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TRAFFIC IMPACT ANALYSIS

FOR

PROPOSED QUICK CHEK

U.S. ROUTE 130 AND WASHINGTON PLACE BLOCK 230, LOT 15 TOWNSHIP OF NORTH BRUNSWICK MIDDLESEX COUNTY, NEW JERSEY

NOVEMBER 7, 2019

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ELIZABETH DOLAN, P.E. NJ License No. 37071

GARY W. DEAN, P.E., P.P. NJ LICENSE NO. 33722

TRAFFIC ENGINEERING PARKING STUDIES HIGHWAY DESIGN DOT ACCESS PERMITS MUNICIPAL CONSULTING

EIC/lrc Middlesex/NorthBrunswick/EastRidge/Documents\2019-11-07 TIA

INTRODUCTION

A site plan application is being filed with the Township of North Brunswick for a 5,670 square foot Quick Chek market with 8 fuel pumps. The site is in the southwestern corner of the intersection formed by Route 130 and Nimitz Place and is currently undeveloped.

Access to the new Quick Chek is proposed via two driveways along Route 130 where the western most driveway will provide access to the existing traffic signal located at the intersection of Route 130 and Washington Place. The second highway driveway would be limited to right turn ingress/egress as Route 130 is a divided highway. Alternative ingress is also proposed via a right-turn only driveway along Nimitz Place. No egress is proposed to Nimitz Place.

Dolan & Dean Consulting Engineers, LLC (D&D) has been retained by the applicant to prepare this Traffic Impact Analysis for the proposed Quick Chek. This report provides an assessment of the existing roadways and intersection operations near to the site, a projection of future traffic volumes inclusive of site generated traffic, and an assessment of future driveway and intersection conditions. In addition, this report provides a review of the proposed site access, on-site circulation design, and parking supply.



EXISTING CONDITIONS

As noted, the subject property is located in the southwestern corner of the intersection formed by Route 130 and Nimitz Place. The site is designated as Block 230, Lot 15 and is shown on appended Figure 1.

EXISTING ROADWAY CONDITIONS

<u>U.S. Route 130</u> is considered an urban accessible principal arterial roadway and is under NJDOT jurisdiction. The roadway has a general northeast/southwest orientation, and within the general site vicinity provides two lanes of travel in each direction with a posted speed limit of 50 miles per hour and is divided by a grassed median with intermediate openings at select intersections.

<u>Nimitz Place</u> intersects Route 130 from the north at a STOP controlled, 3-leg intersection. The roadway provides one lane of travel in each direction, with a nonposted statutory speed limit of 25 miles per hour. Nimitz Place provides access to single family residential homes located northwest of the site.



<u>Washington Place</u> is a local roadway with a general northwest/southeast orientation. The Roadway provides one lane of travel in each direction with a posted speed limit of 25 miles per hour. Washington Place intersects Route 130 at a signalized "T"-Type intersection that aligns opposite the proposed Quick Chek driveways. There is a 4-ton truck weight limited on Washington Place.



At the signalized intersection of Washington Place & Route 130, the northbound Route 130 approach to the intersection provides an exclusive through lane and a shared through/right-turn lane within the median. The southbound approach was recently widened to provide an exclusive left-turn lane, an exclusive



through lane and a shared through/right-turn lane. The westbound Washington Place approach provides an exclusive left-turn lane and an exclusive right-turn lane.

EXISTING TRAFFIC VOLUMES

In 2019, D&D performed traffic counts at the Route 130 intersection with Nimitz Place and Washington Place during those times when the highway traffic is typically busiest. The counts were conducted during peak traffic hours on Thursday, July 11, 2019 from 7:00 a.m. to 9:00 a.m. and from 4:00 p.m. to 6:30 p.m. The existing peak hour volumes were then balanced between intersections and are shown on appended Figure 2.

ANALYSIS OF EXISTING TRAFFIC CONDITIONS

A volume/capacity Level of Service analysis was conducted for the existing traffic volumes using the <u>Highway Capacity Manual</u> (HCM) computer software. This type of analysis is performed to assess intersection operations and to identify any areas of excessive delay.

By definition, capacity represents the maximum vehicular volume that can be accommodated on a given road segment or intersection lane as a function of roadway geometry, the general environs, traffic characteristics, regulations and controls. Intersections are usually the critical point in any road network since it is at such points that conflicts exist between through, crossing, and turning traffic. It is at these locations where congestion is most likely to occur.



