## **Boone Clinton Area Elementary School Traffic Study**

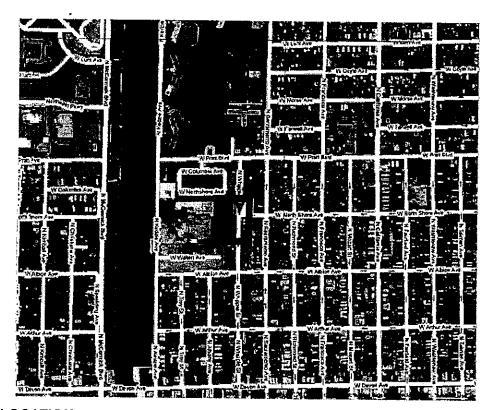
This report details the results of a traffic study conducted by Parsons Transportation Group for the proposed Boone Clinton Area Elementary School at Whipple Street & North Shore Avenue. This study addresses the traffic conditions in the site area with and without the proposed elementary school. The proposed new school will consist of a 105,536 square-foot, elementary school for 900 students.

### **Existing Conditions**

Transportation conditions in the site vicinity were inventoried. Three general components of existing conditions were considered: (1) the geographical location of the site, (2) the characteristics of the area streets and traffic control devices; and (3) the characteristics of the traffic on these streets.

#### Site Location

The site is located west of the t-intersection of Whipple Street & North Shore. The project site and the surrounding roadway network are shown on Figure 1.



A N

SITE LOCATION

Figure 1

### Site Accessibility

The principal streets in the site vicinity are illustrated in Figure 2, Existing Roadway Configuration, and described in the following paragraphs.

Whipple Street is a north-south local road that begins one block north of North Shore Avenue at Pratt Boulevard. The roadway is one-way in the southbound direction. It has one through lane in the vicinity of the site with parking on both sides of the street. There is no posted speed limit, and therefore the speed limit was assumed to be 30 mph. (See Chicago Police Department website.) The intersection of Whipple Street and North Shore Avenue is stop controlled.

North Shore Avenue is an east-west local road. It is one-way in the westbound direction and terminates at Whipple Street, forming a t-intersection. It has one through lane and there is parking on both sides of the street.

Pratt Boulevard is an east-west collector street. It has one lane in each direction. There is parking on both sides of the street. The t-intersection at Whipple is uncontrolled.

Albion Avenue is an east-west local road. It is one-way in the eastbound direction. It has one through lane and there is parking on both sides of the street. The intersections at Whipple Street and Sacramento Avenue are both stop-controlled.

Sacramento Avenue is a north-south local road. It is one-way in the northbound direction. It has one through lane and there is parking on both sides of the street. The intersection at North Shore Avenue is stop-controlled.

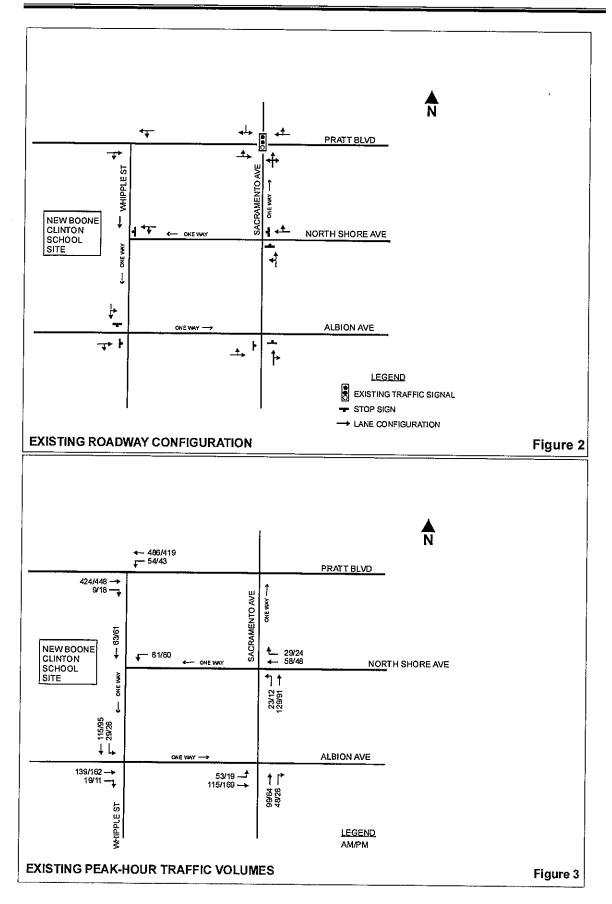
A layout for the proposed Boone Clinton Area Elementary School is shown in Appendix A.

### **Existing Traffic Volumes**

Traffic counts were conducted on May 28<sup>th</sup> and 29<sup>th</sup>, 2008, at 4 intersections in the project area during the weekday morning (7:00 to 9:00 A.M.) and afternoon (2:00 to 4:00 P.M.). These times were chosen to correspond with the times Chicago Public School children are typically dropped-off and picked-up from school (based on phone conversations with administrators at the other elementary schools in the vicinity of the proposed Boone Clinton Area School). Traffic counts were conducted at the following locations:

- Pratt Boulevard and Whipple Street
- Whipple Street and North Shore Avenue
- Whipple Street and Albion Avenue
- Albion Avenue and Sacramento Avenue

The peak hours of traffic were found to be 7:45 - 8:45 A.M. in the morning and 3:00 to 4:00 P.M. in the afternoon. The traffic volumes for these hours are shown in Figure 3.



### **Development of Future Traffic Characteristics**

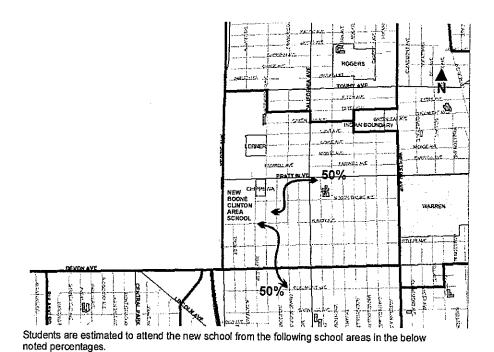
In order to evaluate future traffic conditions with the proposed Boone Clinton Area Elementary School, Parsons determined the directional distribution of the additional traffic generated by the school. Parsons projected the directional distribution of additional traffic by considering the existing schools in the vicinity of the new school likely to receive overcrowding relief. Information regarding existing school boundaries was used by Parsons to determine the potential new boundaries and corresponding student base.

