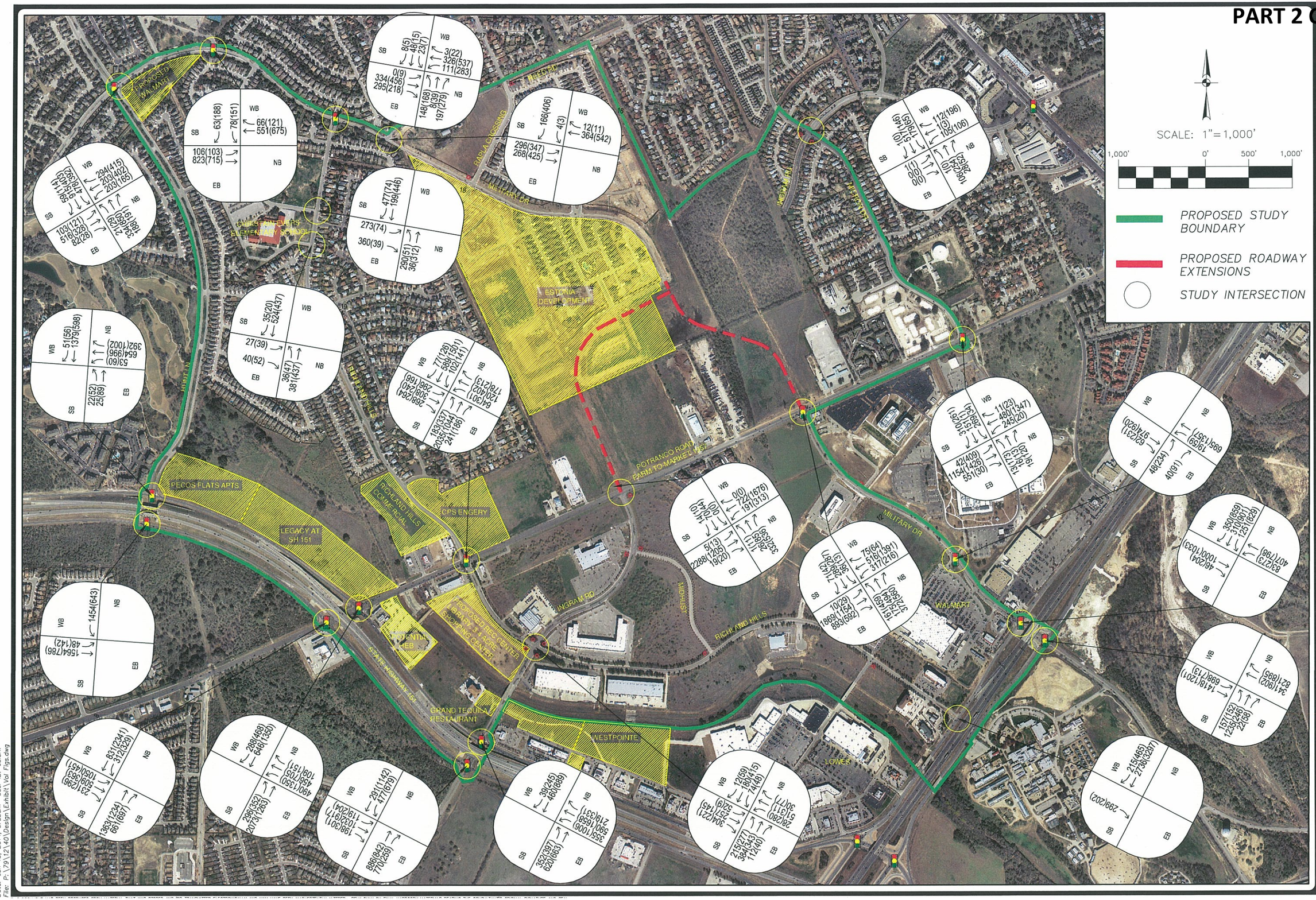
EXHIBIT (C) - TRAFFIC IMPACT ANALYSIS

PART 2 OF 4



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POTRANCO AND MILITARY TRAFFIC STUDY

CITY OF SAN ANTONIO, TEXAS

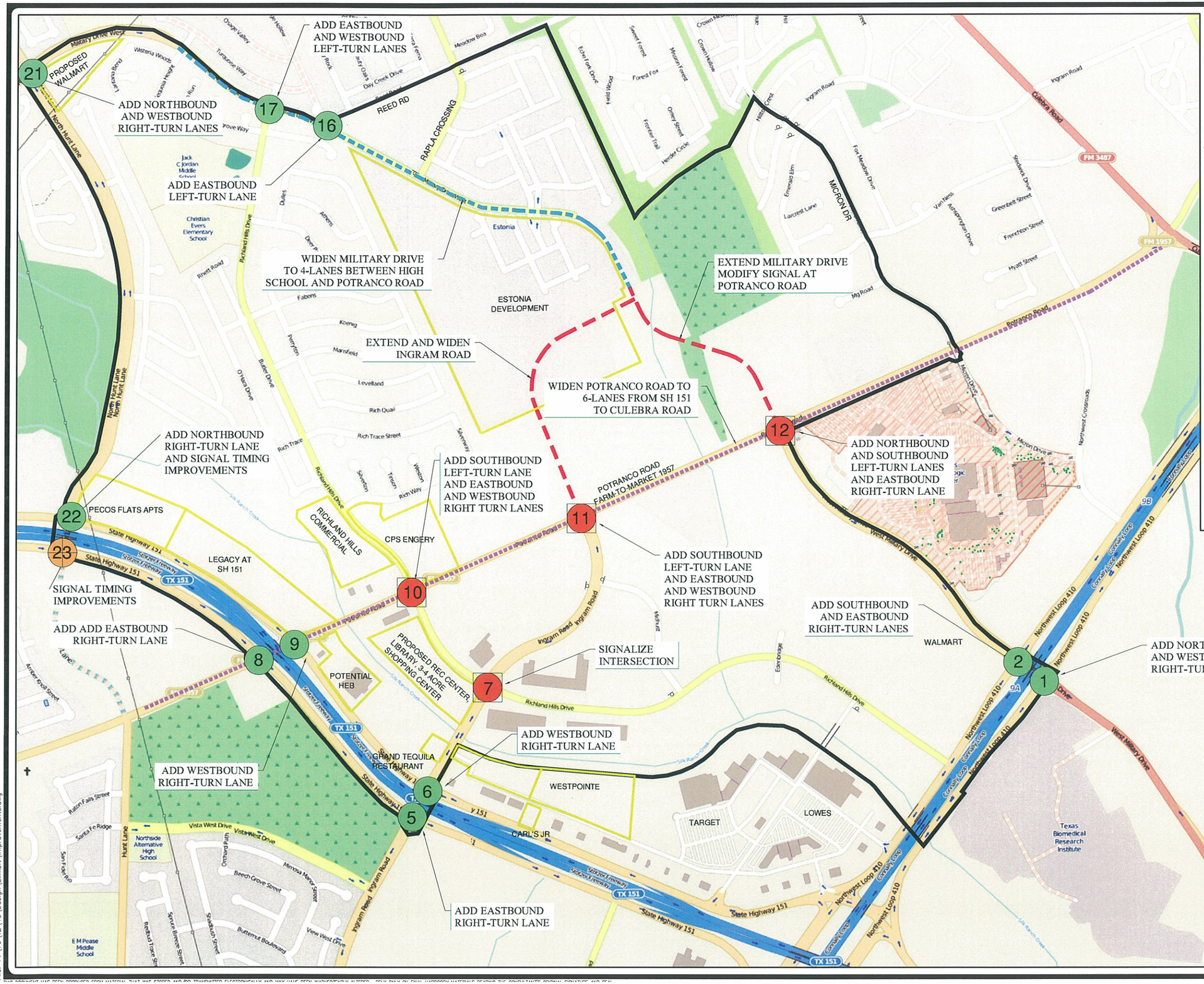
FIGURE 4: REDISTRIBUTED TRAFFIC VOLUMES-2023

JOB NO. 7912-40
DATE NOV 2013
DESIGNER JWC
CHECKED KC
DRAWN JWC
SHEET 1 of 1

Date: Jan 13, 2014, 9:05am User ID: JClark
File: P:\79\12\40\Design\Exhibit\Vol Figs.dwg

EXHIBIT (C) - TRAFFIC IMPACT ANALYSIS

PART 2 OF 4



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POTRANCO AND MILITARY TRAFFIC STUDY

CITY OF SAN ANTONIO, TEXAS

FIGURE 5: IMPROVEMENTS EXHIBIT

JOB NO. 7912-40
DATE NOV 2013
DESIGNER JWC
CHECKED KC
DRAWN JWC
SHEET 1 of 1

Date: Feb 28, 2014, 12:57pm User ID: JClark
File: P:\79\12\40\Design\Exhibit\Improvements.dwg

Design Filename: P:\79\12\40\Design\Exhibit\Pedestrian_Exhibit01.dgn
Plotted on: 2/28/2014

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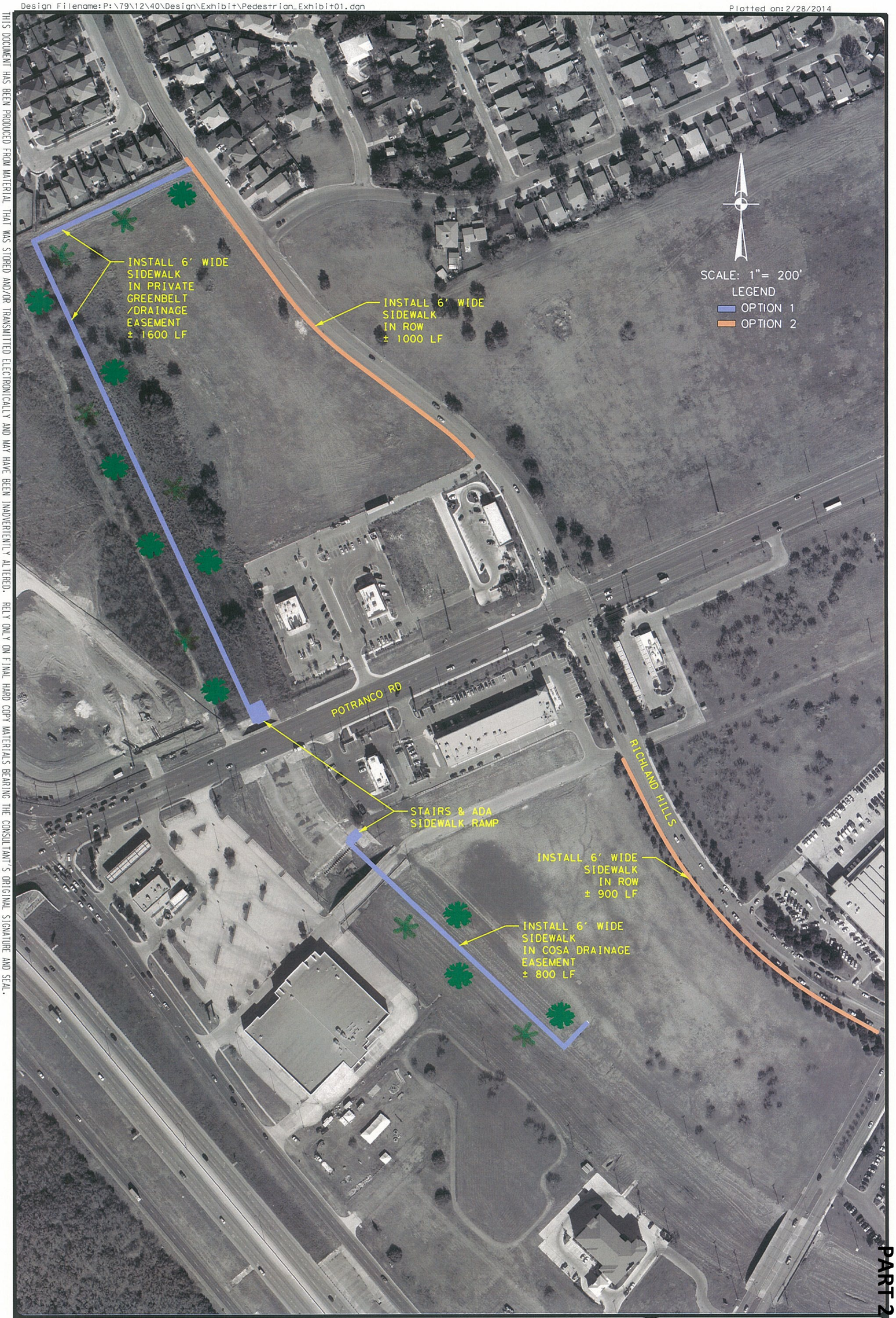

DISTRICT 6 TRAFFIC STUDY
FIGURE 6: PEDESTRIAN FACILITIES

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Capacity Analyses Worksheets & Queuing Reports

Level of Service at Signalized Intersections

Level of Service	Average Intersection Delay (sec/veh)	Description
A	≤ 10	No delays at intersection, smooth progression of traffic. Uncongested operations. All vehicles clear in a single signal cycle.
B	> 10 and ≤ 20	No delays at intersection, smooth progression of traffic. Uncongested operations. All vehicles clear in a single signal cycle.
C	> 20 and ≤ 35	Moderate delay, satisfactory to good progression of traffic. Light congestion, occasional backups on critical (high volume) approaches.
D	> 35 and ≤ 55	Little or no progression of traffic along the roadway with a high probability of stopping at signalized intersections operating at this level of service. Significant congestion on critical approaches, but intersection is functional. Vehicles required to wait through more than one cycle during short peak periods.
E	> 55 and ≤ 80	Heavy traffic flow conditions. Delays of two or more traffic signal cycles probably. No progression may occur if signal does not provide for protected turning movements.
F	> 80	Unstable traffic flow. Heavy congestion. Traffic moves in forced flow condition. Three or more cycles required to pass intersection. Total breakdown with stop and go conditions.
*	> > 80	Very unstable traffic flow. Very heavy congestion. Traffic moves in forced flow condition. More than three cycles required to pass intersection. Total breakdown. Stop and go only. Delays are beyond the range of the *Highway Capacity Manual* equations. Represents an extreme level of over saturation.