Based on this analysis, and as shown in Figure 3, all movements at the study intersections currently operate at Levels of Service "D" or better during both peak hours. A description of intersection Levels of Service is noted below:

Si	ignalized Intersections
Level of Service	Delay per Vehicle (seconds)
А	<10.0
В	>10.0 and <20.0
С	>20.0 and < 35.0
D	>35.0 and < 55.0
E	>55.0 and < 80.0
F	>80.0

Unsignalize	ed (STOP/YIELD) Intersections
Level of Service	Delay per Vehicle (seconds)
А	<0-10
В	>10 to <15
С	>15 to <25
D	>25 to <35
E	> 35 to <50
F	>50



TRAFFIC CHARACTERISTICS OF THE PROPOSED USE

TRIP GENERATION

Trip generation estimates for the Quick Chek were developed using the 10th Edition of the <u>Trip Generation Manual</u> by the Institute of Transportation Engineers (ITE). For the proposed Quick Chek the proper land use category is "Super Convenience Store with Gas Pumps". Table I summarizes the Quick Chek trip generation projections.

		TABLE	I			
Trip	Generation	ESTIMATES -	- 5,670	SF	QUICK	Снек
		ITE RAT	ES			

Peak Hour	Enter	Exit	Total
Morning	236	236	472
Evening	197	197	394

As noted in the ITE <u>Trip Generation Handbook</u>, certain uses such as convenience stores, restaurants, banks, gas stations, etc., are ideally located adjacent to busy streets in order to attract existing motorists. These uses generally attract most of their customers from traffic passing the site on the way from an origin to an ultimate destination. These trips are therefore not new to the adjacent street system but are considered "pass-by" trips. Pass-by trips are defined as: "...trips attracted to a particular development from the traffic "passing-by" on the adjacent street."¹

Based on a 2001 ITE study, peak hour pass-by percentages of 80% would be reasonably anticipated during the morning and evening peak hours, respectively. Research performed by this firm and others at convenience stores, gas stations, and combination gas/store sites, indicate pass-by percentages well in excess of 80% as rarely does a customer make a specific trip to a convenience store or service station during peak hours. However, to allow for a conservative analysis, NJDOT's percentages for "pass-by" distribution shown below were used:

> Morning Peak Hour – 75% Evening Peak Hour – 75%

¹ ITE Journal, May, 1992 - "Refinement of Procedures Used for Estimating Pass-By Trip Percentages



The following table summarizes trip generation by trip type:

DEAK LOUD	Τυτρ Τνρε	ITE RATES												
IEAK HOUR	I KIP I YPE	Enter	Exit	Total										
Morning	Quick Chek – New	59	59	118										
	Quick Chek – Pass By	<u>177</u>	<u>177</u>	<u>354</u>										
	Total	236	236	472										
Evening	Quick Chek – New	49	49	98										
_	Quick Chek – Pass By	<u>148</u>	<u>148</u>	<u>296</u>										
	Total	197	197	394										

Table II Trip Generation By Type

DISTRIBUTION OF SITE GENERATED TRAFFIC

The majority of site traffic will be influenced by the likely attraction of pass-by traffic as previously discussed. Particularly during peak hours, many site visits will be linked to another primary trip purpose, for example, traveling to work, returning home from work or a combined trip with other shopping related errands.

"New" trips are likely to follow existing travel patterns. The distribution of newly generated trips is shown in Table III.

To/From	Percentage
North – Route 130	40%
South – Route 130	40%
East – Washington Place	18%
West – Nimitz Place	2%

Table III Distribution

Site generated traffic is shown on Figure 4.



FUTURE TRAFFIC CONDITIONS

FUTURE TRAFFIC VOLUMES

For the purposes of this analysis, a two-year build-out has been assumed. To project traffic volumes to the design year, a background growth factor was applied to existing traffic volumes. Based on data compiled by NJDOT, the typical growth rate for Middlesex County principal arterial highways is 1.00% per year. The background growth was implemented for a projected two-year buildout to create the "no-build" volumes shown in Figure 5.

Projected site traffic from the proposed Quick Chek was then added to the "no-build" traffic volumes to establish future "build" traffic volumes. These future build traffic volumes are shown on Figure 6.

ANALYSIS OF FUTURE TRAFFIC CONDITIONS

The projected "no-build" and "build" traffic volumes were analyzed to determine future operational conditions at the study intersection under build conditions. Driveway movements at the signalized Route 130 and Washington Place intersection were analyzed with the proposed lane configuration of a shared through/left-turn lane, and an exclusive right-turn only lane for Quick Chek. Figures 7 and 8 illustrate the resultant "no-build" and "build" levels of service.

As shown under build conditions, all movements will continue to operate at a level of service "D" or better during both peak hours. Therefore, new traffic generated by the proposed Quick Chek will not have a negative effect on roadway operating conditions.