Schools that would likely receive overcrowding relief include:

School Receiving Overcrowding Relief	Percentage of New Boone Clinton Area School Population
Boone	50%
Clinton	50%

#### **Directional Distribution**

The proposed Boone Clinton Area Elementary School drop-off site will be accessed by the stop-controlled intersection at Whipple Street & North Shore Avenue. The directional distribution of traffic generated by the new school was based on the proximity of the new school to each of the existing schools and their respective boundaries. Due to the location of the proposed school in the west portion of the proposed school boundary, a majority of the generated traffic will approach the school from the east. The directional distribution is shown in Figure 4.



From: Boone - 50% Clinton - 50% Figure 4

### **Trip Generation**

Based on conversations with Chicago Public School administrators, it was determined that approximately 10% of the students are dropped-off and picked-up at school. Approximately 3 buses will drop-off and pick-up special needs students. The majority of students walk to school in the area of the proposed Boone Clinton Area Elementary School.

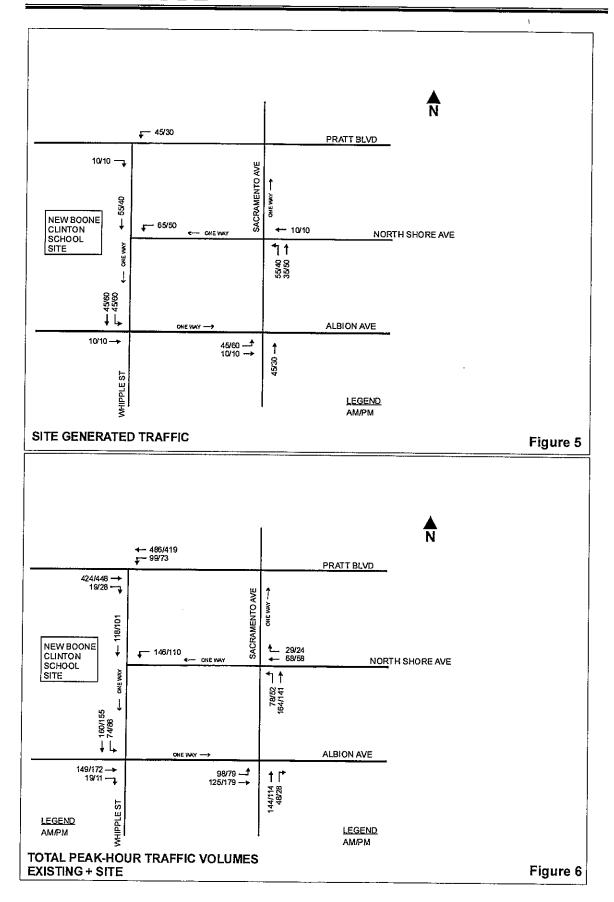
Trips generated for the proposed site were based on the number of students slated to attend the new school (900 students) and the supposition that approximately 10% of students were dropped-off and picked-up in automobiles. It is assumed that all trips originate at the students home, and then return home. It is likely that many of the parents may proceed to alternate locations after dropping-off, however the post-drop-off destinations are not known. Therefore, it is assumed they return from the spot of origin. Based on these assumptions, we estimate 90 trips entering and exiting the site during both morning and afternoon peaks.

The proposed staff parking lot for the Boone Clinton Area School accommodates 30 vehicles. It was assumed that the lot would be fully utilized with staff arriving during the AM peak-hour and departing during the PM peak-hour.

### Traffic Assignment

Traffic was assumed to utilize the path of least resistance to access the drop-off/pick-up on Whipple Street. Vehicles arriving from the south would use Sacramento Avenue and turn left onto North Shore Avenue. Trips originating from the north would use Pratt Boulevard and turn left onto Whipple Street. Vehicles arriving from the east would use North Shore Avenue and vehicles arriving from the west would use either Albion Avenue or Pratt Boulevard.

The estimated weekday peak-hour traffic volumes generated by the proposed Boone Clinton Area Elementary School were assigned to the area street network according to the directional distribution. The proposed drop-off and pick-up location at the school is located on Whipple Street south of the North Shore Avenue intersection in front of the school. All traffic will drop-off and pick-up at this location. The estimated generated site traffic volumes are shown in Figure 5. The total peak-hour volumes, which include the existing traffic and the additional traffic generated by the site expansion, are shown in Figure 6.



### **Analysis and Evaluation**

The street network was analyzed to determine impacts of the proposed Boone Clinton Area Elementary School. In particular the signalized and unsignalized intersections along Whipple Street in the vicinity of the proposed school were analyzed using Synchro 6 software. This software analyzes traffic at a given location and provides information regarding average vehicle delay, and queue lengths. These factors are used to assign a letter grade to an intersection and each specific movement, Level of Service (LOS).

The generally accepted minimum LOS at an intersection is D. An LOS of A indicates little if any delay, and an LOS of F indicates an overcapacity situation. Table 1 details the results of the Synchro analysis; the signalized intersection capacity analysis worksheets are included in Appendix B.

The analysis shows that the additional traffic generated by a new school will not significantly impact any of the surrounding intersections. The stop-controlled intersections in the neighborhood along Whipple Street and Sacramento Avenue will function at LOS A. Similarly, the unsignalized intersection at Pratt Boulevard and Whipple Street will continue to function at LOS B during both the AM and PM peak-hours.