Level of service at signalized intersections is determined by the average vehicle delay at the intersection. Values can be reported for the intersection as a whole or for each individual movement. The general characteristics associated with each level of service for signalized intersections are presented in the table above.

Level of Service at Unsignalized Intersections

Level of Service	Average Intersection Delay (sec/veh)	Description
A	≤ 10	Little or no delay
B	> 10 and ≤ 15	Short traffic delay
C	> 15 and ≤ 25	Average traffic delay
D	> 25 and ≤ 35	Long traffic delay
E	> 35 and ≤ 50	Very long traffic delay
F	> 50	Extreme delays, possibly severe congestion

Level of service at unsignalized intersections is determined by the average delay a vehicle experiences at each intersection approach. An overall intersection delay and LOS is reported for All-Way-Stop-Controlled (AWSC) intersections. However, at Two-Way-Stop-Controlled (TWSC) intersections, delay is primarily experienced by vehicles on the stop-controlled approaches only. Therefore, a different level of service is reported for each stop-controlled approach at TWSC intersections. The general characteristics associated with each level of service for unsignalized intersections are based on the *Highway Capacity Manual*. [1]

[1] Transportation Research Board/National Research Council. 2000. *Highway Capacity Manual. Third Edition*, Washington, D.C.

HCM Signalized Intersection Capacity Analysis
1: IH-410 NB Frnt Rd & Military Dr

Existing AM-2013
1/9/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	117	919	16	0	0	0	0	254	611	317	1055	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0						5.1		6.0	6.0	
Lane Util. Factor	0.91	0.91						0.91		0.91	0.91	
Frt	1.00	1.00						0.89		1.00	1.00	
Flt Protected	0.95	1.00						1.00		0.95	1.00	
Satd. Flow (prot)	1610	3376						4546		1610	3385	
Flt Permitted	0.95	1.00						1.00		0.16	0.94	
Satd. Flow (perm)	1610	3376						4546		272	3180	
Peak-hour factor, PHF	0.89	0.81	0.57	1.00	1.00	1.00	1.00	0.86	0.86	0.88	0.91	1.00
Adj. Flow (vph)	131	1135	28	0	0	0	0	295	710	360	1159	0
RTOR Reduction (vph)	0	1	0	0	0	0	0	169	0	0	0	0
Lane Group Flow (vph)	118	1175	0	0	0	0	0	836	0	324	1195	0
Turn Type	Split									pm+pt		
Protected Phases	8 16	8 16						6		5	5 6	
Permitted Phases										5 6		
Actuated Green, G (s)	32.9	32.9						24.9		68.9	68.9	
Effective Green, g (s)	32.9	32.9						24.9		68.9	68.9	
Actuated g/C Ratio	0.28	0.28						0.21		0.58	0.58	
Clearance Time (s)								5.1		6.0		
Vehicle Extension (s)								3.0		3.0		
Lane Grp Cap (vph)	449	941						959		658	1933	
v/s Ratio Prot	0.07	c0.35						c0.18		0.18	c0.23	
v/s Ratio Perm										0.10	0.13	
v/c Ratio	0.26	1.25						1.39dr		0.49	0.62	
Uniform Delay, d1	33.1	42.5						45.0		17.0	16.0	
Progression Factor	1.00	1.00						1.00		0.33	0.22	
Incremental Delay, d2	1.4	120.6						8.8		0.2	0.1	
Delay (s)	34.5	163.1						53.8		5.8	3.6	
Level of Service	C	F						D		A	A	
Approach Delay (s)		151.4			0.0			53.8			4.0	
Approach LOS		F			A			D			A	

Intersection Summary				
HCM Average Control Delay	67.1	HCM Level of Service	E	
HCM Volume to Capacity ratio	0.89			
Actuated Cycle Length (s)	118.0	Sum of lost time (s)	17.1	
Intersection Capacity Utilization	89.2%	ICU Level of Service	E	
Analysis Period (min)	15			

dr Defacto Right Lane. Recode with 1 though lane as a right lane.
c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
2: IH-410 SB Frnt Rd & Military Dr

Existing AM-2013
1/9/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	931	242	145	62	303	0	0	542	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				5.8	5.8		5.7	5.7			5.1	
Lane Util. Factor				0.91	0.91		0.91	0.91			0.95	
Frt				1.00	0.98		1.00	1.00			0.99	
Flt Protected				0.95	0.97		0.95	1.00			1.00	
Satd. Flow (prot)				1610	3222		1610	3387			3502	
Flt Permitted				0.95	0.97		0.16	0.95			1.00	
Satd. Flow (perm)				1610	3222		272	3238			3502	
Peak-hour factor, PHF	1.00	1.00	1.00	0.92	0.80	0.91	0.74	0.75	1.00	1.00	0.84	0.71
Adj. Flow (vph)	0	0	0	1012	302	159	84	404	0	0	645	48
RTOR Reduction (vph)	0	0	0	0	13	0	0	0	0	0	5	0
Lane Group Flow (vph)	0	0	0	506	954	0	76	412	0	0	688	0
Turn Type				Split			pm+pt					
Protected Phases				4 12	4 12		1	1 2			2	
Permitted Phases							1 2					
Actuated Green, G (s)				34.9	34.9		67.2	67.2			24.9	
Effective Green, g (s)				34.9	34.9		67.2	67.2			24.9	
Actuated g/C Ratio				0.30	0.30		0.57	0.57			0.21	
Clearance Time (s)							5.7				5.1	
Vehicle Extension (s)							3.0				3.0	
Lane Grp Cap (vph)				476	953		635	1897			739	
v/s Ratio Prot				c0.31	0.30		0.04	c0.08			c0.20	
v/s Ratio Perm							0.03	0.05				
v/c Ratio				1.06	1.00		0.12	0.22			0.93	
Uniform Delay, d1				41.5	41.5		13.0	12.5			45.7	
Progression Factor				1.00	1.00		0.41	0.28			1.00	
Incremental Delay, d2				59.0	29.5		0.1	0.0			18.4	
Delay (s)				100.6	71.0		5.4	3.5			64.1	
Level of Service				F	E		A	A			E	
Approach Delay (s)		0.0			81.2			3.8			64.1	
Approach LOS		A			F			A			E	

Intersection Summary				
HCM Average Control Delay	62.5	HCM Level of Service	E	
HCM Volume to Capacity ratio	0.69			
Actuated Cycle Length (s)	118.0	Sum of lost time (s)	16.6	
Intersection Capacity Utilization	89.2%	ICU Level of Service	E	
Analysis Period (min)	15			

c Critical Lane Group

EXHIBIT (C) - TRAFFIC IMPACT ANALYSIS
PART 2 OF 4

HCM Unsignalized Intersection Capacity Analysis
3: IH-410 SB Frnt Rd & Richland Hills

Existing AM-2013
1/9/2014

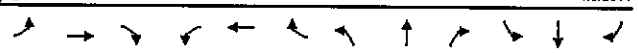
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			↑↑↑			↱
Volume (veh/h)	0	0	2036	171	0	214
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	1.00	1.00	0.86	0.70	1.00	0.81
Hourly flow rate (vph)	0	0	2367	244	0	264
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2612				2490	911
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2612				2490	911
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	5
cM capacity (veh/h)	162				24	277

Direction, Lane #	WB 1	WB 2	WB 3	SB 1
Volume Total	947	947	718	264
Volume Left	0	0	0	0
Volume Right	0	0	244	264
cSH	1700	1700	1700	277
Volume to Capacity	0.56	0.56	0.42	0.95
Queue Length 95th (ft)	0	0	0	230
Control Delay (s)	0.0	0.0	0.0	83.3
Lane LOS				F
Approach Delay (s)	0.0			83.3
Approach LOS				F

Intersection Summary			
Average Delay	7.7		
Intersection Capacity Utilization	63.1%	ICU Level of Service	B
Analysis Period (min)	15		

HCM Signalized Intersection Capacity Analysis
4: Walmart & Military Dr

Existing AM-2013
1/9/2014



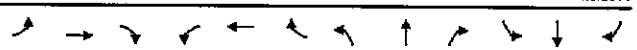
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↱		↔		↰	↑↑			↑↑	
Volume (vph)	36	0	30	0	0	0	14	402	0	0	522	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.7		5.2				5.0	5.9			5.9	
Lane Util. Factor	1.00		1.00				1.00	0.95			0.95	
Frt	1.00		0.85				1.00	1.00			0.99	
Flt Protected	0.95		1.00				0.95	1.00			1.00	
Satd. Flow (prot)	1770		1583				1770	3539			3490	
Flt Permitted	0.95		1.00				0.29	1.00			1.00	
Satd. Flow (perm)	1770		1583				549	3539			3490	
Peak-hour factor, PHF	1.00	1.00	0.83	1.00	1.00	1.00	0.70	0.82	1.00	1.00	0.88	0.77
Adj. Flow (vph)	36	0	36	0	0	0	20	490	0	0	593	60
RTOR Reduction (vph)	0	0	34	0	0	0	0	0	0	0	5	0
Lane Group Flow (vph)	36	0	2	0	0	0	20	490	0	0	648	0
Turn Type	custom		custom	Perm			pm+pt					
Protected Phases	7		4		8		5	2			6	
Permitted Phases	4			8			2					
Actuated Green, G (s)	2.2		1.7				19.1	19.1			13.5	
Effective Green, g (s)	2.2		1.7				19.1	19.1			13.5	
Actuated g/C Ratio	0.07		0.05				0.60	0.60			0.42	
Clearance Time (s)	4.7		5.2				5.0	5.9			5.9	
Vehicle Extension (s)	1.0		1.0				1.0	2.5			2.5	
Lane Grp Cap (vph)	122		84				352	2119			1477	
v/s Ratio Prot	c0.02		0.00				0.00	c0.14			c0.19	
v/s Ratio Perm							0.03					
v/c Ratio	0.30		0.02				0.06	0.23			0.44	
Uniform Delay, d1	14.1		14.3				3.0	3.0			6.5	
Progression Factor	1.00		1.00				1.00	1.00			1.00	
Incremental Delay, d2	0.5		0.0				0.0	0.0			0.2	
Delay (s)	14.6		14.4				3.0	3.0			6.7	
Level of Service	B		B				A	A			A	
Approach Delay (s)		14.5			0.0			3.0			6.7	
Approach LOS		B			A			A			A	

Intersection Summary					
HCM Average Control Delay	5.6	HCM Level of Service		A	
HCM Volume to Capacity ratio	0.47				
Actuated Cycle Length (s)	31.9	Sum of lost time (s)		16.5	
Intersection Capacity Utilization	30.1%	ICU Level of Service		A	
Analysis Period (min)	15				
c Critical Lane Group					

EXHIBIT (C) - TRAFFIC IMPACT ANALYSIS
PART 2 OF 4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	628	573	285	207	0	0	0	0	84	756	141
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0		5.5	5.5					6.4	6.4	6.4
Lane Util. Factor		0.95		0.91	0.91					0.91	0.91	1.00
Frt		0.92		1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00		0.95	0.98					0.95	1.00	1.00
Satd. Flow (prot)		3268		1610	3331					1610	3388	1583
Flt Permitted		1.00		0.16	0.59					0.95	1.00	1.00
Satd. Flow (perm)		3268		271	2013					1610	3388	1583
Peak-hour factor, PHF	1.00	0.85	0.74	0.95	0.77	1.00	1.00	1.00	1.00	0.72	0.91	0.61
Adj. Flow (vph)	0	739	774	300	269	0	0	0	0	117	831	231
RTOR Reduction (vph)	0	122	0	0	0	0	0	0	0	0	0	101
Lane Group Flow (vph)	0	1391	0	150	419	0	0	0	0	105	843	130
Turn Type				pm+pt						Split		Perm
Protected Phases		2		1	1 2					4 12	4 12	
Permitted Phases				1 2								4 12
Actuated Green, G (s)		25.0		79.6	79.6					53.1	53.1	53.1
Effective Green, g (s)		25.0		79.6	79.6					53.1	53.1	53.1
Actuated g/C Ratio		0.17		0.54	0.54					0.36	0.36	0.36
Clearance Time (s)		5.0		5.5								
Vehicle Extension (s)		3.0		3.0								
Lane Grp Cap (vph)		551		639	1567					577	1214	567
v/s Ratio Prot		c0.43		0.09	c0.10					0.07	c0.25	
v/s Ratio Perm				0.04	0.05							0.08
v/c Ratio		2.52		0.23	0.27					0.18	0.69	0.23
Uniform Delay, d1		61.6		19.1	18.5					32.6	40.6	33.2
Progression Factor		1.00		0.15	0.19					1.00	1.00	1.00
Incremental Delay, d2		691.2		0.2	0.1					0.7	3.3	0.9
Delay (s)		752.8		3.0	3.6					33.3	43.9	34.2
Level of Service		F		A	A					C	D	C
Approach Delay (s)		752.8			3.5			0.0			41.1	
Approach LOS		F			A			A			D	