SITE ACCESS AND CIRCULATION

The Site Plans prepared by Bohler Engineering, LLC has been reviewed with regard to site access, circulation, and parking supply and orientation. The following comments address the overall site circulation for vehicular traffic:

- > Site access is proposed via a right-in/right-out driveway and a signalized, full-movement driveway location along Route 130. Alternative ingress to serve the adjacent neighborhood is proposed via a right-turn, in-only driveway along Nimitz Place. The benefit of this driveway would allow local residents to enter the site without having to exit onto Route 130 and then immediately turn into the site, thereby making for a much safer ingress.
- ▶ 8 fuel dispensers, allowing for 16 fueling positions, are proposed. The provision of multiple fueling positions results in a more efficient operation, allowing vehicles to enter the site and readily access a fueling position which accommodate their gas tank location. By providing multiple fueling positions, vehicular queuing typically does not occur.
- > The Site Plan provides 67 striped parking spaces on site for multi-purpose gas/mart customers. The 16 fueling positions will act as *de facto* parking. The combination of a mart or convenience store and fueling stations is customary, in that store purchases can be made while vehicles are being fueled. The provision of 83 parking positions on-site is expected to more than adequately accommodate parking demands.
- > The site layout provides for two-way circulation around the building, around the fueling area, and between parking spaces. The site design will accommodate passenger vehicles, delivery vehicles, and refuse trucks.



TECHNICAL APPENDIX



PROPOSED QUICK CHEK TOWNSHIP OF NORTH BRUNSWICK MIDDLESEX COUNTY, NEW JERSEY



FIGURE I

SITE LOCATION MAP



Township of North Brunswick Middlesex County, New Jersey



EXISTING TRAFFIC VOLUMES



Township of North Brunswick Middlesex County, New Jersey



EXISTING LEVELS OF SERVICE





SITE GENERATED TRAFFIC VOLUMES



MIDDLESEX COUNTY, NEW JERSEY



NO-BUILD TRAFFIC VOLUMES



DOLAN& DEAN

CONSULTING ENGINEERS, LLC

BUILD TRAFFIC VOLUMES



MIDDLESEX COUNTY, NEW JERSEY



NO-BUILD LEVELS OF SERVICE





BUILD LEVELS OF SERVICE

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Route 130 & Washington place/Nimitz Place Thursday, July 11, 2019 from 7:00 to 9:00 am & from 4:00 to 6:30 pm