Table 1 - Analysis Results

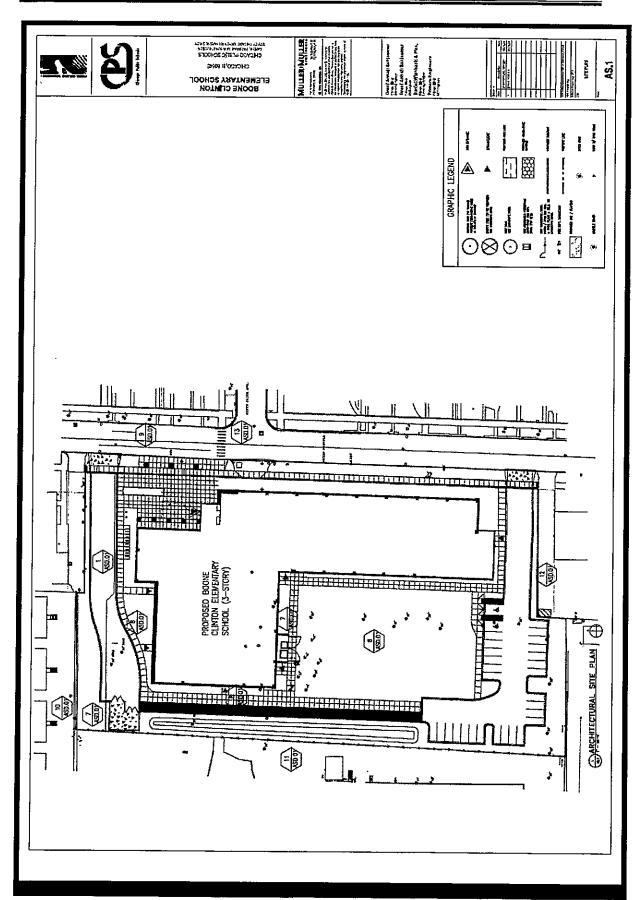
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		AM			PM			AM			Μď	
		Delav	Queue		nejog	Queue		,,,,,	Queue			Queue
Intersection	S07	(SEC)	(FT)	S07	(SEC)	(FT)	SOT	(SEC)	Lengtn (FT)	801	Delay	Length
UNSIGNALIZED INTERSECTIONS											(070)	<i>(1, 1)</i>
Pratt @ whipple	-	0.8		В	9'0		B	1.4		В	1.0	
EB	Ą	0.0		А	0.0		٨	0.0		<b>∀</b>	00	
AVB	Ą	1.4	4	Α	1.3	3	⋖	2.5	80	<b>\</b>	2.1	9
												,
North Shore @ Whipple	۷	5.2		٧	4.5		V	5.6		4	5.1	
WB	٨	9.2	8	A	9.1	9	æ	10.1	12	⋖	9.7	12
SB	A	·0		A	0.0		A	0.0		. ✓	0.0	1
North Shore @ Sacramento	٧	8.0		A	7.6		4	8.8		٨	8.3	
WB	A	7.6		٨	7.4		Α	8.0		<	7.7	
NB	⋖	8.2		۷	7.7		A	9.1		A	8.5	
Albion @ Whinple	•	ŝ			,							
aiddiii a inglaid	∢	5.0		٧	8.3		٧	9.5		∢	9.4	
EB	∢.	8.3		A	8.4		٧	8.8		A	9.0	a
90	۷	8.4		٧	8.2		Α	9.5		¥	9.7	
000												
Albion @ Sacramento	۷	8.4		٧	8.3		٧	9.2		4	9.2	
IIB ND	۷,	8.6		4	8.6		A	9.5	-	4	9.6	
INB	٨	8.1		٧	8.0		٧	8.9		4	8.5	

#### Conclusion

The traffic generated by the new Boone Clinton Area School will have little impact on the LOS along the neighborhood intersections and along Pratt Boulevard. There is a drop-off/pick-up location designated along Whipple Street just south of North Shore Avenue for parents and just north of North Shore Avenue for buses. These locations along with ample on-street parking will provide adequate space to facilitate drop-off and pick-up operations for the proposed school.

It is recommended that a crossing guard be provided to assist children when crossing Whipple Street at North Shore Avenue. There is not a stop sign on Whipple southbound at North Shore Avenue, and we are not recommending one at this time. A stop sign is not recommended crossing a two lane road with average daily traffic less than 10,000 motor vehicles per day and where the speed limit is 40 mph or less.

# APPENDIX A



Boone Clinton Area Elementary School Traffic Analysis



### APPENDIX B

Timing Plan: AM EX AM Existing

	$\rightarrow$	•	•	←	4	<b>/</b>	
Movement	EBT	EBR	WBL	WBT	NBI	NBR	
Lane Configurations	₽			4	200000000000000000000000000000000000000		
Sign Control	Free			Free	Stop		
Grade	0%		•	0%	0%		
Volume (veh/h)	424	9	54	486	0	0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	461	10	59	528	0	0	
Pedestrians							· · · · · · · · · · · · · · · · · · ·
Lane Width (ft)		•				-	
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type					None		
Median storage veh)							•
Upstream signal (ft)							
pX, platoon unblocked							
vC, conflicting volume			471		1111	466	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol			474				
vCu, unblocked vol			471		1111	466	
tC, single (s)			4.1		6.4	6.2	
tC, 2 stage (s)			0.0		0.5	0.0	
tF (s) p0 queue free %			2.2 95		3.5	3.3	
cM capacity (veh/h)			1091		100 219	100	
			1081		219	597	
Direction, Lane #		WB 1	4				
Volume Total	471	587					
Volume Left	0	59					
Volume Right	10	0					
cSH	1700	1091					
Volume to Capacity	0.28	0.05					
Queue Length 95th (ft)	0	4					
Control Delay (s)	0.0	1.4					
Lane LOS		A					
Approach Delay (s)	0.0	1.4					
Approach LOS							
Intersection Summary	den i	K Zwij		非常是是	12-31-39-3	60.184.14	
Average Delay			0.8				The state of the s
Intersection Capacity Uti	lization		58.1%	IC	U Leve	l of Serv	vice B
Analysis Period (min)			15		·		