Intersection Summary			
HCM Average Control Delay	364.7	HCM Level of Service	F
HCM Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	148.2	Sum of lost time (s)	16.9
Intersection Capacity Utilization	60.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	251	429	0	0	300	29	227	398	136	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4	6.4			5.0		6.4	6.4	6.4			
Lane Util. Factor	0.91	0.91			0.95		0.91	0.91	1.00			
Frt	1.00	1.00			0.98		1.00	1.00	0.85			
Flt Protected	0.95	0.99			1.00		0.95	1.00	1.00			
Satd. Flow (prot)	1610	3367			3482		1610	3382	1583			
Flt Permitted	0.28	0.70			1.00		0.95	1.00	1.00			
Satd. Flow (perm)	471	2361			3482		1610	3382	1583			
Peak-hour factor, PHF	0.78	0.83	1.00	1.00	0.83	0.66	0.92	0.86	0.62	1.00	1.00	1.00
Adj. Flow (vph)	322	517	0	0	361	44	247	463	219	0	0	0
RTOR Reduction (vph)	0	0	0	0	7	0	0	0	141	0	0	0
Lane Group Flow (vph)	238	601	0	0	398	0	222	488	78	0	0	0
Turn Type	pm+pt						Split		Perm			
Protected Phases	5	5 6			6		8 16	8 16				
Permitted Phases	5 6								8 16			
Actuated Green, G (s)	78.8	78.8			25.1		53.0	53.0	53.0			
Effective Green, g (s)	78.8	78.8			25.1		53.0	53.0	53.0			
Actuated g/C Ratio	0.53	0.53			0.17		0.36	0.36	0.36			
Clearance Time (s)	6.4				5.0							
Vehicle Extension (s)	3.0				3.0							
Lane Grp Cap (vph)	663	1620			590		576	1209	566			
v/s Ratio Prot	0.13	c0.13			c0.11		0.14	c0.14				
v/s Ratio Perm	0.06	0.06							0.05			
v/c Ratio	0.36	0.37			0.68		0.39	0.40	0.14			
Uniform Delay, d1	19.7	20.2			57.7		35.5	35.7	32.2			
Progression Factor	0.41	0.46			1.00		1.00	1.00	1.00			
Incremental Delay, d2	0.0	0.0			3.1		1.9	1.0	0.5			
Delay (s)	8.1	9.2			60.8		37.4	36.7	32.7			
Level of Service	A	A			E		D	D	C			
Approach Delay (s)		8.9			60.8			35.9			0.0	
Approach LOS		A			E			D			A	

Intersection Summary			
HCM Average Control Delay	30.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	148.2	Sum of lost time (s)	17.8
Intersection Capacity Utilization	60.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Intersection Delay, s/veh	16.3
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	155	261	78	28	77	9	19	42	19	39	205	244
Peak Hour Factor	0.88	0.89	0.59	0.88	0.77	0.45	0.59	0.81	0.40	0.75	0.83	0.85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	176	293	132	32	100	20	32	52	47	52	247	287
Number of Lanes	1	2	0	1	2	0	1	2	0	1	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	3	3
HCM Control Delay	15	12.3	12	19.7
HCM LOS	B	B	B	C

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%	0%	100%	0%	0%	100%	0%
Vol Thru, %	0%	100%	42%	0%	100%	53%	0%	100%	74%	0%	100%
Vol Right, %	0%	0%	58%	0%	0%	47%	0%	0%	26%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	19	28	33	155	174	165	28	51	35	39	137
LT Vol	0	28	14	0	174	87	0	51	26	0	137
Through Vol	0	0	19	0	0	78	0	0	9	0	0
RT Vol	19	0	0	155	0	0	28	0	0	39	0
Lane Flow Rate	32	35	65	176	196	230	32	67	53	52	155
Geometry Grp	8	8	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.079	0.08	0.143	0.381	0.395	0.444	0.078	0.153	0.12	0.113	0.334
Departure Headway (Hd)	8.84	8.34	7.937	7.78	7.28	6.949	8.78	8.28	8.098	7.812	7.312
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	405	429	452	463	495	520	408	433	443	459	492
Service Time	6.595	6.095	5.692	5.519	5.019	4.688	6.533	6.033	5.851	5.55	5.05
HCM Lane V/C Ratio	0.079	0.082	0.144	0.38	0.396	0.442	0.078	0.155	0.12	0.113	0.335
HCM Control Delay	12.4	11.8	12	15.3	14.7	15.1	12.3	12.5	12	11.5	13.7
HCM Lane LOS	B	B	B	C	B	C	B	B	B	B	B
HCM 95th-tile Q	0.3	0.3	0.5	1.8	1.9	2.3	0.3	0.5	0.4	0.4	1.5

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

EXHIBIT (C) - TRAFFIC IMPACT ANALYSIS
PART 2 OF 4

Intersection has too many lanes per leg.

HCM All-Way analysis is limited to two lanes per leg.
Channelized right turn lanes are not counted.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	898	492	166	521	0	0	0	0	710	379	172
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.3		5.7	5.3					6.3	6.3	6.3
Lane Util. Factor		0.91		0.91	0.91					0.91	0.91	1.00
Frt		0.94		1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00		0.95	1.00					0.95	0.98	1.00
Satd. Flow (prot)		4804		1610	3383					1610	3313	1583
Flt Permitted		1.00		0.09	0.88					0.95	0.98	1.00
Satd. Flow (perm)		4804		149	2979					1610	3313	1583
Peak-hour factor, PHF	1.00	0.96	0.90	0.80	0.86	1.00	1.00	1.00	1.00	0.91	0.86	0.81
Adj. Flow (vph)	0	935	547	208	606	0	0	0	0	780	441	212
RTOR Reduction (vph)	0	92	0	0	0	0	0	0	0	0	0	150
Lane Group Flow (vph)	0	1390	0	181	633	0	0	0	0	398	823	62
Turn Type				pm+pt						Perm		Perm
Protected Phases		6		5	6 5						8 16	
Permitted Phases				6 5						8 16		8 16
Actuated Green, G (s)		45.6		72.6	72.6					30.1	30.1	30.1
Effective Green, g (s)		45.6		72.6	72.6					30.1	30.1	30.1
Actuated g/C Ratio		0.38		0.60	0.60					0.25	0.25	0.25
Clearance Time (s)		5.3		5.7								
Vehicle Extension (s)		2.5		1.0								
Lane Grp Cap (vph)		1826		419	1893					404	831	397
v/s Ratio Prot		c0.29		c0.10	0.08							
v/s Ratio Perm				0.16	0.13					0.25	0.25	0.04
v/c Ratio		0.76		0.43	0.33					0.99	0.99	0.16
Uniform Delay, d1		32.5		19.9	11.7					44.7	44.8	35.1
Progression Factor		1.00		1.07	0.40					1.00	1.00	1.00
Incremental Delay, d2		1.8		0.2	0.0					40.5	28.7	0.1
Delay (s)		34.3		21.5	4.7					85.2	73.5	35.2
Level of Service		C		C	A					F	E	D
Approach Delay (s)		34.3			8.4			0.0			71.1	
Approach LOS		C			A			A			E	

Intersection Summary				
HCM Average Control Delay	42.8	HCM Level of Service	D	
HCM Volume to Capacity ratio	0.74			
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.3	
Intersection Capacity Utilization	80.0%	ICU Level of Service	D	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Signalized Intersection Capacity Analysis
9: Potranco Rd & SH 151 NB Frnt Rd

Existing AM-2013
1/9/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	122	1453	0	0	330	167	351	262	70	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.7	5.3			5.3		6.3	6.3	6.3			
Lane Util. Factor	0.91	0.91			0.91		0.91	0.91	1.00			
Frt	1.00	1.00			0.94		1.00	1.00	0.85			
Flt Protected	0.95	1.00			1.00		0.95	0.99	1.00			
Satd. Flow (prot)	1610	3388			4780		1610	3345	1583			
Flt Permitted	0.26	0.95			1.00		0.95	0.99	1.00			
Satd. Flow (perm)	441	3238			4780		1610	3345	1583			
Peak-hour factor, PHF	0.65	0.93	1.00	1.00	0.95	0.72	0.86	0.67	0.73	1.00	1.00	1.00
Adj. Flow (vph)	188	1562	0	0	347	232	408	391	96	0	0	0
RTOR Reduction (vph)	0	0	0	0	101	0	0	0	45	0	0	0
Lane Group Flow (vph)	169	1581	0	0	478	0	261	538	50	0	0	0
Turn Type	pm+pt						Perm		Perm			
Protected Phases	1	2 1			2			4 12				
Permitted Phases	2 1						4 12		4 12			
Actuated Green, G (s)	83.7	83.7			20.7		19.0	19.0	19.0			
Effective Green, g (s)	83.7	83.7			20.7		19.0	19.0	19.0			
Actuated g/C Ratio	0.70	0.70			0.17		0.16	0.16	0.16			
Clearance Time (s)	5.7				5.3							
Vehicle Extension (s)	1.0				2.5							
Lane Grp Cap (vph)	921	2337			825		255	530	251			
v/s Ratio Prot	0.10	c0.36			0.10							
v/s Ratio Perm	0.03	c0.12					c0.16	0.16	0.03			
v/c Ratio	0.18	0.68			0.58		1.02	1.02	0.20			
Uniform Delay, d1	6.5	10.4			45.6		50.5	50.5	43.9			
Progression Factor	0.33	0.30			0.89		1.00	1.00	1.00			
Incremental Delay, d2	0.0	0.3			2.6		62.6	42.9	0.3			
Delay (s)	2.2	3.4			43.3		113.1	93.4	44.2			
Level of Service	A	A			D		F	F	D			
Approach Delay (s)		3.3			43.3			93.9			0.0	
Approach LOS		A			D			F			A	

Intersection Summary				
HCM Average Control Delay	35.6	HCM Level of Service	D	
HCM Volume to Capacity ratio	0.74			
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.9	
Intersection Capacity Utilization	80.0%	ICU Level of Service	D	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Signalized Intersection Capacity Analysis
10: Potranco Rd & Richland Hills

Existing AM-2013
1/9/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	73	1465	156	35	361	119	36	88	112	254	237	152
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.7	5.8		4.7	5.8		5.2	5.2	5.2		5.2	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00		0.95	
Frt	1.00	0.97		1.00	0.97		1.00	1.00	0.85		0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00		0.98	
Satd. Flow (prot)	1770	3448		1770	3420		1770	1863	1583		3338	
Flt Permitted	0.35	1.00		0.07	1.00		0.95	1.00	1.00		0.98	
Satd. Flow (perm)	654	3448		130	3420		1770	1863	1583		3338	
Peak-hour factor, PHF	0.65	0.86	0.44	0.55	0.75	0.85	0.45	0.69	0.65	0.87	0.96	0.84
Adj. Flow (vph)	112	1703	355	64	481	140	80	128	172	292	247	181
RTOR Reduction (vph)	0	13	0	0	21	0	0	0	157	0	28	0
Lane Group Flow (vph)	112	2045	0	64	600	0	80	128	15	0	692	0
Turn Type	D.P+P			D.P+P			Split		Perm	Split		
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases	2			6					4			
Actuated Green, G (s)	62.0	57.2		62.0	54.9		10.5	10.5	10.5		26.6	
Effective Green, g (s)	62.0	57.2		62.0	54.9		10.5	10.5	10.5		26.6	
Actuated g/C Ratio	0.52	0.48		0.52	0.46		0.09	0.09	0.09		0.22	
Clearance Time (s)	4.7	5.8		4.7	5.8		5.2	5.2	5.2		5.2	
Vehicle Extension (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0		1.0	
Lane Grp Cap (vph)	404	1644		133	1565		155	163	139		740	
v/s Ratio Prot	0.02	c0.59		c0.02	0.18		0.05	c0.07			c0.21	
v/s Ratio Perm	0.13			0.23					0.01			
v/c Ratio	0.28	1.24		0.48	0.38		0.52	0.79	0.11		0.94	
Uniform Delay, d1	15.3	31.4		26.8	21.4		52.3	53.6	50.4		45.9	
Progression Factor	1.11	0.98		1.00	1.23		1.00	1.00	1.00		1.00	
Incremental Delay, d2	0.1	114.4		1.0	0.7		1.2	20.1	0.1		18.7	
Delay (s)	17.1	145.2		27.7	27.1		53.5	73.7	50.6		64.5	
Level of Service	B	F		C	C		D	E	D		E	
Approach Delay (s)		138.6			27.1			59.0			64.5	
Approach LOS		F			C			E			E	

Intersection Summary				
HCM Average Control Delay	98.1	HCM Level of Service	F	
HCM Volume to Capacity ratio	1.02			
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	15.1	
Intersection Capacity Utilization	90.0%	ICU Level of Service	E	
Analysis Period (min)	15			
c Critical Lane Group				

EXHIBIT (C) - TRAFFIC IMPACT ANALYSIS
PART 2 OF 4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑		↰	↑↑	↰	↱
Volume (veh/h)	1713	14	114	551	1	247
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.88	0.58	0.63	0.80	0.25	0.86
Hourly flow rate (vph)	1947	24	181	689	4	287
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			1971		2665	985
vC1, stage 1 conf vol					1959	
vC2, stage 2 conf vol					706	
vCu, unblocked vol			1971		2665	985
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			38		95	0
cM capacity (veh/h)			291		79	247