Timing Plan: AM EX AM Existing

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Movement	WBL	WBR	NBT	NBR	∛SBL®	SBT	
Lane Configurations	ሻ					<u></u>	The state of the s
Sign Control	Stop		Free		•	Free	
Grade	0%		0%			0%	ere de la companya d
Volume (veh/h)	81	0	0	0	Ò	63	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	88	0	0	0	0	68	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)	**						
Percent Blockage							
Right turn flare (veh)	N1						
Median type	None						en e
Median storage veh)				- 3			
Upstream signal (ft) pX, platoon unblocked							en de la companya de Companya de la companya de la compa
vC, conflicting volume	68		•				And the second s
vC1, stage 1 conf vol	OO				Ų		
vC2, stage 2 conf vol			•				Solver and the second s
vCu, unblocked vol	68	0			O		······································
tC, single (s)	6.4	6.2			4.1		
tC, 2 stage (s)	•		e: :	4 .	7.1		and the second of the second o
tF (s)	3.5	3.3			2.2		
p0 queue free %	91	100			100	* * *	
cM capacity (veh/h)	936	1085			1623		••
Direction, Lane #	WB/10	SB 1		Ede de la	W.E. P. W. ST. ST.		
Volume Total	88	68	e e e e e e	18 8 8 P	<u> </u>		
Volume Left	88	0					
Volume Right	0	0					
cSH	936	1700					
Volume to Capacity	0.09	0.04					
Queue Length 95th (ft)	8	0					
Control Delay (s)	9.2	0.0					
Lane LOS	Α						
Approach Delay (s)	9.2	0.0					
Approach LOS	Α						
Intersection Summary					7		
Average Delay	o.c : M. o	S. MOSESCORA ENTERAÇÃO	5.2	Marie Mark 2029	CALIFORNIA STATE OF THE STATE O	or market	
Intersection Capacity Ut	ilization	3	3.2%	ic	U Level	of Ser	vice A
Analysis Period (min)			15			J. 007	vice A
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Movement	EBL	∛EBT≬	EBR	-WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					ĵ <sub>&gt;</sub>			€Î				
Sign Control		Stop			Stop			Stop			Stop	**
Volume (vph)	0	0	0	0	58	29	23	129	0	0	Ó	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	63	32	25	140	0	0	0	0
Direction Lane#	WB1	NB 1							8.0.4.			
Volume Total (vph)	95	165									March Street,	Processor Contract
Volume Left (vph)	0	25								*		
Volume Right (vph)	32	0										
Hadj (s)	-0.17	0.06										
Departure Headway (s)	4.1	4.2					***					
Degree Utilization, x	0.11	0.19					* +	* * * *		- : :		-
Capacity (veh/h)	843	838			-							•
Control Delay (s)	7.6	8.2									0.50	
Approach Delay (s)	7.6	8.2										
Approach LOS	Α	Α			•					-		
Intersection Summary	(a. 29 <b>6</b> * 196			a Kantuka	12176 (2014)				real Assistant	* 17 E E	्रम क्या देश सङ्ख्	
Delay	Carried Contraction	252 2 3433 465	8.0		ALTERNATION AND ADDRESS OF THE		3-31 No. 11 (48)					ALARA A
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Analysis Period (min)			15	į.	C LCVC	J. OCI (	HOG					
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Timing Plan: AM EX AM Existing

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBĿ	-NBT	NBR.	SBL	SBT	SBR
Lane Configurations		ĵ.		,							4	
Sign Control		Stop			Yield			Yield			Stop	
Volume (vph)	0	139	19	0	0	0	0	0	0	29	115	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	151	21	0	0	0	0	0	0	32	125	0
Direction, Lane #	EB <sub>1</sub> 1	SB1	1.500	day ya da	and the second	o) wygr	医运行性	S. Call (c)	Service 1			3747 B
Volume Total (vph)	172	157										
Volume Left (vph)	0	32								•		
Volume Right (vph)	21	0										
Hadj (s)	-0.04	0.07							*		•	•
Departure Headway (s)	4.2	4.4							,			
Degree Utilization, x	0.20	0.19			•	_				-		
Capacity (veh/h)	823	792										
Control Delay (s)	8.3	8.4										
Approach Delay (s)	8.3	8.4										٠
Approach LOS	Α	Α										
Intersection Summary		777								us c		
Delay			8.3								and the state of the state of the state of	. Long AWARE RATE
HCM Level of Service			Α					**		•		
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Analysis Period (min)			15						•			

Timing Plan: AM EX AM Existing

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Movement @	EBL	EBT	EBR	WBL.	WBT	WBR	NBL	NBT®	NBR	SBL	SBT	SBR
Lane Configurations Sign Control		<b>€</b> Stop			Stop			<b>Љ</b> Stop	<u> </u>		Stop	<u></u>
Volume (vph)	53	115	. 0	0	0	0	0	99	48	0	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	58	125	0	0	0	0	0	108	52	0	0	0
Direction, Lane #	EB 1.	∍NB₁1		en A	44.24	e e e	resident d	it de local		ether for		
Volume Total (vph)	183	160										
Volume Left (vph)	58	Ó				•		•			•	•
Volume Right (vph)	0	52						*		•	**	
Hadj (s)	0.10	-0.16	•									
Departure Headway (s)	4.4	4.2				•						•
Degree Utilization, x	0.22	0.18										
Capacity (veh/h)	800	828										
Control Delay (s)	8.6	8.1									• •	
Approach Delay (s)	8.6	8.1	·									
Approach LOS	Ä	Α				-						
Intersection Summary			POR EL TRA	· ·			21 27 3 <b>9</b> 25 3					TELESCOPIE
Delay			8.4	CAST SAN EMBERSON	rementant m	200 Proc 900 Proc 10	en en en en en en	same as so	ACTION ASSESSMENT	a decision in	territoria (C.)	
HCM Level of Service	•		Α		•							
Intersection Capacity Util	ization	;	38.5%	IC	U Leve	l of Serv	vice		Α			
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Timing Plan: PM EX

PM Existing

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Movement	EBT	EBR	WBL	WBT	NBL	NBR	
Lane Configurations	<b>ጐ</b>	Street of the second		4			
Sign Control	Free			Free	Stop		•
Grade	0%			0%	0%		
Volume (veh/h)	448	18	43	419	Ó	0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	487	20	47	455	0	0	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type					None		en e
Median storage veh)				·			
Upstream signal (ft)							
pX, platoon unblocked			607		4040	403	
vC, conflicting volume vC1, stage 1 conf vol			507		1046	497	e en
vC1, stage 1 conf vol							
vCu, unblocked vol			507		1046	497	
tC, single (s)			4.1	÷	6.4	6.2	
tC, 2 stage (s)	-		<del>"1</del> .1		0.4	0.2	
tF (s)			2.2		3.5	3.3	
p0 queue free %			96	-	100	100	
cM capacity (veh/h)			1058		242	573	
			THE STREET SALE	Grand Santa	272 	010	
Direction, Lane # Volume Total	EB 1	Access of the second se			io liberta is	e verteeling	
Volume Fotal Volume Left	507 0	502 47					e e
Volume Right	20	47 0					
cSH	1700	1058					
Volume to Capacity	0.30	0.04					
Queue Length 95th (ft)	0.30	3					
Control Delay (s)	0.0	1.3					
Lane LOS	Ų.U	1.5 A					
Approach Delay (s)	0.0	1.3					
Approach LOS	0.0						
		100					
Intersection Summary	N TONIS				多洲州学	<b>2</b> 21 特定的	
Average Delay Intersection Capacity Uti	lization		0.6 55.8%	16	NIII assasi	af D==	rice .
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Timing Plan: PM EX

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Timing Plan: PM EX PM Existing

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Movement and a second	WBL	WBR	NBT.	NBR	SBL	SBT
Lane Configurations	ሻ			20.20-E. T.CM. C.	250055	<b>†</b>
Sign Control	Stop		Free		-	Free
Grade	0%		0%		•	0%
Volume (veh/h)	60	0	Ö	0	0	61
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	65	0	0	0	0	66
Pedestrians	•	****				en e
Lane Width (ft)						and the control of th
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					the first of the first of the control of the contro
Median storage veh)						the state of the s
Upstream signal (ft)						and the comment of the second of the comment of the second
pX, platoon unblocked						
vC, conflicting volume	66	0			0	and the contract of the contra
vC1, stage 1 conf vol						
vC2, stage 2 conf vol			•			
vCu, unblocked vol	66	0			0	and the second of the second o
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	93	100			100	
cM capacity (veh/h)	939	1085			1623	
Direction, Lane #	WB 1:	SB 1	a de la servicio	ar Jane	T.	
Volume Total	65	66				
Volume Left	65	0				
Volume Right	0	0				
cSH	939	1700				
Volume to Capacity	0.07	0.04				
Queue Length 95th (ft)	6	0				
Control Delay (s)	9.1	0.0				
Lane LOS	Α					
Approach Delay (s)	9.1	0.0				
Approach LOS	Α	•				
Intersection Summary						
	al Lating Na	scatterascib. A	45	Elitabete (e)	a definiti	ALTONIA CONTRACTOR OF CONTRACT
Average Delay Intersection Capacity Uti	llization		4.5	.~	M 1 1 =	tot Onnière
	iiiza(ion		32.3%	iC	U Leve	of Service A
Analysis Period (min)			15			

Timing Plan: PM EX

Parsons Transportation Group

Timing Plan: PM EX PM Existing

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Movement	EBL	. EBT⊭	<b>EBR</b>	WBL	WBT#	WBR	NBL	<b>₩NB</b> T	NBR	SBL	SBT	SBR
Lane Configurations	•				<del>(</del> Î			र्स				
Sign Control		Stop			Stop	<del>.</del>		Stop			Stop	
Volume (vph)	0	0	0	0	48	24	12	91	0	0	0	Ó
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	52	26	13	99	0	0	0	0
Direction Lane#	WB/J	NBH	1 9			and the	i i i i i i i i i i i i i i i i i i i		de la compa			
Volume Total (vph)	78	112										
Volume Left (vph)	0	13										
Volume Right (vph)	26	0										
Hadj (s)	-0.17	0.06										
Departure Headway (s)	4.0	4.1										
Degree Utilization, x	0.09	0.13					s - 11 s					
Capacity (veh/h)	876	848						••				
Control Delay (s)	7.4	7.7										
Approach Delay (s)	7.4	7.7										•
Approach LOS	Α.	Α										
Interséction Summary										17 - CA-48		<b>7.00</b>
Delay			7.6						(22) 23 (12)		ANTERNA A	Maria Grand
HCM Level of Service			Ä						·			
Intersection Capacity Uti	lization		19.8%	IC	CU Leve	l of Serv	/ice		Α			
Analysis Period (min)	.,		15								- v	

Timing Plan: PM EX PM Existing

	•	-	7	€	+	•	*	<b>†</b>	<i>&gt;</i>	<b>/</b>	<del> </del>	1
Movement	" EBL	EBT	EBR	:WBL	WBT	WBR*	- NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		1€									सी	
Sign Control		Stop			Yield			Yield			Stop	
Volume (vph)	0	162	11	0	0	0	0	0	0	26	95	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	176	12	0	0	0	0	0	0	28	103	0
Direction Lane #	EB1	SB 1	orbodzni.	ia e	4.000	500		and a car		alering a figure (f)		visa (proj
Volume Total (vph)	188	132										
Volume Left (vph)	. 0	28									•	
Volume Right (vph)	12	0										
Hadi (e)	0.00	ัก กล		*** *								

Volume Total (vph)	188	132
Volume Left (vph)	0	28
Volume Right (vph)	12	0
Hadj (s)	0.00	0.08
Departure Headway (s)	4.2	4.4
Degree Utilization, x	0.22	0.16
Capacity (veh/h)	831	782
Control Delay (s)	8.4	8.2
Approach Delay (s)	8.4	8.2
Approach LOS	Α	A

8.3		
Α	· · ·	
22.3%	ICU Level of Service	A
15	• • •	· · · · · · · · · · · · · · · · · · ·
	8.3 A	8.3 A 22.3% ICU Level of Service