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	1298	673	181	344	344	4	287
Volume Left	0	0	181	0	0	4	0
Volume Right	0	24	0	0	0	0	287
cSH	1700	1700	291	1700	1700	79	247
Volume to Capacity	0.76	0.40	0.62	0.20	0.20	0.05	1.16
Queue Length 95th (ft)	0	0	97	0	0	4	330
Control Delay (s)	0.0	0.0	35.8	0.0	0.0	52.7	150.9
Lane LOS			E			F	F
Approach Delay (s)	0.0		7.5			149.6	
Approach LOS						F	

Intersection Summary				
Average Delay	16.0			
Intersection Capacity Utilization	69.8%	ICU Level of Service		C
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑		↰	↑↑	↰	↱
Volume (vph)	1401	677	236	414	135	277
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.8		4.7	5.8	5.2	5.2
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frt	0.94		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3334		1770	3539	1770	1583
Flt Permitted	1.00		0.06	1.00	0.95	1.00
Satd. Flow (perm)	3334		104	3539	1770	1583
Peak-hour factor, PHF	0.94	0.72	0.88	0.72	0.73	0.83
Adj. Flow (vph)	1490	940	268	575	185	334
RTOR Reduction (vph)	68	0	0	0	0	275
Lane Group Flow (vph)	2362	0	268	575	185	59
Turn Type			D.P+P			Perm
Protected Phases	6		5	2	4	
Permitted Phases			6			4
Actuated Green, G (s)	71.9		88.9	93.6	15.4	15.4
Effective Green, g (s)	71.9		88.9	93.6	15.4	15.4
Actuated g/C Ratio	0.60		0.74	0.78	0.13	0.13
Clearance Time (s)	5.8		4.7	5.8	5.2	5.2
Vehicle Extension (s)	1.0		1.0	1.0	1.0	1.0
Lane Grp Cap (vph)	1998		313	2760	227	203
v/s Ratio Prot	c0.71		c0.12	0.16	c0.10	
v/s Ratio Perm			0.51			0.04
v/c Ratio	1.18		0.86	0.21	0.81	0.29
Uniform Delay, d1	24.0		40.7	3.5	50.9	47.3
Progression Factor	0.74		0.69	1.14	1.00	1.00
Incremental Delay, d2	84.3		17.1	0.1	18.8	0.3
Delay (s)	102.2		45.4	4.1	69.7	47.6
Level of Service	F		D	A	E	D
Approach Delay (s)	102.2			17.2	55.5	
Approach LOS	F			B	E	

Intersection Summary				
HCM Average Control Delay	76.9	HCM Level of Service		E
HCM Volume to Capacity ratio	1.07			
Actuated Cycle Length (s)	120.0	Sum of lost time (s)		15.7
Intersection Capacity Utilization	94.0%	ICU Level of Service		F
Analysis Period (min)	15			
c Critical Lane Group				

HCM Signalized Intersection Capacity Analysis
13: Potranco Rd & Micron

Existing AM-2013
1/9/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	31	859	410	182	357	8	10	12	14	200	112	231
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.8	5.7	5.7	4.8	5.7		4.0	5.1		5.1	5.1	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.95		1.00	0.89	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3516		1770	1763		1770	1665	
Flt Permitted	0.46	1.00	1.00	0.18	1.00		0.14	1.00		0.72	1.00	
Satd. Flow (perm)	858	3539	1583	328	3516		254	1763		1342	1665	
Peak-hour factor, PHF	0.78	0.89	0.84	0.63	0.80	0.40	0.42	0.33	0.70	0.69	0.82	0.70
Adj. Flow (vph)	40	965	488	289	446	20	24	36	20	290	137	330
RTOR Reduction (vph)	0	0	246	0	2	0	0	14	0	0	66	0
Lane Group Flow (vph)	40	965	242	289	464	0	24	42	0	290	401	0
Turn Type	D.P+P		Perm	D.P+P			D.P+P			Perm		
Protected Phases	1	6		5	2		7	4			8	
Permitted Phases	2		6	6			8			8		
Actuated Green, G (s)	67.9	51.8	51.8	67.9	64.1		32.5	36.5		29.3	29.3	
Effective Green, g (s)	67.9	51.8	51.8	67.9	64.1		32.5	36.5		29.3	29.3	
Actuated g/C Ratio	0.57	0.43	0.43	0.57	0.53		0.27	0.30		0.24	0.24	
Clearance Time (s)	4.8	5.7	5.7	4.8	5.7		4.0	5.1		5.1	5.1	
Vehicle Extension (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lane Grp Cap (vph)	514	1528	683	379	1878		109	536		328	407	
v/s Ratio Prot	0.00	0.27		c0.10	0.13		c0.01	0.02			c0.24	
v/s Ratio Perm	0.04		0.15	c0.33			0.05			0.22		
v/c Ratio	0.08	0.63	0.36	0.76	0.25		0.22	0.08		0.88	0.99	
Uniform Delay, d1	11.6	26.6	22.9	33.5	15.0		35.0	29.8		43.7	45.1	
Progression Factor	0.56	0.56	0.66	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.0	0.2	0.1	7.9	0.3		0.4	0.0		22.8	40.4	
Delay (s)	6.5	15.0	15.3	41.4	15.3		35.4	29.8		66.5	85.6	
Level of Service	A	B	B	D	B		D	C		E	F	
Approach Delay (s)		14.9			25.3			31.5			78.3	
Approach LOS		B			C			C			E	

Intersection Summary				
HCM Average Control Delay	33.4	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.80			
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.7	
Intersection Capacity Utilization	68.6%	ICU Level of Service	C	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Unsignalized Intersection Capacity Analysis
14: Ingram Rd & Micron

Existing AM-2013
1/9/2014

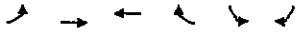
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	1	0	0	78	1	83	1	79	21	133	385	1
Peak Hour Factor	0.25	1.00	1.00	0.70	0.25	0.74	0.25	0.68	0.66	0.98	0.89	0.25
Hourly flow rate (vph)	4	0	0	111	4	112	4	116	32	136	433	4

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total (vph)	4	0	111	116	152	572
Volume Left (vph)	4	0	111	0	4	136
Volume Right (vph)	0	0	0	112	32	4
Hadj (s)	0.53	0.00	0.53	0.64	0.09	0.06
Departure Headway (s)	7.4	6.8	6.9	5.7	5.3	4.9
Degree Utilization, x	0.01	0.00	0.21	0.18	0.22	0.78
Capacity (veh/h)	446	491	484	581	643	724
Control Delay (s)	9.2	8.6	10.5	8.8	9.8	22.6
Approach Delay (s)	9.2		9.6		9.8	22.6
Approach LOS	A		A		A	C

Intersection Summary				
Delay	17.4			
HCM Level of Service	C			
Intersection Capacity Utilization	52.0%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
16: Military Dr & Reed Rd

Existing AM-2013
1/9/2014



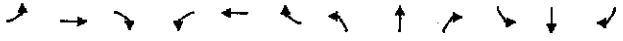
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	359	53	162	9	3	193
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.86	0.88	0.74	0.75	0.38	0.70
Hourly flow rate (vph)	417	60	219	12	8	276
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		751				
pX, platoon unblocked						
vC, conflicting volume	231				1120	225
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	231				1120	225
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	69				95	66
cM capacity (veh/h)	1337				157	815

Direction, Lane #	EB 1	WB 1	SB 1	SB 2
Volume Total	478	231	8	276
Volume Left	417	0	8	0
Volume Right	0	12	0	276
cSH	1337	1700	157	815
Volume to Capacity	0.31	0.14	0.05	0.34
Queue Length 95th (ft)	34	0	4	38
Control Delay (s)	8.2	0.0	29.1	11.7
Lane LOS	A		D	B
Approach Delay (s)	8.2	0.0	12.2	
Approach LOS			B	

Intersection Summary			
Average Delay	7.4		
Intersection Capacity Utilization	45.1%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Signalized Intersection Capacity Analysis
17: Military Dr & Richland Hills

Existing AM-2013
1/9/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	233	215	164	122	2	180	6	154	17	36	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.3			5.4		4.5	4.3		4.6	4.3	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.93			1.00		1.00	0.86		1.00	0.97	
Flt Protected		1.00			0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1739			1807		1770	1602		1770	1816	
Flt Permitted		1.00			0.45		0.71	1.00		0.39	1.00	
Satd. Flow (perm)		1739			836		1323	1602		717	1816	
Peak-hour factor, PHF	1.00	0.83	0.79	0.77	0.82	0.50	0.73	0.38	0.70	0.61	0.60	0.50
Adj. Flow (vph)	0	281	272	213	149	4	247	16	220	28	60	12
RTOR Reduction (vph)	0	21	0	0	0	0	0	176	0	0	9	0
Lane Group Flow (vph)	0	532	0	0	366	0	247	60	0	28	63	0
Turn Type	Perm			pm+pt			D.P+P			D.P+P		
Protected Phases		6			5	2		7	4		3	8
Permitted Phases	6			2			8			4		
Actuated Green, G (s)		55.7			55.6		20.2	17.8		20.1	6.1	
Effective Green, g (s)		55.7			55.6		20.2	17.8		20.1	6.1	
Actuated g/C Ratio		0.62			0.62		0.22	0.20		0.22	0.07	
Clearance Time (s)		5.3			5.4		4.5	4.3		4.6	4.3	
Vehicle Extension (s)		1.0			1.0		1.0	1.0		1.0	1.0	
Lane Grp Cap (vph)		1076			516		367	317		187	123	
v/s Ratio Prot		0.31					c0.11	c0.04		0.00	0.03	
v/s Ratio Perm					c0.44		c0.05			0.03		
v/c Ratio		0.49			0.71		0.67	0.19		0.15	0.51	
Uniform Delay, d1		9.4			11.7		31.2	30.1		27.8	40.5	
Progression Factor		1.15			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.5			3.6		3.8	0.1		0.1	1.2	
Delay (s)		12.2			15.3		34.9	30.2		28.0	41.7	
Level of Service		B			B		C	C		C	D	
Approach Delay (s)		12.2			15.3			32.6			37.9	
Approach LOS		B			B			C			D	

Intersection Summary				
HCM Average Control Delay	21.3	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.73			
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.7	
Intersection Capacity Utilization	70.2%	ICU Level of Service	C	
Analysis Period (min)	15			
c Critical Lane Group				

EXHIBIT (C) - TRAFFIC IMPACT ANALYSIS
PART 2 OF 4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	203	268	216	104	224	355
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.65	0.70	0.74	0.74	0.76	0.85
Hourly flow rate (vph)	312	383	292	141	295	418
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)					1086	
pX, platoon unblocked						
vC, conflicting volume	1228	504	712			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1228	504	712			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	0	33	67			
cM capacity (veh/h)	132	568	887			

Direction, Lane #	EB 1	EB 2	NB 1	SB 1
Volume Total	312	383	432	712
Volume Left	312	0	292	0
Volume Right	0	383	0	418
cSH	132	568	887	1700
Volume to Capacity	2.37	0.67	0.33	0.42
Queue Length 95th (ft)	672	127	36	0
Control Delay (s)	691.0	23.4	8.7	0.0
Lane LOS	F	C	A	
Approach Delay (s)	323.3		8.7	0.0
Approach LOS	F			

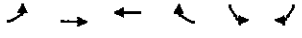
Intersection Summary			
Average Delay	124.2		
Intersection Capacity Utilization	72.2%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	20	30	27	361	466	26
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.42	0.47	0.68	0.78	0.94	0.50
Hourly flow rate (vph)	48	64	40	463	496	52
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1064	522	548			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1064	522	548			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	80	88	96			
cM capacity (veh/h)	237	555	1022			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	111	503	548
Volume Left	48	40	0
Volume Right	64	0	52
cSH	353	1022	1700
Volume to Capacity	0.32	0.04	0.32
Queue Length 95th (ft)	33	3	0
Control Delay (s)	19.8	1.1	0.0
Lane LOS	C	A	
Approach Delay (s)	19.8	1.1	0.0
Approach LOS	C		

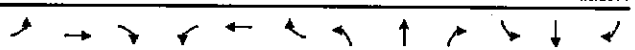
Intersection Summary			
Average Delay	2.4		
Intersection Capacity Utilization	51.2%	ICU Level of Service	A
Analysis Period (min)	15		

EXHIBIT (C) - TRAFFIC IMPACT ANALYSIS
PART 2 OF 4



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	79	563	317	49	58	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.9	4.9	4.9	5.1	5.1
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1863	1863	1583	1770	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	1863	1863	1583	1770	1583
Peak-hour factor, PHF	0.53	0.72	0.89	0.88	0.91	0.62
Adj. Flow (vph)	149	782	356	56	64	76
RTOR Reduction (vph)	0	0	0	20	0	71
Lane Group Flow (vph)	149	782	356	36	64	5
Turn Type	Prot			Perm		Perm
Protected Phases	1	6	2		8	
Permitted Phases				2		8
Actuated Green, G (s)	11.1	73.8	57.8	57.8	6.2	6.2
Effective Green, g (s)	11.1	73.8	57.8	57.8	6.2	6.2
Actuated g/C Ratio	0.12	0.82	0.64	0.64	0.07	0.07
Clearance Time (s)	4.9	4.9	4.9	4.9	5.1	5.1
Vehicle Extension (s)	1.0	2.0	2.0	2.0	1.0	1.0
Lane Grp Cap (vph)	218	1528	1196	1017	122	109
v/s Ratio Prot	c0.08	c0.42	0.19		c0.04	
v/s Ratio Perm				0.02		0.00
v/c Ratio	0.68	0.51	0.30	0.04	0.52	0.05
Uniform Delay, d1	37.8	2.5	7.1	5.9	40.5	39.1
Progression Factor	1.12	0.24	0.76	0.60	1.00	1.00
Incremental Delay, d2	4.2	0.7	0.5	0.1	1.9	0.1
Delay (s)	46.7	1.3	5.9	3.6	42.3	39.2
Level of Service	D	A	A	A	D	D
Approach Delay (s)		8.6	5.6		40.6	
Approach LOS		A	A		D	