Timing Plan: PM EX PM Existing

	<b>≯</b>	<b>→</b>	•	•	<b>←</b>	•	1	†	~	<b>&gt;</b>	1	4
Movement	⊬EBĿ∖	`EBT	EBR	WBL	·WBT∄	WBR	NBL	NBT.	NBR	SBL	SBT	SBR
Lane Configurations Sign Control		<b>4</b> Stop			Stop			<b>Ĵ∌</b> Stop			Stop	(A) 10
Volume (vph) Peak Hour Factor	19 0.92	169 0.92	0 0.92	0 0.92	0 0.92	0 0.92	0 0.92	84 0.92	28 0.92	0.92	0 0.92	0 0.92
Hourly flow rate (vph)	21	184	0	0	0	0	0	91	30	0	0	0
Direction (Lane # All 1995)	EB 1	NB1		o that		1.0			SAME.		(jakelta)	1000
Volume Total (vph)	204	122										
Volume Left (vph)	21	0										
Volume Right (vph)	0	30										
Hadj (s)	0.05	-0.12						•				
Departure Headway (s)	4.2	4.3										
Degree Utilization, x	0.24	0.14				* ***				* .		• •
Capacity (veh/h)	828	807										
Control Delay (s)	8.6	8.0										·
Approach Delay (s)	8.6	8.0						-				
Approach LOS	Α	Ä			•							
Intersection Summany				a system						7,110		
Delay	200 March 200 Ma	******	8.3	220-00202	AND THE RESERVE	**************	THE STATE OF THE S		THE MANAGEMENT	2.020(45)	AND COMPANY	A10001150000
HCM Level of Service	÷	**	A			* * * * * * * * * * * * * * * * * * * *			* * **	**		
Intersection Capacity Util Analysis Period (min)	ization	•	40.5% 15	lC	CU Leve	of Sen	/ice		Α			

Timing Plan: AM EX + Site
AM Existing + Site

		7	•	-	1	1	
Movement	EBT	EBR	WBL	WBT	NBL	NBR	
Lane Configurations	f.			4			
Sign Control	Free			Free	Stop		
Grade	0%			0%	0%		
Volume (veh/h)	424	19	99	486	0	0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	461	21	108	528	Q	0	
Pedestrians							
Lane Width (ft)			•				
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type					None		the state of the s
Median storage veh)							
Upstream signal (ft)							
pX, platoon unblocked			400		4648	47.4	
vC, conflicting volume			482		1215	471	· · · · · · · · · · · · · · · · · · ·
vC1, stage 1 conf vol							
vC2, stage 2 conf vol			482		4045	 474	
vCu, unblocked vol			402	-	1215	471 6.2	e e e e e e e e e e e e e e e e e e e
tC, single (s)			4.1		6.4	0.2	
tC, 2 stage (s) tF (s)			2.2		3.5	3.3	
p0 queue free %			90		100	100	
cM capacity (veh/h)			1081		180	593	•
		· · · · · · · · · · · · · · · · · · ·	1001	Color Marino Happania de Anton	100		
Direction, Lane #	EB 1		18			1.0	
Volume Total	482	636					
Volume Left	0	108					
Volume Right	21	0					
cSH	1700	1081					
Volume to Capacity	0.28	0.10					
Queue Length 95th (ft)	0	8 2.5					
Control Delay (s) Lane LOS	0.0	2.5 A					
	0.0	2.5					
Approach Delay (s) Approach LOS	Ų.O	2.5					
• •			i de seculo	tir iva and			
Intersection Summary			915888889.2 4 4		10.50	<b>Barrak</b> dan	作。在1967年,1967年,1967年,1967年,1967年,1967年,1967年,1967年,1967年,1967年,1967年,1967年,1967年
Average Delay	liaatia.	,	1.4	1,4	7111	- معذا	adaa B
Intersection Capacity Ut	mZation	•	61.2%	I	CU Leve	or Ser	vice B
Analysis Period (min)			15				

Timing Plan: AM EX + Site

AM Existing + Site

	•	*	<b>†</b>	<i>&gt;</i>	<b>\</b>	ļ						
Movement:		·WBR	NBT	NBR.	SBL	SBT		al Car	102.00		e de person	65 (AL-40 5)
Lane Configurations	ሻ					<b>†</b>			i and in the	manny sources		<u> </u>
Sign Control	Stop		Free			Free						
Grade	0%	-	0%			0%			-			
Volume (veh/h)	146	0	0	0	0	118				**	. ,	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92						
Hourly flow rate (vph)	159	0	Ó	0	0	128	-			•		
Pedestrians												•
Lane Width (ft)												
Walking Speed (ft/s)		-							*	* * *		
Percent Blockage						* * * * * *						* *
Right turn flare (veh)												
Median type	None		•							-		•
Median storage veh)			** * *									
Upstream signal (ft)	.,											
pX, platoon unblocked								· · · · · - · · · -				
vC, conflicting volume	128	0			0							
vC1, stage 1 conf vol												
vC2, stage 2 conf vol							•					
vCu, unblocked vol	128	0			0					,		
tC, single (s)	6.4	6.2			4.1							
tC, 2 stage (s)				•	. ''		-			**	-	
tF (s)	3.5	3.3			2.2							
p0 queue free %	82	100			100	***						
cM capacity (veh/h)	866	1085			1623							
Direction, Lane #	WB1	SB1	* V 2000 (A.C.)	Se of Seesan				7.9.5 TO 1.4.1			A COLOR	
Volume Total	159	128				277		it i de la companya			7/4	
Volume Left	159	120										
Volume Right	109	0										
cSH	866	1700										
Volume to Capacity	0.18	0.08										
Queue Length 95th (ft)	17	0.08	-									
Control Delay (s)	10.1	0.0										
Lane LOS	10.1 B	0.0										
Approach Delay (s)	10.1	0.0				-						
Approach LOS	10.1 B	0.0					•					
Approacti EOS	D											
Intersection Summary								2.4	10 (6.16.6)			
Average Delay			5.6								- America (Carlos Constitution)	
Intersection Capacity Ut	ilization	3	37.5%	ICI	U Leve	l of Serv	/ice		Α			
Analysis Period (min)			15									·

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Movement	EBL	EBT	EBR	«WBL»	:WBT	WBR	NBL	NBT	NBR	. SBL	SBT	SBR
Lane Configurations			•		Þ			सी				
Sign Control		Stop			Stop			Stop		* * *	Stop	•
Volume (vph)	0	0	0	0	68	29	78	164	0	0	Ö	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	74	32	85	178	0	0	0	Ò
Direction, Lane#	WB 1-	NB 1+	and the			. 44						reaction.
Volume Total (vph)	105	263										
Volume Left (vph)	0	85										
Volume Right (vph)	32	0										
Hadj (s)	-0.15	0.10								*	•	
Departure Headway (s)	4.4	4.2				,	• • • • •					
Degree Utilization, x	0.13	0.31		•		::						
Capacity (veh/h)	772	826										
Control Delay (s)	8.0	9.1										
Approach Delay (s)	8.0	9.1										
Approach LOS	Α	Α	•	** *			-					
Intersection Summary			42			41. St. 1			ren eksik			
Delay			8.8					STEEN STEEN SERVICE				
HCM Level of Service			A		•							
Intersection Capacity Uti	lization	ż	25.0%	IC	U Leve	l of Sen	vice		Α			
Analysis Period (min)		· · · · · ·	15						• • •			
										-		

Timing Plan: AM EX + Site
AM Existing + Site

	۶	-	*	•	<b>←</b>	•	4	<b>†</b>	<b>*</b>	1	ļ	4
Movement	(EBL)	EBT :	EBR*	WBL	WBT	WBR	NBL	NBT.	∗NBR	SBL	SBT	SBR
Lane Configurations Sign Control Volume (vph) Peak Hour Factor Hourly flow rate (vph)	0 0.92 0	\$\frac{1}{5}\$ Stop 149 0.92 162	19 0.92 21	0 0.92 0	Yield 0 0.92 0	0 0.92 0	0 0.92 0	Yield 0 0.92 0	0 0.92 0	74 0.92 80	र्भ Stop 160 0.92 174	0 0.92 0
Direction, Lane # 🎉 🦠	. EΒ,1∂.	SB 1	unit (file)	fance al		re-Proble		446	ration liber	ran ba		
Volume Total (vph)	183	254								<u>-</u>		
Volume Left (vph)	0	80								•		
Volume Right (vph)	21	0							•			•
Hadj (s)	-0.03	0.10										
Departure Headway (s)	4.5	4.4				• • • • • •			*			
Degree Utilization, x	0.23	0.31	•		٠							
Capacity (veh/h)	759	783										
Control Delay (s)	8.8	9.5										
Approach Delay (s)	8.8	9.5					•					
Approach LOS	Α	Α										
Intersection Summary	e oraștal		de e				eri de ve					
Delay	ARCACON SAMPONE		9.2	**************************************		CONTROL OF STREET					Transit Labor	A CONTRACTOR
HCM Level of Service			Α.		÷		-					
Intersection Capacity Uti	lization		28.2%	ıc	111 ava	l of Serv	doo					
Analysis Period (min)	nzediOH	•	15	. !	O LEVE	i oi Seiv	MCE .		<b>A</b>			

•	•	<b>→</b>	•	•	<b>4</b> —	4	*	<b>†</b>	*	<b>\</b>	ļ	-√
Movement	EBL	EBI	EBR	WBL	WBT	WBR.	NBL	NBT	NBR	(SBL)	SBT	SBR
Lane Configurations		ની		-				4				
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	98	125	0	0	0	0	. 0	144	48	0	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	107	136	0	0	0	0	0	157	52	0	0	0
Direction; Lane#:	EB-1	NB/1							retailer			al Process
Volume Total (vph)	242	209						•				
Volume Left (vph)	107	0										
Volume Right (vph)	0	52					·- ·					
Hadj (s)	0.12	-0.12						* . *				
Departure Headway (s)	4.5	4.4										
Degree Utilization, x	0.30	0.25										
Capacity (veh/h)	761	784	•			•	•	•				
Control Delay (s)	9.5	8.9										
Approach Delay (s)	9.5	8.9										
Approach LOS	Α	Α								-		. :
liteiseolon Summary				(Mariana)		et eperior				7:83:23(SE)		
Delay	SECURITION 35 1000		9.2						2/10/2009		3202.8.45.	
HCM Level of Service			A									
Intersection Capacity Util	ization		29.2%	10	ULeve	l of Ser	vice		. Α			
Analysis Period (min)			15						. Line 4.3			* * * *

	$\rightarrow$	-	✓	♣	1	<b>*</b>	
Movement	EBT⊹	EBR	. WBL.	WBT	NBL	NBR	
Lane Configurations	1>			4			
Sign Control	Free			Free	Stop		
Grade	0%			0%	0%		
Volume (veh/h)	448	28	73	419	0	0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	•
Hourly flow rate (vph)	487	30	79	455	0	0	
Pedestrians							
Lane Width (ft)			-				
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type					None		the water of the second of the
Median storage veh)							
Upstream signal (ft)			-				and the second second
pX, platoon unblocked vC, conflicting volume			517		1116	500	
vC1, stage 1 conf vol		-	517		1110	502	
vC1, stage 1 conf vol							
vCu, unblocked vol			517		1116	502	
tC, single (s)			4.1		6.4	6.2	
tC, 2 stage (s)	* *		***		<b>0.</b> -7	0.2	·
tF (s)			2.2		3.5	3.3	
p0 queue free %			92		100	100	*
cM capacity (veh/h)		-	1048		212	569	
Direction, Lane ##	EB1	WB1					
Volume Total	517	535					
Volume Left	0	79					
Volume Right	30	0					A contract the second s
cSH	1700	1048					
Volume to Capacity	0.30	0.08					
Queue Length 95th (ft)	0	6		•	-		en e
Control Delay (s)	0.0	2.1					· · · · · · · · · · · · · · · · · · ·
Lane LOS		Α					
Approach Delay (s)	0.0	2.1					-
Approach LOS							
Intersection Summary	100 m						
Average Delay	manas (Elei Z	AMERICAN SEC. 52.5	1.0	STEEL SANGERS	and the	an addillaraiti	
Intersection Capacity Uti	lization		58.0%	16	ČU Leve	el of Serv	vice B
Analysis Period (min)			15	•		J. 01 0011	