Intersection Summary			
HCM Average Control Delay	10.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	43.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	77	365	61	124	129	159	9	214	127	300	681	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.7		5.0	5.8		5.2	5.6		5.2	5.6	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.97		1.00	0.91		1.00	0.95		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3448		1770	3235		1770	3355		1770	3510	
Flt Permitted	0.54	1.00		0.20	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1012	3448		380	3235		1770	3355		1770	3510	
Peak-hour factor, PHF	0.92	0.80	0.64	0.89	0.87	0.80	0.56	0.75	0.84	0.65	0.76	0.85
Adj. Flow (vph)	84	456	95	139	148	199	16	285	151	462	896	52
RTOR Reduction (vph)	0	19	0	0	155	0	0	73	0	0	4	0
Lane Group Flow (vph)	84	532	0	139	192	0	16	363	0	462	944	0
Turn Type	pm+pt			pm+pt			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)	23.0	17.4		27.9	19.8		1.2	16.9		26.1	41.8	
Effective Green, g (s)	23.0	17.4		27.9	19.8		1.2	16.9		26.1	41.8	
Actuated g/C Ratio	0.26	0.19		0.31	0.22		0.01	0.19		0.29	0.46	
Clearance Time (s)	5.0	5.7		5.0	5.8		5.2	5.6		5.2	5.6	
Vehicle Extension (s)	1.0	2.5		1.0	2.0		1.0	2.5		1.0	2.5	
Lane Grp Cap (vph)	306	667		243	712		24	630		513	1630	
v/s Ratio Prot	0.02	c0.15		c0.05	0.06		0.01	0.11		c0.26	c0.27	
v/s Ratio Perm	0.05			0.13								
v/c Ratio	0.27	0.80		0.57	0.27		0.67	0.58		0.90	0.58	
Uniform Delay, d1	26.2	34.6		24.0	29.1		44.2	33.3		30.7	17.7	
Progression Factor	1.00	1.00		0.67	0.79		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	6.4		2.0	0.1		42.9	3.8		18.5	1.5	
Delay (s)	26.4	41.0		18.0	23.0		87.1	37.1		49.2	19.2	
Level of Service	C	D		B	C		F	D		D	B	
Approach Delay (s)		39.1			21.5			38.9			29.0	
Approach LOS		D			C			D			C	

Intersection Summary			
HCM Average Control Delay	31.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	15.9
Intersection Capacity Utilization	63.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

EXHIBIT (C) - TRAFFIC IMPACT ANALYSIS
PART 2 OF 4

HCM Signalized Intersection Capacity Analysis
22: Hunt Ln & SH 151 NB Frnt Rd

Existing AM-2013
1/9/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	16	7	0	0	1010	21	9	408	286	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.3			5.3	5.3	6.0	6.0				
Lane Util. Factor		0.95			0.95	1.00	0.91	0.91				
Frt		1.00			1.00	0.85	1.00	0.94				
Flt Protected		0.97			1.00	1.00	0.95	1.00				
Satd. Flow (prot)		3420			3539	1583	1610	3174				
Flt Permitted		0.61			1.00	1.00	0.95	1.00				
Satd. Flow (perm)		2149			3539	1583	1610	3174				
Peak-hour factor, PHF	0.57	0.58	1.00	1.00	0.80	0.75	0.56	0.73	0.69	1.00	1.00	1.00
Adj. Flow (vph)	28	12	0	0	1262	28	16	559	413	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	9	0	110	0	0	0	0
Lane Group Flow (vph)	0	40	0	0	1262	19	14	864	0	0	0	0
Turn Type	Perm					Perm	Split					
Protected Phases		6			6		8	8				
Permitted Phases	6					6						
Actuated Green, G (s)		34.8			34.8	34.8	63.7	63.7				
Effective Green, g (s)		34.8			34.8	34.8	63.7	63.7				
Actuated g/C Ratio		0.32			0.32	0.32	0.58	0.58				
Clearance Time (s)		5.3			5.3	5.3						
Vehicle Extension (s)		3.0			3.0	3.0						
Lane Grp Cap (vph)		686			1130	505	941	1855				
v/s Ratio Prot					c0.36		0.01	c0.27				
v/s Ratio Perm		0.02				0.01						
v/c Ratio		0.06			1.12	0.04	0.01	0.47				
Uniform Delay, d1		25.7			37.1	25.6	9.5	12.9				
Progression Factor		0.93			1.00	1.00	1.00	1.00				
Incremental Delay, d2		0.0			64.9	0.0	0.0	0.2				
Delay (s)		23.9			102.0	25.6	9.5	13.1				
Level of Service		C			F	C	A	B				
Approach Delay (s)		23.9			100.3			13.1			0.0	
Approach LOS		C			F			B			A	

Intersection Summary			
HCM Average Control Delay	61.8	HCM Level of Service	E
HCM Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	109.0	Sum of lost time (s)	11.3
Intersection Capacity Utilization	51.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
23: Hunt Ln & SH 151 SB Frnt Rd

Existing AM-2013
1/9/2014

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	1035	0	0	0	24	1101
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.2				6.0	6.0
Lane Util. Factor	0.97				0.91	0.91
Frt	1.00				1.00	1.00
Flt Protected	0.95				0.95	1.00
Satd. Flow (prot)	3433				1610	3390
Flt Permitted	0.95				0.95	1.00
Satd. Flow (perm)	3433				1610	3390
Peak-hour factor, PHF	0.83	1.00	1.00	1.00	0.67	0.85
Adj. Flow (vph)	1247	0	0	0	36	1295
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	1247	0	0	0	32	1299
Turn Type					Split	
Protected Phases	1				4	4
Permitted Phases						
Actuated Green, G (s)	51.7				46.9	46.9
Effective Green, g (s)	51.7				46.9	46.9
Actuated g/C Ratio	0.47				0.43	0.43
Clearance Time (s)	5.2					
Vehicle Extension (s)	3.0					
Lane Grp Cap (vph)	1628				693	1459
v/s Ratio Prot	c0.36				0.02	c0.38
v/s Ratio Perm						
v/c Ratio	0.77				0.05	0.89
Uniform Delay, d1	23.7				18.0	28.7
Progression Factor	0.46				1.00	1.00
Incremental Delay, d2	0.2				0.0	7.2
Delay (s)	11.0				18.1	35.9
Level of Service	B				B	D
Approach Delay (s)	11.0		0.0			35.4
Approach LOS	B		A			D

Intersection Summary			
HCM Average Control Delay	23.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	109.0	Sum of lost time (s)	11.2
Intersection Capacity Utilization	64.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

EXHIBIT (C) - TRAFFIC IMPACT ANALYSIS
PART 2 OF 4

HCM Signalized Intersection Capacity Analysis
1: IH-410 NB Frnt Rd & Military Dr

Existing PM-2013
1/9/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	113	183	43	0	0	0	0	671	666	322	894	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0						5.1		6.0	6.0	
Lane Util. Factor	0.91	0.91						0.91		0.91	0.91	
Frt	1.00	0.97						0.93		1.00	1.00	
Flt Protected	0.95	1.00						1.00		0.95	1.00	
Satd. Flow (prot)	1610	3294						4707		1610	3378	
Flt Permitted	0.95	1.00						1.00		0.16	0.61	
Satd. Flow (perm)	1610	3294						4707		272	2066	
Peak-hour factor, PHF	0.91	0.86	0.90	1.00	1.00	1.00	1.00	0.93	0.94	0.86	0.96	1.00
Adj. Flow (vph)	124	213	48	0	0	0	0	722	709	374	931	0
RTOR Reduction (vph)	0	14	0	0	0	0	0	150	0	0	0	0
Lane Group Flow (vph)	112	259	0	0	0	0	0	1281	0	303	1002	0
Turn Type	Split									pm+pt		
Protected Phases	8 16	8 16						6		5	5 6	
Permitted Phases										5 6		
Actuated Green, G (s)	32.9	32.9						24.9		68.9	68.9	
Effective Green, g (s)	32.9	32.9						24.9		68.9	68.9	
Actuated g/C Ratio	0.28	0.28						0.21		0.58	0.58	
Clearance Time (s)								5.1		6.0		
Vehicle Extension (s)								3.0		3.0		
Lane Grp Cap (vph)	449	918						993		658	1696	
v/s Ratio Prot	0.07	c0.08						c0.27		0.17	c0.22	
v/s Ratio Perm										0.10	0.12	
v/c Ratio	0.25	0.28						1.45dr		0.46	0.59	
Uniform Delay, d1	33.0	33.3						46.5		16.1	15.6	
Progression Factor	1.00	1.00						1.00		0.27	0.23	
Incremental Delay, d2	1.3	0.8						138.2		0.0	0.1	
Delay (s)	34.3	34.1						184.7		4.5	3.6	
Level of Service	C	C						F		A	A	
Approach Delay (s)		34.1			0.0			184.7			3.8	
Approach LOS		C			A			F			A	

Intersection Summary			
HCM Average Control Delay	90.5	HCM Level of Service	F
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	118.0	Sum of lost time (s)	17.1
Intersection Capacity Utilization	95.9%	ICU Level of Service	F
Analysis Period (min)	15		

dr Defacto Right Lane. Recode with 1 though lane as a right lane.
c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
2: IH-410 SB Frnt Rd & Military Dr

Existing PM-2013
1/9/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	617	754	283	203	594	0	0	560	152
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				5.8	5.8		5.7	5.7			5.1	
Lane Util. Factor				0.91	0.91		0.91	0.91			0.95	
Frt				1.00	0.96		1.00	1.00			0.97	
Flt Protected				0.95	1.00		0.95	1.00			1.00	
Satd. Flow (prot)				1610	3256		1610	3375			3423	
Flt Permitted				0.95	1.00		0.16	0.67			1.00	
Satd. Flow (perm)				1610	3256		272	2285			3423	
Peak-hour factor, PHF	1.00	1.00	1.00	0.88	0.90	0.97	0.77	0.98	1.00	1.00	0.82	0.79
Adj. Flow (vph)	0	0	0	701	838	292	264	606	0	0	683	192
RTOR Reduction (vph)	0	0	0	0	23	0	0	0	0	0	22	0
Lane Group Flow (vph)	0	0	0	610	1198	0	206	664	0	0	853	0
Turn Type				Split			pm+pt					
Protected Phases				4 12	4 12		1	1 2			2	
Permitted Phases							1 2					
Actuated Green, G (s)				34.9	34.9		67.2	67.2			24.9	
Effective Green, g (s)				34.9	34.9		67.2	67.2			24.9	
Actuated g/C Ratio				0.30	0.30		0.57	0.57			0.21	
Clearance Time (s)							5.7				5.1	
Vehicle Extension (s)							3.0				0.2	
Lane Grp Cap (vph)				476	963		635	1692			722	
v/s Ratio Prot				c0.38	0.37		0.12	c0.14			c0.25	
v/s Ratio Perm							0.07	0.08				
v/c Ratio				1.28	1.24		0.32	0.39			1.18	
Uniform Delay, d1				41.5	41.5		14.6	14.1			46.5	
Progression Factor				1.00	1.00		0.25	0.26			1.00	
Incremental Delay, d2				142.0	118.5		0.0	0.0			95.5	
Delay (s)				183.6	160.1		3.7	3.7			142.0	
Level of Service				F	F		A	A			F	
Approach Delay (s)		0.0			167.9			3.7			142.0	
Approach LOS		A			F			A			F	

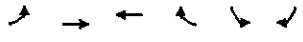
Intersection Summary			
HCM Average Control Delay	121.6	HCM Level of Service	F
HCM Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	118.0	Sum of lost time (s)	16.6
Intersection Capacity Utilization	95.9%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

EXHIBIT (C) - TRAFFIC IMPACT ANALYSIS
PART 2 OF 4

HCM Unsignalized Intersection Capacity Analysis
3: IH-410 SB Frnt Rd & Richland Hills

Existing PM-2013
1/9/2014



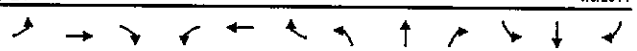
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			↑↑↑			↱
Volume (veh/h)	0	0	2453	429	0	145
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	1.00	1.00	0.97	0.84	1.00	0.77
Hourly flow rate (vph)	0	0	2529	511	0	188
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	3040				2784	1098
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	3040				2784	1098
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	9
cM capacity (veh/h)	109				15	208

Direction, Lane #	WB 1	WB 2	WB 3	SB 1
Volume Total	1012	1012	1016	188
Volume Left	0	0	0	0
Volume Right	0	0	511	188
cSH	1700	1700	1700	208
Volume to Capacity	0.60	0.60	0.60	0.91
Queue Length 95th (ft)	0	0	0	182
Control Delay (s)	0.0	0.0	0.0	88.2
Lane LOS				F
Approach Delay (s)	0.0			88.2
Approach LOS				F

Intersection Summary			
Average Delay	5.1		
Intersection Capacity Utilization	72.6%	ICU Level of Service	C
Analysis Period (min)	15		

HCM Signalized Intersection Capacity Analysis
4: Walmart & Military Dr

Existing PM-2013
1/9/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↱		↔		↰	↑↑			↑↑	
Volume (vph)	174	0	68	0	0	0	44	653	0	0	476	172
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.7		5.2				5.0	5.9			5.9	
Lane Util. Factor	1.00		1.00				1.00	0.95			0.95	
Frt	1.00		0.85				1.00	1.00			0.96	
Flt Protected	0.95		1.00				0.95	1.00			1.00	
Satd. Flow (prot)	1770		1583				1770	3539			3389	
Flt Permitted	0.95		1.00				0.23	1.00			1.00	
Satd. Flow (perm)	1770		1583				427	3539			3389	
Peak-hour factor, PHF	0.79	1.00	0.74	1.00	1.00	1.00	0.85	0.92	1.00	1.00	0.87	0.80
Adj. Flow (vph)	220	0	92	0	0	0	52	710	0	0	547	215
RTOR Reduction (vph)	0	0	70	0	0	0	0	0	0	0	28	0
Lane Group Flow (vph)	220	0	22	0	0	0	52	710	0	0	734	0
Turn Type	custom		custom	Perm			pm+pt					
Protected Phases	7		4		8		5	2			6	
Permitted Phases	4			8			2					
Actuated Green, G (s)	11.9		11.4				24.3	24.3			16.3	
Effective Green, g (s)	11.9		11.4				24.3	24.3			16.3	
Actuated g/C Ratio	0.25		0.24				0.52	0.52			0.35	
Clearance Time (s)	4.7		5.2				5.0	5.9			5.9	
Vehicle Extension (s)	1.0		1.0				1.0	2.5			2.5	
Lane Grp Cap (vph)	450		386				308	1838			1180	
v/s Ratio Prot	c0.12		0.01				0.01	c0.20			c0.22	
v/s Ratio Perm							0.08					
v/c Ratio	0.49		0.06				0.17	0.39			0.62	
Uniform Delay, d1	14.9		13.6				6.3	6.8			12.7	
Progression Factor	1.00		1.00				1.00	1.00			1.00	
Incremental Delay, d2	0.3		0.0				0.1	0.1			0.9	
Delay (s)	15.2		13.6				6.4	6.9			13.6	
Level of Service	B		B				A	A			B	
Approach Delay (s)		14.7			0.0			6.8			13.6	
Approach LOS		B			A			A			B	

Intersection Summary					
HCM Average Control Delay	11.0	HCM Level of Service		B	
HCM Volume to Capacity ratio	0.60				
Actuated Cycle Length (s)	46.8	Sum of lost time (s)		16.5	
Intersection Capacity Utilization	44.0%	ICU Level of Service		A	
Analysis Period (min)	15				
c Critical Lane Group					

EXHIBIT (C) - TRAFFIC IMPACT ANALYSIS
PART 2 OF 4

HCM Signalized Intersection Capacity Analysis
5: Ingram Rd & SH 151 SB Frnt Rd

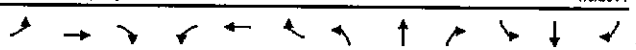
Existing PM-2013
1/9/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↱		↰	↰↑↑				↱	↰	↰↑↑	↱
Volume (vph)	0	562	193	439	826	0	0	0	0	114	655	197
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0		5.5	5.5					6.4	6.4	6.4
Lane Util. Factor		0.95		0.91	0.91					0.91	0.91	1.00
Frt		0.96		1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00		0.95	0.99					0.95	1.00	1.00
Satd. Flow (prot)		3400		1610	3368					1610	3387	1583
Flt Permitted		1.00		0.16	0.53					0.95	1.00	1.00
Satd. Flow (perm)		3400		271	1803					1610	3387	1583
Peak-hour factor, PHF	1.00	0.94	0.91	0.94	0.97	1.00	1.00	1.00	1.00	0.77	0.86	0.81
Adj. Flow (vph)	0	598	212	467	852	0	0	0	0	148	762	243
RTOR Reduction (vph)	0	23	0	0	0	0	0	0	0	0	0	105
Lane Group Flow (vph)	0	787	0	336	983	0	0	0	0	133	777	138
Turn Type				pm+pt						Split		Perm
Protected Phases		2		1	1 2					4 12	4 12	
Permitted Phases				1 2								4 12
Actuated Green, G (s)		25.0		85.5	85.5					53.0	53.0	53.0
Effective Green, g (s)		25.0		85.5	85.5					53.0	53.0	53.0
Actuated g/C Ratio		0.16		0.56	0.56					0.34	0.34	0.34
Clearance Time (s)		5.0		5.5								
Vehicle Extension (s)		2.5		3.0								
Lane Grp Cap (vph)		552		676	1616					554	1166	545
v/s Ratio Prot		c0.23		0.20	c0.24					0.08	c0.23	
v/s Ratio Perm				0.08	0.10							0.09
v/c Ratio		1.42		0.50	0.61					0.24	0.67	0.25
Uniform Delay, d1		64.5		23.7	23.0					36.1	43.0	36.3
Progression Factor		1.00		0.42	0.14					1.00	1.00	1.00
Incremental Delay, d2		201.6		0.1	0.1					1.0	3.0	1.1
Delay (s)		266.1		10.0	3.2					37.1	46.0	37.4
Level of Service		F		A	A					D	D	D
Approach Delay (s)		266.1			4.9			0.0			43.2	
Approach LOS		F			A			A			D	

Intersection Summary				
HCM Average Control Delay	82.8	HCM Level of Service	F	
HCM Volume to Capacity ratio	0.79			
Actuated Cycle Length (s)	154.0	Sum of lost time (s)	16.9	
Intersection Capacity Utilization	102.8%	ICU Level of Service	G	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Signalized Intersection Capacity Analysis
6: Ingram Rd & SH 151 NB Frnt Rd

Existing PM-2013
1/9/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↰↑↑			↑↑↱		↰	↰↑↑	↱			
Volume (vph)	239	447	0	0	597	182	723	1165	183	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4	6.4			5.0		6.4	6.4	6.4			
Lane Util. Factor	0.91	0.91			0.95		0.91	0.91	1.00			
Frt	1.00	1.00			0.96		1.00	1.00	0.85			
Flt Protected	0.95	0.99			1.00		0.95	0.99	1.00			
Satd. Flow (prot)	1610	3362			3408		1610	3373	1583			
Flt Permitted	0.13	0.53			1.00		0.95	0.99	1.00			
Satd. Flow (perm)	219	1789			3408		1610	3373	1583			
Peak-hour factor, PHF	0.79	0.90	1.00	1.00	0.96	0.89	0.90	0.94	0.90	1.00	1.00	1.00
Adj. Flow (vph)	303	497	0	0	622	204	803	1239	203	0	0	0
RTOR Reduction (vph)	0	0	0	0	21	0	0	0	64	0	0	0
Lane Group Flow (vph)	203	597	0	0	805	0	658	1384	139	0	0	0
Turn Type	pm+pt						Split		Perm			
Protected Phases	5	5 6			6		8 16	8 16				
Permitted Phases	5 6								8 16			
Actuated Green, G (s)	84.6	84.6			31.0		53.0	53.0	53.0			
Effective Green, g (s)	84.6	84.6			31.0		53.0	53.0	53.0			
Actuated g/C Ratio	0.55	0.55			0.20		0.34	0.34	0.34			
Clearance Time (s)	6.4				5.0							
Vehicle Extension (s)	3.0				2.5							
Lane Grp Cap (vph)	604	1530			686		554	1161	545			
v/s Ratio Prot	0.12	c0.14			c0.24		0.41	c0.41				
v/s Ratio Perm	0.07	0.08							0.09			
v/c Ratio	0.34	0.39			1.17		1.19	1.19	0.25			
Uniform Delay, d1	20.6	19.9			61.5		50.5	50.5	36.3			
Progression Factor	0.23	0.39			1.00		1.00	1.00	1.00			
Incremental Delay, d2	0.0	0.0			93.1		101.6	95.2	1.1			
Delay (s)	4.7	7.7			154.6		152.1	145.7	37.4			
Level of Service	A	A			F		F	F	D			
Approach Delay (s)		7.0			154.6			137.8			0.0	
Approach LOS		A			F			F			A	

Intersection Summary				
HCM Average Control Delay	114.3	HCM Level of Service	F	
HCM Volume to Capacity ratio	0.88			
Actuated Cycle Length (s)	154.0	Sum of lost time (s)	17.8	
Intersection Capacity Utilization	102.8%	ICU Level of Service	G	
Analysis Period (min)	15			
c Critical Lane Group				

EXHIBIT (C) - TRAFFIC IMPACT ANALYSIS
PART 2 OF 4

Intersection	
Intersection Delay, s/veh	32.3
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	206	191	24	22	268	44	204	303	48	7	93	162
Peak Hour Factor	0.67	0.81	0.86	0.79	0.87	0.69	0.67	0.89	0.80	0.44	0.83	0.88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	307	236	28	28	308	64	304	340	60	16	112	184
Number of Lanes	1	2	0	1	2	0	1	2	0	1	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	3	3
HCM Control Delay	39	24.3	34.8	24.9
HCM LOS	E	C	D	C

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%	0%	100%	0%	0%	100%	0%
Vol Thru, %	0%	100%	68%	0%	100%	73%	0%	100%	67%	0%	100%
Vol Right, %	0%	0%	32%	0%	0%	27%	0%	0%	33%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	204	202	149	206	127	88	22	179	133	7	62
LT Vol	0	202	101	0	127	64	0	179	89	0	62
Through Vol	0	0	48	0	0	24	0	0	44	0	0
RT Vol	204	0	0	206	0	0	22	0	0	7	0
Lane Flow Rate	304	227	173	307	157	107	28	205	166	16	75
Geometry Grp	8	8	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.85	0.602	0.449	0.883	0.43	0.285	0.085	0.598	0.474	0.05	0.223
Departure Headway (Hd)	10.17	9.67	9.444	10.46	9.96	9.768	10.979	10.479	10.248	11.261	10.761
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	359	377	383	347	363	371	328	347	353	319	335
Service Time	7.87	7.37	7.144	8.16	7.66	7.468	8.692	8.192	7.961	8.975	8.475
HCM Lane V/C Ratio	0.847	0.602	0.452	0.885	0.433	0.288	0.085	0.591	0.47	0.05	0.224
HCM Control Delay	50	26	19.6	56.5	20	16.3	14.7	27.6	21.9	14.6	16.6
HCM Lane LOS	E	D	C	F	C	C	B	D	C	B	C
HCM 95th-tile Q	7.8	3.8	2.3	8.5	2.1	1.2	0.3	3.7	2.4	0.2	0.8

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

EXHIBIT (C) - TRAFFIC IMPACT ANALYSIS
PART 2 OF 4

Intersection has too many lanes per leg.

HCM All-Way analysis is limited to two lanes per leg.
Channelized right turn lanes are not counted.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	755	519	149	1591	0	0	0	0	248	270	220
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5		5.0	5.5					6.3	6.3	6.3
Lane Util. Factor		0.91		0.91	0.91					0.91	0.91	1.00
Frt		0.94		1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00		0.95	1.00					0.95	0.99	1.00
Satd. Flow (prot)		4762		1610	3389					1610	3360	1583
Flt Permitted		1.00		0.12	0.95					0.95	0.99	1.00
Satd. Flow (perm)		4762		197	3238					1610	3360	1583
Peak-hour factor, PHF	1.00	0.91	0.85	0.91	0.98	1.00	1.00	1.00	1.00	0.89	0.78	0.83
Adj. Flow (vph)	0	830	611	164	1623	0	0	0	0	279	346	265
RTOR Reduction (vph)	0	95	0	0	0	0	0	0	0	0	0	56
Lane Group Flow (vph)	0	1346	0	148	1639	0	0	0	0	204	421	209
Turn Type				pm+pt						Perm		Perm
Protected Phases		6		5	6 5						8 16	
Permitted Phases				6 5						8 16		8 16
Actuated Green, G (s)		34.5		107.2	107.2					16.0	16.0	16.0
Effective Green, g (s)		34.5		107.2	107.2					16.0	16.0	16.0
Actuated g/C Ratio		0.25		0.77	0.77					0.11	0.11	0.11
Clearance Time (s)		5.5		5.0								
Vehicle Extension (s)		2.5		1.0								
Lane Grp Cap (vph)		1173		885	2558					184	384	181
v/s Ratio Prot		c0.28		0.09	c0.33							
v/s Ratio Perm				0.04	0.16					0.13	0.13	c0.13
v/c Ratio		1.24dr		0.17	0.64					1.11	1.10	1.16
Uniform Delay, d1		52.8		7.9	7.5					62.0	62.0	62.0
Progression Factor		1.00		0.36	0.35					1.00	1.00	1.00
Incremental Delay, d2		76.7		0.0	0.2					98.5	74.4	115.1
Delay (s)		129.5		2.9	2.9					160.5	136.4	177.1
Level of Service		F		A	A					F	F	F
Approach Delay (s)		129.5			2.9			0.0			154.0	
Approach LOS		F			A			A			F	

Intersection Summary			
HCM Average Control Delay	79.9	HCM Level of Service	E
HCM Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	17.3
Intersection Capacity Utilization	97.5%	ICU Level of Service	F
Analysis Period (min)	15		

dr Defacto Right Lane. Recode with 1 though lane as a right lane.
c Critical Lane Group