Timing Plan: PM EX + Site
PM Existing + Site

	•	*	<b>†</b>	<i>&gt;</i>	<b>&gt;</b>	ļ	
Movement	-₊WBL	.WBR	NBT.	NBR.	SBL	SBT	Alberta Artista
Lane Configurations	ሻ					<b>↑</b>	
Sign Control	Stop		Free	•		Free	
Grade	0%		0%			0%	
Volume (veh/h)	110	0	0	0	0	101	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	the state of the s
Hourly flow rate (vph)	120	0	0	Ö	0	110	
Pedestrians							
Lane Width (ft)			**				
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type	None						
Median storage veh)							
Upstream signal (ft)							
pX, platoon unblocked	دهيديد .						
vC, conflicting volume	110	0			0		
vC1, stage 1 conf vol							
vC2, stage 2 conf vol						,	
vCu, unblocked vol	110	0			0		
tC, single (s)	6.4	6.2			4.1		en e
tC, 2 stage (s)							
tF (s)	3.5	3.3			2.2		
p0 queue free %	87	100			100		
cM capacity (veh/h)	887	1085			1623		
Direction, Lane # 1 1 1 1 1	WB-1	SB 1	A 1944	gr cap	et de	416.344	
Volume Total	120	110					<del>-</del>
Volume Left	120	0					
Volume Right	0	0					
cSH	887	1700					
Volume to Capacity	0.13	0.06					
Queue Length 95th (ft)	12	0					
Control Delay (s)	9.7	0.0					
Lane LOS	Α						
Approach Delay (s)	9.7	0.0					
Approach LOS	Α						
Intersection Summary				1	1		
Average Delay	<u> </u>		5.1				
Intersection Capacity Ut	ilization	3	34.0%	IC	U Leve	el of Se	rvice A
Analysis Period (min)			15				

	۶	-	*	€	<b>←</b>	4	4	<b>†</b>	<b>/</b>	<b>/</b>	1	- ✓
Movement	EBL	EBI	∉EBR∗	WBL	WBT.	WBR	NBL	NBT	NBR4	SBL	SBT	SBR
Lane Configurations					1>			4				
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	0	0	0	0	58	24	52	141	0	0	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	63	26	57	153	0	0	0	0
Direction: Lane # 👢 🔻	WB1	NB1										
Volume Total (vph)	89	210									The state of the s	
Volume Left (vph)	0	57										•
Volume Right (vph)	26	0										
Hadj (s)	-0.14	0.09										•
Departure Headway (s)	4.2	4.2										
Degree Utilization, x	0.10	0.24										
Capacity (veh/h)	800	837										
Control Delay (s)	7.7	8.5										
Approach Delay (s)	7.7	8.5										
Approach LOS	Α	Α	÷									
Intersection Summary	(5 A 1849	da la saga	100000	de au de S	e de dan					la de la constante de la const		
Delay			8.3						11			
HCM Level of Service			Α									
Intersection Capacity Uti	lization		21.5%	IC	U Leve	l of Sen	/ice		Α		•	
Analysis Period (min)			15									

Timing Plan: PM EX + Site PM Existing + Site

	۶	-	>	•	<b>←</b>	1	4	<b>†</b>	<b>*</b>	<b>\</b>	ļ	4
Movement	EBL	EBT	EBR	WBL	WBT	WBR.	» NBL.	NBT	NBR:	SBL	∉ SBT	SBR
Lane Configurations Sign Control		<b>∱</b> Stop			Yield			Yield			सी Stop	
Volume (vph)	0	172	11	0	0	0	0	0	0	86	155	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	187	12	0	0	0	0	0	0	. 93	168	0
Direction, Lane#	EB/1	SB1	A Miles	ari arti	Caller 200		e Salit A.	STEEL SECTION	CHE IN			18 (18 18 18 18 18 18 18 18 18 18 18 18 18 1
Volume Total (vph)	199	262			er an egy i fighere i fi en east a deservi						10000140000044000	Management of the second
Volume Left (vph)	Ö	93										
Volume Right (vph)	12	Ö										
Hadj (s)	0.00	0.11										
Departure Headway (s)	4.5	4.5										
Degree Utilization, x	0.25	0.33					**					
Capacity (veh/h)	750	773										
Control Delay (s)	9.0	9.7										
Approach Delay (s)	9.0	9.7									-	•
Approach LOS	Α	Α	-								•	
Intersection Summary			apa e					anagra				
Delay HCM Level of Service Intersection Capacity Util Analysis Period (min)	ization		9.4 A 29.3% 15	IC	:U Leve	l of Sen	vice		Α			ncommunity and the

	۶	<b>→</b>	>	*	<b>←</b>	•	4	Ť	<i>*</i>	<b>&gt;</b>	<b>↓</b>	4
Movement	EBL	≱ EBT	EBR.	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT.	SBR
Lane Configurations		र्स						1>				
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	79	179	0	0	0	0	0	114	28	0	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	86	195	0	0	0	0	0	124	30	0	0	0
Direction, Lane#	EB4	NB/L	100									
Volume Total (vph)	280	154										
Volume Left (vph)	86	0										
Volume Right (vph)	0	30				•			** *			
Hadj (s)	0.10	-0.08					•	:				
Departure Headway (s)	4.4	4.5								* *		
Degree Utilization, x	0.34	0.19										
Capacity (veh/h)	802	759			-							
Control Delay (s)	9.6	8.5										
Approach Delay (s)	9.6	8.5										
Approach LOS	Α	Α										
intersection Summary ::	AMARIAN A		r <b>t</b> alis situ					(E. S.) (S.)	ule Miles		de de la compa	4
Delay			9.2								Markata Paris	CONSTRUCTOR OF
HCM Level of Service			A	**** **** *			S					
Intersection Capacity Uti	lization		28.2%	IC	U Leve	l of Ser	vice		Α		•	
Analysis Period (min)		/	15			· . · · · · · · ·	- :	* * * * * * *	· · · · · · · · · · · · · · · · · · ·		4 - 44	
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