EXHIBIT (C) - TRAFFIC IMPACT ANALYSIS
PART 2 OF 4

HCM Signalized Intersection Capacity Analysis
9: Potranco Rd & SH 151 NB Frnt Rd

Existing PM-2013
1/9/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	160	825	0	0	805	283	957	419	99	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.5			5.5		6.3	6.3	6.3			
Lane Util. Factor	0.91	0.91			0.91		0.91	0.91	1.00			
Frt	1.00	1.00			0.96		1.00	1.00	0.85			
Flt Protected	0.95	1.00			1.00		0.95	0.97	1.00			
Satd. Flow (prot)	1610	3387			4882		1610	3303	1583			
Flt Permitted	0.10	0.95			1.00		0.95	0.97	1.00			
Satd. Flow (perm)	174	3216			4882		1610	3303	1583			
Peak-hour factor, PHF	0.98	0.95	1.00	1.00	0.96	0.93	0.98	0.95	0.83	1.00	1.00	1.00
Adj. Flow (vph)	163	868	0	0	839	304	977	441	119	0	0	0
RTOR Reduction (vph)	0	0	0	0	47	0	0	0	49	0	0	0
Lane Group Flow (vph)	147	884	0	0	1096	0	488	930	70	0	0	0
Turn Type	pm+pt						Perm		Perm			
Protected Phases	1	2 1			2			4 12				
Permitted Phases	2 1						4 12		4 12			
Actuated Green, G (s)	81.2	81.2			42.5		42.0	42.0	42.0			
Effective Green, g (s)	81.2	81.2			42.5		42.0	42.0	42.0			
Actuated g/C Ratio	0.58	0.58			0.30		0.30	0.30	0.30			
Clearance Time (s)	5.0				5.5							
Vehicle Extension (s)	1.0				2.5							
Lane Grp Cap (vph)	498	1913			1482		483	991	475			
v/s Ratio Prot	0.08	c0.13			c0.22							
v/s Ratio Perm	0.09	0.14					c0.30	0.28	0.04			
v/c Ratio	0.30	0.46			0.74		1.01	0.97dl	0.15			
Uniform Delay, d1	16.9	16.9			43.8		49.0	47.7	35.9			
Progression Factor	0.28	0.18			0.51		1.00	1.00	1.00			
Incremental Delay, d2	0.0	0.0			1.8		43.6	15.7	0.1			
Delay (s)	4.7	3.0			24.1		92.6	63.4	36.0			
Level of Service	A	A			C		F	E	D			
Approach Delay (s)		3.2			24.1			70.6			0.0	
Approach LOS		A			C			E			A	

Intersection Summary				
HCM Average Control Delay	37.5	HCM Level of Service	D	
HCM Volume to Capacity ratio	0.75			
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	17.3	
Intersection Capacity Utilization	97.5%	ICU Level of Service	F	
Analysis Period (min)	15			

dl Defacto Left Lane. Recode with 1 though lane as a left lane.
c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
10: Potranco Rd & Richland Hills

Existing PM-2013
1/9/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	148	685	108	51	1026	125	193	350	104	109	139	72
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.7	5.8		4.7	5.8		5.2	5.2	5.2		5.2	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00		0.95	
Frt	1.00	0.98		1.00	0.98		1.00	1.00	0.85		0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00		0.98	
Satd. Flow (prot)	1770	3459		1770	3476		1770	1863	1583		3368	
Flt Permitted	0.07	1.00		0.18	1.00		0.95	1.00	1.00		0.98	
Satd. Flow (perm)	136	3459		333	3476		1770	1863	1583		3368	
Peak-hour factor, PHF	0.82	0.85	0.75	0.61	0.96	0.87	0.79	0.83	0.59	0.80	0.76	0.82
Adj. Flow (vph)	180	806	144	84	1069	144	244	422	176	136	183	88
RTOR Reduction (vph)	0	10	0	0	7	0	0	0	112	0	19	0
Lane Group Flow (vph)	180	940	0	84	1206	0	244	422	64	0	388	0
Turn Type	D.P+P			D.P+P			Split		Perm	Split		
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases	2			6					4			
Actuated Green, G (s)	67.5	60.7		67.5	54.7		32.1	32.1	32.1		19.5	
Effective Green, g (s)	67.5	60.7		67.5	54.7		32.1	32.1	32.1		19.5	
Actuated g/C Ratio	0.48	0.43		0.48	0.39		0.23	0.23	0.23		0.14	
Clearance Time (s)	4.7	5.8		4.7	5.8		5.2	5.2	5.2		5.2	
Vehicle Extension (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0		1.0	
Lane Grp Cap (vph)	215	1500		230	1358		406	427	363		469	
v/s Ratio Prot	c0.08	0.27		0.02	c0.35		0.14	c0.23			c0.12	
v/s Ratio Perm	0.33			0.16					0.04			
v/c Ratio	0.84	0.63		0.37	0.89		0.60	0.99	0.18		0.83	
Uniform Delay, d1	37.3	30.8		22.3	39.8		48.2	53.8	43.3		58.6	
Progression Factor	1.83	0.33		0.80	0.94		1.00	1.00	1.00		1.00	
Incremental Delay, d2	21.7	1.9		0.3	8.2		1.7	40.0	0.1		10.9	
Delay (s)	90.1	12.0		18.2	45.6		49.9	93.7	43.4		69.5	
Level of Service	F	B		B	D		D	F	D		E	
Approach Delay (s)		24.4			43.8			70.5			69.5	
Approach LOS		C			D			E			E	

Intersection Summary				
HCM Average Control Delay	46.8	HCM Level of Service	D	
HCM Volume to Capacity ratio	0.90			
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	20.9	
Intersection Capacity Utilization	85.7%	ICU Level of Service	E	
Analysis Period (min)	15			

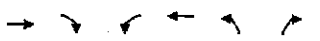
c Critical Lane Group

EXHIBIT (C) - TRAFFIC IMPACT ANALYSIS
PART 2 OF 4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	816	15	218	1217	8	399
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.94	0.70	0.89	0.67	0.80
Hourly flow rate (vph)	859	16	311	1367	12	499
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			875		2173	437
vC1, stage 1 conf vol					867	
vC2, stage 2 conf vol					1307	
vCu, unblocked vol			875		2173	437
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			59		90	12
cM capacity (veh/h)			767		119	567

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	573	302	311	684	684	12	499
Volume Left	0	0	311	0	0	12	0
Volume Right	0	16	0	0	0	0	499
cSH	1700	1700	767	1700	1700	119	567
Volume to Capacity	0.34	0.18	0.41	0.40	0.40	0.10	0.88
Queue Length 95th (ft)	0	0	50	0	0	8	252
Control Delay (s)	0.0	0.0	12.9	0.0	0.0	38.5	41.2
Lane LOS			B			E	E
Approach Delay (s)	0.0		2.4			41.2	
Approach LOS						E	

Intersection Summary			
Average Delay	8.2		
Intersection Capacity Utilization	54.4%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	801	446	161	1016	353	417
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.8		4.7	5.8	5.2	4.7
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frt	0.94		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3343		1770	3539	1770	1583
Flt Permitted	1.00		0.09	1.00	0.95	1.00
Satd. Flow (perm)	3343		172	3539	1770	1583
Peak-hour factor, PHF	0.96	0.91	0.94	0.91	0.92	0.91
Adj. Flow (vph)	834	490	171	1116	384	458
RTOR Reduction (vph)	53	0	0	0	0	48
Lane Group Flow (vph)	1271	0	171	1116	384	410
Turn Type			D.P+P			pm+ov
Protected Phases	6		5	2	4	5
Permitted Phases			6			4
Actuated Green, G (s)	69.7		90.0	94.7	34.3	54.6
Effective Green, g (s)	69.7		90.0	94.7	34.3	54.6
Actualed g/C Ratio	0.50		0.64	0.68	0.24	0.39
Clearance Time (s)	5.8		4.7	5.8	5.2	4.7
Vehicle Extension (s)	1.0		1.0	1.0	1.0	1.0
Lane Grp Cap (vph)	1664		342	2394	434	671
v/s Ratio Prot	c0.38		0.07	0.32	c0.22	c0.09
v/s Ratio Perm			0.25			0.17
v/c Ratio	0.76		0.50	0.47	0.88	0.61
Uniform Delay, d1	28.5		38.9	10.7	50.9	34.2
Progression Factor	0.75		0.63	0.29	1.00	1.00
Incremental Delay, d2	3.2		0.3	0.5	18.4	1.2
Delay (s)	24.5		24.9	3.7	69.4	35.4
Level of Service	C		C	A	E	D
Approach Delay (s)	24.5			6.5	50.9	
Approach LOS	C			A	D	

Intersection Summary			
HCM Average Control Delay	24.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	15.7
Intersection Capacity Utilization	78.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

EXHIBIT (C) - TRAFFIC IMPACT ANALYSIS
PART 2 OF 4

HCM Signalized Intersection Capacity Analysis
13: Potranco Rd & Micron

Existing PM-2013
1/9/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	304	1061	22	15	1002	17	129	10	89	25	1	194
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.8	5.7	5.7	4.8	5.7		5.0	5.1		5.1	5.1	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00		1.00	0.87		1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	3530		1770	1621		1770	1588	
Flt Permitted	0.16	1.00	1.00	0.20	1.00		0.38	1.00		0.66	1.00	
Satd. Flow (perm)	307	3539	1583	376	3530		703	1621		1236	1588	
Peak-hour factor, PHF	0.95	0.92	0.69	0.54	0.90	0.85	0.73	0.50	0.70	0.42	0.25	0.81
Adj. Flow (vph)	320	1153	32	28	1113	20	177	20	127	60	4	240
RTOR Reduction (vph)	0	0	7	0	1	0	0	103	0	0	222	0
Lane Group Flow (vph)	320	1153	25	28	1132	0	177	44	0	60	22	0
Turn Type	D.P+P		Perm	D.P+P			D.P+P			Perm		
Protected Phases	1	6		5	2		7	4		8		
Permitted Phases	2		6	6			8			8		
Actuated Green, G (s)	98.0	95.3	95.3	98.0	75.8		21.4	26.4		10.6	10.6	
Effective Green, g (s)	98.0	95.3	95.3	98.0	75.8		21.4	26.4		10.6	10.6	
Actuated g/C Ratio	0.70	0.68	0.68	0.70	0.54		0.15	0.19		0.08	0.08	
Clearance Time (s)	4.8	5.7	5.7	4.8	5.7		5.0	5.1		5.1	5.1	
Vehicle Extension (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lane Grp Cap (vph)	447	2409	1078	290	1911		190	306		94	120	
v/s Ratio Prot	c0.11	0.33		0.00	0.32		c0.07	0.03			0.01	
v/s Ratio Perm	c0.39		0.02	0.07			c0.07			0.05		
v/c Ratio	0.72	0.48	0.02	0.10	0.59		0.93	0.14		0.64	0.18	
Uniform Delay, d1	30.4	10.6	7.3	7.5	21.7		57.1	47.4		62.8	60.6	
Progression Factor	0.82	0.85	0.87	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.6	0.5	0.0	0.1	1.4		45.5	0.1		10.0	0.3	
Delay (s)	28.6	9.5	6.3	7.6	23.0		102.6	47.5		72.8	60.9	
Level of Service	C	A	A	A	C		F	D		E	E	
Approach Delay (s)		13.5			22.7			77.6			63.3	
Approach LOS		B			C			E			E	

Intersection Summary				
HCM Average Control Delay	27.6	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.75			
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	19.6	
Intersection Capacity Utilization	81.5%	ICU Level of Service	D	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Unsignalized Intersection Capacity Analysis
14: Ingram Rd & Micron

Existing PM-2013
1/9/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	1	0	0	79	2	146	0	189	39	48	109	0
Peak Hour Factor	0.25	1.00	1.00	0.94	0.50	0.79	1.00	0.96	0.70	0.71	0.88	1.00
Hourly flow rate (vph)	4	0	0	84	4	185	0	197	56	68	124	0

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total (vph)	4	0	84	189	253	191
Volume Left (vph)	4	0	84	0	0	68
Volume Right (vph)	0	0	0	185	56	0
Hadj (s)	0.53	0.00	0.53	0.65	0.10	0.10
Departure Headway (s)	6.5	6.0	6.1	4.9	4.8	5.0
Degree Utilization, x	0.01	0.00	0.14	0.26	0.33	0.27
Capacity (veh/h)	493	547	550	682	722	676
Control Delay (s)	8.4	7.8	9.0	8.5	10.1	9.9
Approach Delay (s)	8.4		8.6		10.1	9.9
Approach LOS	A		A		B	A

Intersection Summary			
Delay	9.5		
HCM Level of Service	A		
Intersection Capacity Utilization	41.8%	ICU Level of Service	A
Analysis Period (min)	15		

EXHIBIT (C) - TRAFFIC IMPACT ANALYSIS
PART 2 OF 4

HCM Unsignalized Intersection Capacity Analysis
16: Military Dr & Reed Rd

Existing PM-2013
1/9/2014

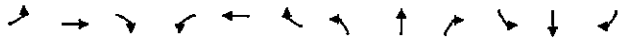
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	396	130	69	8	2	470
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.94	0.93	0.86	0.50	0.25	0.88
Hourly flow rate (vph)	421	140	80	16	8	534
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		751				
pX, platoon unblocked					1.00	
vC, conflicting volume	96				1071	88
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	96				1070	88
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	72				95	45
cM capacity (veh/h)	1497				176	970

Direction, Lane #	EB 1	WB 1	SB 1	SB 2
Volume Total	561	96	8	534
Volume Left	421	0	8	0
Volume Right	0	16	0	534
cSH	1497	1700	176	970
Volume to Capacity	0.28	0.06	0.05	0.55
Queue Length 95th (ft)	29	0	4	86
Control Delay (s)	6.9	0.0	26.5	13.2
Lane LOS	A		D	B
Approach Delay (s)	6.9	0.0	13.4	
Approach LOS			B	

Intersection Summary			
Average Delay	9.3		
Intersection Capacity Utilization	45.4%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Signalized Intersection Capacity Analysis
17: Military Dr & Richland Hills

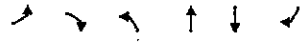
Existing PM-2013
1/9/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	7	286	149	184	260	16	219	29	213	5	11	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.3			5.4		4.5	4.3		4.6	4.3	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.95			0.99		1.00	0.88		1.00	0.96	
Flt Protected		1.00			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1770			1809		1770	1630		1770	1783	
Flt Permitted		0.99			0.63		1.00	1.00		0.27	1.00	
Satd. Flow (perm)		1746			1163		1863	1630		496	1783	
Peak-hour factor, PHF	0.58	0.91	0.81	0.77	0.87	0.44	0.84	0.60	0.89	0.63	0.55	0.50
Adj. Flow (vph)	12	314	184	239	299	36	261	48	239	8	20	8
RTOR Reduction (vph)	0	12	0	0	2	0	0	174	0	0	8	0
Lane Group Flow (vph)	0	498	0	0	572	0	261	113	0	8	20	0
Turn Type	Perm			pm+pt			D.P+P			D.P+P		
Protected Phases		6		5	2		7	4		3	8	
Permitted Phases	6			2			8			4		
Actuated Green, G (s)		64.9			64.8		21.0	20.0		20.9	3.8	
Effective Green, g (s)		64.9			64.8		21.0	20.0		20.9	3.8	
Actuated g/C Ratio		0.65			0.65		0.21	0.20		0.21	0.04	
Clearance Time (s)		5.3			5.4		4.5	4.3		4.6	4.3	
Vehicle Extension (s)		1.0			1.0		1.0	1.0		1.0	1.0	
Lane Grp Cap (vph)		1133			754		375	326		115	68	
v/s Ratio Prot							c0.12	c0.07		0.00	0.01	
v/s Ratio Perm		0.29			c0.49		c0.03			0.01		
v/c Ratio		0.44			0.76		0.70	0.35		0.07	0.30	
Uniform Delay, d1		8.6			12.2		35.3	34.4		32.0	46.8	
Progression Factor		0.32			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.2			3.9		4.5	0.2		0.1	0.9	
Delay (s)		4.0			16.1		39.8	34.6		32.1	47.7	
Level of Service		A			B		D	C		C	D	
Approach Delay (s)		4.0			16.1			37.1			44.2	
Approach LOS		A			B			D			D	

Intersection Summary					
HCM Average Control Delay	19.9	HCM Level of Service		B	
HCM Volume to Capacity ratio	0.78				
Actuated Cycle Length (s)	100.0	Sum of lost time (s)		18.7	
Intersection Capacity Utilization	80.7%	ICU Level of Service		D	
Analysis Period (min)	15				
c Critical Lane Group					

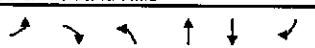
EXHIBIT (C) - TRAFFIC IMPACT ANALYSIS
PART 2 OF 4



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	55	29	38	349	292	55
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.86	0.91	0.63	0.86	0.80	0.81
Hourly flow rate (vph)	64	32	60	406	365	68
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)					1086	
pX, platoon unblocked						
vC, conflicting volume	925	399	433			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	925	399	433			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	77	95	95			
cM capacity (veh/h)	283	651	1127			

Direction, Lane #	EB 1	EB 2	NB 1	SB 1
Volume Total	64	32	466	433
Volume Left	64	0	60	0
Volume Right	0	32	0	68
cSH	283	651	1127	1700
Volume to Capacity	0.23	0.05	0.05	0.25
Queue Length 95th (ft)	21	4	4	0
Control Delay (s)	21.4	10.8	1.6	0.0
Lane LOS	C	B	A	
Approach Delay (s)	17.9		1.6	0.0
Approach LOS	C			

Intersection Summary				
Average Delay	2.5			
Intersection Capacity Utilization	52.5%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (veh/h)	29	39	35	442	285	15
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.91	0.89	0.67	0.86	0.89	0.63
Hourly flow rate (vph)	32	44	52	514	320	24
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	951	332	344			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	951	332	344			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	88	94	96			
cM capacity (veh/h)	276	710	1215			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	76	566	344
Volume Left	32	52	0
Volume Right	44	0	24
cSH	427	1215	1700
Volume to Capacity	0.18	0.04	0.20
Queue Length 95th (ft)	16	3	0
Control Delay (s)	15.2	1.2	0.0
Lane LOS	C	A	
Approach Delay (s)	15.2	1.2	0.0
Approach LOS	C		

Intersection Summary				
Average Delay	1.9			
Intersection Capacity Utilization	55.1%	ICU Level of Service	B	
Analysis Period (min)	15			

HCM Signalized Intersection Capacity Analysis
20: Military Dr & Earl Warren High School

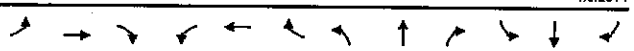
Existing PM-2013
1/9/2014

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	77	441	413	90	112	140
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.9	4.9	5.1	5.1	5.1
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1863	1863	1583	1770	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	1863	1863	1583	1770	1583
Peak-hour factor, PHF	0.64	0.91	0.87	0.58	0.78	0.88
Adj. Flow (vph)	120	485	475	155	144	159
RTOR Reduction (vph)	0	0	0	134	0	137
Lane Group Flow (vph)	120	485	475	21	144	22
Turn Type	Prot			custom		Perm
Protected Phases	1	6	2		8	
Permitted Phases				8		8
Actuated Green, G (s)	12.1	76.4	59.4	13.6	13.6	13.6
Effective Green, g (s)	12.1	76.4	59.4	13.6	13.6	13.6
Actuated g/C Ratio	0.12	0.76	0.59	0.14	0.14	0.14
Clearance Time (s)	4.9	4.9	4.9	5.1	5.1	5.1
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	214	1423	1107	215	241	215
v/s Ratio Prot	c0.07	0.26	c0.26		c0.08	
v/s Ratio Perm				0.01		0.01
v/c Ratio	0.56	0.34	0.43	0.10	0.60	0.10
Uniform Delay, d1	41.4	3.8	11.1	37.8	40.6	37.8
Progression Factor	0.85	1.54	1.10	2.25	1.00	1.00
Incremental Delay, d2	3.0	0.6	0.9	0.2	3.9	0.2
Delay (s)	38.2	6.4	13.1	85.1	44.6	38.0
Level of Service	D	A	B	F	D	D
Approach Delay (s)		12.7	30.8		41.2	
Approach LOS		B	C		D	

Intersection Summary				
HCM Average Control Delay	25.7	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.47			
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	14.9	
Intersection Capacity Utilization	44.6%	ICU Level of Service	A	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Signalized Intersection Capacity Analysis
21: Military Dr & Hunt Ln

Existing PM-2013
1/9/2014



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	90	209	21	94	281	258	14	597	126	198	300	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.7		5.0	5.8		5.2	5.6		5.2	5.6	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.99		1.00	0.93		1.00	0.97		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3495		1770	3275		1770	3450		1770	3402	
Flt Permitted	0.22	1.00		0.52	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	412	3495		965	3275		1770	3450		1770	3402	
Peak-hour factor, PHF	0.70	0.79	0.88	0.78	0.87	0.81	0.70	0.91	0.95	0.81	0.87	0.71
Adj. Flow (vph)	129	265	24	121	323	319	20	656	133	244	345	120
RTOR Reduction (vph)	0	7	0	0	192	0	0	13	0	0	27	0
Lane Group Flow (vph)	129	282	0	121	450	0	20	776	0	244	438	0
Turn Type	pm+pt			pm+pt			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)	26.6	18.1		26.3	17.9		2.4	34.6		17.4	49.6	
Effective Green, g (s)	26.6	18.1		26.3	17.9		2.4	34.6		17.4	49.6	
Actuated g/C Ratio	0.27	0.18		0.26	0.18		0.02	0.35		0.17	0.50	
Clearance Time (s)	5.0	5.7		5.0	5.8		5.2	5.6		5.2	5.6	
Vehicle Extension (s)	1.0	2.5		1.0	2.0		1.0	2.5		1.0	2.5	
Lane Grp Cap (vph)	225	633		321	586		42	1194		308	1687	
v/s Ratio Prot	c0.05	0.08		0.03	c0.14		0.01	c0.22		c0.14	0.13	
v/s Ratio Perm	0.10			0.07								
v/c Ratio	0.57	0.45		0.38	0.77		0.48	0.65		0.79	0.26	
Uniform Delay, d1	30.0	36.5		29.2	39.1		48.2	27.6		39.6	14.6	
Progression Factor	1.00	1.00		1.40	1.37		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.2	0.4		0.3	5.2		3.1	2.7		12.2	0.4	
Delay (s)	32.2	36.9		41.2	58.7		51.3	30.3		51.8	15.0	
Level of Service	C	D		D	E		D	C		D	B	
Approach Delay (s)		35.4			55.9			30.9			27.6	
Approach LOS		D			E			C			C	

Intersection Summary				
HCM Average Control Delay	37.8	HCM Level of Service	D	
HCM Volume to Capacity ratio	0.70			
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	21.6	
Intersection Capacity Utilization	70.5%	ICU Level of Service	C	
Analysis Period (min)	15			
c Critical Lane Group				

EXHIBIT (C) - TRAFFIC IMPACT ANALYSIS
PART 2 OF 4

HCM Signalized Intersection Capacity Analysis
22: Hunt Ln & SH 151 NB Frnt Rd

Existing PM-2013
1/9/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	39	36	0	0	420	29	22	662	719	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.3			5.3	5.3	6.0	6.0				
Lane Util. Factor		0.95			0.95	1.00	0.91	0.91				
Frt		1.00			1.00	0.85	1.00	0.92				
Flt Protected		0.97			1.00	1.00	0.95	1.00				
Satd. Flow (prot)		3443			3539	1583	1610	3135				
Flt Permitted		0.59			1.00	1.00	0.95	1.00				
Satd. Flow (perm)		2097			3539	1583	1610	3135				
Peak-hour factor, PHF	0.70	0.82	1.00	1.00	0.89	0.60	0.69	0.88	0.95	1.00	1.00	1.00
Adj. Flow (vph)	56	44	0	0	472	48	32	752	757	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	39	0	70	0	0	0	0
Lane Group Flow (vph)	0	100	0	0	472	9	29	1442	0	0	0	0
Turn Type	pm+pt					Perm	Split					
Protected Phases	5	6			6		8	16	8	16		
Permitted Phases	6					6						
Actuated Green, G (s)		19.8			19.8	19.8	75.0	75.0				
Effective Green, g (s)		19.8			19.8	19.8	75.0	75.0				
Actuated g/C Ratio		0.19			0.19	0.19	0.71	0.71				
Clearance Time (s)		5.3			5.3	5.3						
Vehicle Extension (s)		3.0			3.0	3.0						
Lane Grp Cap (vph)		394			665	298	1147	2233				
v/s Ratio Prot					c0.13		0.02	c0.46				
v/s Ratio Perm		0.05				0.01						
v/c Ratio		0.25			0.71	0.03	0.03	0.65				
Uniform Delay, d1		36.5			40.1	34.9	4.4	8.1				
Progression Factor		0.75			1.00	1.00	1.00	1.00				
Incremental Delay, d2		0.3			3.5	0.0	0.0	1.5				
Delay (s)		27.5			43.5	35.0	4.5	9.5				
Level of Service		C			D	C	A	A				
Approach Delay (s)		27.5			42.7			9.4			0.0	
Approach LOS		C			D			A			A	

Intersection Summary			
HCM Average Control Delay	18.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	105.3	Sum of lost time (s)	11.3
Intersection Capacity Utilization	59.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
23: Hunt Ln & SH 151 SB Frnt Rd

Existing PM-2013
1/9/2014

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	431	0	0	0	75	517
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.2				6.0	6.0
Lane Util. Factor	0.97				0.91	0.91
Frt	1.00				1.00	1.00
Flt Protected	0.95				0.95	1.00
Satd. Flow (prot)	3433				1610	3387
Flt Permitted	0.95				0.95	1.00
Satd. Flow (perm)	3433				1610	3387
Peak-hour factor, PHF	0.93	1.00	1.00	1.00	0.75	0.91
Adj. Flow (vph)	463	0	0	0	100	568
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	463	0	0	0	90	578
Turn Type					Split	
Protected Phases	1				4	4
Permitted Phases						
Actuated Green, G (s)	48.0				46.9	46.9
Effective Green, g (s)	48.0				46.9	46.9
Actuated g/C Ratio	0.46				0.45	0.45
Clearance Time (s)	5.2					
Vehicle Extension (s)	3.0					
Lane Grp Cap (vph)	1565				717	1509
v/s Ratio Prot	c0.13				0.06	c0.17
v/s Ratio Perm						
v/c Ratio	0.30				0.13	0.38
Uniform Delay, d1	18.0				17.2	19.5
Progression Factor	0.42				1.00	1.00
Incremental Delay, d2	0.1				0.4	0.7
Delay (s)	7.7				17.5	20.3
Level of Service	A				B	C
Approach Delay (s)	7.7		0.0			19.9
Approach LOS	A		A			B

Intersection Summary			
HCM Average Control Delay	14.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	105.3	Sum of lost time (s)	11.2
Intersection Capacity Utilization	35.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

EXHIBIT (C) - TRAFFIC IMPACT ANALYSIS
PART 2 OF 4