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		Yellow	/ 5.0	5.0	3.0	0.0	0.0	0.0								
	ISIMULACEDIN/S	Rea	10.0	12.0	2.0	10.0	10.0	10.0								
						Singer Ref				Ni Salata	415	7200112 10				
		EB		EBI	VVE	5L	WBI	IND IND					ODI			
Assigned Phase			2001200 NIXES	2			6		MERICA MOR	8						
				8,3	2.0		4.0			9.0						
Phase Duration, s			electrony service	60.0	20.		80.0		anany siste	20.0						
Change Period, (Y+R c), s			7.0	5.0		7.0			5.0						
Max Allow Headway (M	1AH), s		and acceler and survey	0.0	3.1		0.0	NAVARE AND ALL STOCK		3.2		abrazona zaviši 1727				
Queue Clearance Time	(gs), s				11.	7				12.8						
Green Extension Time ((ge), s			0.0	0.1		0.0		and the local sectors and the sec	0.1	1011-0000-001-000-000	444405022000321 0226				
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Approach Movement		L	2012210100	K K		1	R			R		a <u>Scinca</u> 19				
	L. A.		050			4000		400		10						
Adjusted Flow Rate (V)), veh/h		953	952	179	1882		198	AFIGURA	93						
Adjusted Saturation Flow	w Rate ((s), ven/h/in		1841	1816	1/53	1/52		1/53		1560						
Queue Service Time (g	s), S		51.0	51.7	9.7	31.3	NE VERSIN HER DURING N	10.8	ann ann ann an	5.4	Contractories					
Cycle Queue Clearance	lime (<i>g</i> °); s		51.0	51.7	9./	81.3		10.8		5.4						
Green Ratio (g/C)			0.53	0.53	0.15	0.73		0.15		0.15						
Capacity (c), veh/h			976	963	263	2558		263		234						
Volume-to-Capacity Rati	io (<i>X</i>)		0.977	0.989	0.681	0.736	n menerasia	0.752	Merrissine and	0.399		A DECONSCIMUNT				
Back of Queue (Q), ft/I	n (50 th percentile)		672.3	673.5	116.3	247.7		137.3		53,2						
Back of Queue (Q), vel	h/In (50 th percentile)		26.1	26.9	4.5	9.6	1. KNOW WITH 1100000	5.3	110000 0000000.00	2.1						
Queue Storage Ratio (A	RQ) (50 th percentile)		0.00	0.00	0.00	0.00		0.00		0.00						
Uniform Delay (d 1), s/v	/eh		22.9	23.2	40.2	7.9		40.7		38.4						
cremental Delay (d ₂), s/veh			23.7	26,4	5.8	1.9		10.3		0.4						
Initial Queue Delay (d 3	itial Queue Delay (d ȝ), s/veh		0.0	0.0	0.0	0.0		0.0		0.0						
ontrol Delay (d.), s/veh			46.6	49.6	46.0	.9.8		51.1		38.8						
evel of Service (LOS)			D	D	D	A		D		D						
pproach Delay, s/veh / LOS		48.1		D.	13.0)	В	47.1		D	0.0					
Intersection Delay, s/veh	tersection Delay, s/veh / LOS			31.0						C						
									a pulas							
Multimodal Results	ultimodal Results		EB			WB			NB			SB				
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Analyst	EIC						Inte	rsection			Nim	nitz & Rt	130						
Agency/Co.	DD						Juri	sdiction											
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Analysis Year	2019	9					North/South Street Nimitz Place												
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Percent Grade (%)						GREED ST									0				
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Critical Headway (sec)						10000000										2.00			
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and low of the eadway (Sec)							B U Gui												
Delay, Queue Length, and	Leve	0153	rvice																
Flow Rate, v (veh/h)	TIME CONSTRAINTS	Structure Street	COLUMN AND IN COLUMN				CLUB CLUB PLAY	TRANSPORTATION OF T	No.		15108254Lpfazzen	pin proting and a	- REALINATION OF THE			24			
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95% Queue Length, Qss (veh)																0.3			
Control Delay (s/veh)	and the second	Second and	\$2900 \$2500 \$100 F		republication and	ant and a state	ARGARENCE		gin sina ana	and statements	15 MARSHOLD	and the state	NOR STORE	1. C. P. D. C. P. D. P.	20222011008	17.7			
Level of Service (LOS)																C			
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Critical Headway (sec)																6.98
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Follow-Up Headway (sec)	an a															3.34
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Capacity, c (veh/h)																218
v/c Ratio																0.03
95% Queue Length, Q ₉₅ (veh)																0,1
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Dueue Service Time (g s), s 49.0 49.2 4.8 23.2 10.8 7.9 Cycle Queue Clearance Time (g c), s 49.0 49.2 4.6 23.2 10.8 7.9 Cycle Queue Clearance Time (g c), s 0.53 0.15 0.73 0.15 0.15 0.15 Capacity (c), veh/h 944 938 254 2476 254 226 Colume to-Capacity Ratio (X) 0.961 0.965 0.355 0.632 0.752 0.568 Sack of Queue (Q), thin (50 th percentile) 636.5 604.1 52/6 180.9 137.7 80.2 Dueue Storage Ratio (RQ) (50 th percentile) 23.9 24.2 2.0 6.8 5.2 3.0 Dueue Storage Ratio (RQ) (50 th percentile) 20.0 0.00 0.00 0.00 0.00 0.00 Jinform Delay (d 1), s/veh 22.5 22.6 38.2 6.8 40.7 39.5 1 Initial Queue Delay (d 2), s/veh 0.1 0.0 0.0 0.0 0.0 0.0 0.0 0.0 Control Delay, (d), s/veh D D D <t< td=""><td>Adjusted Saturation F</td><td>low Rate (s) veb/b/b</td><td></td><td>1781</td><td>4774</td><td>1697</td><td>1696</td><td></td><td>1697</td><td></td><td>1510</td><td></td><td></td><td></td><td></td></t<>	Adjusted Saturation F	low Rate (s) veb/b/b		1781	4774	1697	1696		1697		1510				
Additional of the (g s), 3 10.0	Oueue Service Time	(α_s) s		49.0	49.2	4 8	23.2	n annantainn	10.8		7.9	rom Sones		ACCENCE 24	\$220311*2280
Open Balance of Below				40.0	40.2	4.8	23.2		10.8		7.0				
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Approximation Other Advise Advise<	Canacity (c) veh/h			944	038	254	2476		254	Antonial	226		al alcan		
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Uniform Delay (d 1), s/veh 22.5 22.6 38.2 6.8 40.7 39.5	Queue Storage Patio	(PO) (50 th percentile)		0.00	0.00	0.00	0.00		0.2						io, inter
Anionin Delay (0 / 2), s/ven 22.5 22.5 30.2 0.0 40.7 50.5 Incremental Delay (0 / 2), s/ven 21.2 22.1 0.3 12 10.7 2.1 Initial Queue Delay (0 / 3), s/ven 0.0 0.0 0.0 0.0 0.0 0.0 0.0 Control Delay (0 / 3), s/ven 0.0 0.0 0.0 0.0 0.0 0.0 Control Delay (0 / 3), s/ven 0.0 0.0 0.0 0.0 0.0 0.0 Control Delay (0 / 3), s/ven 43.7 44.7 38/5 8/0 51.4 41/6 Level of Service (LOS) D D D A D D 0.0 Approach Delay, s/veh / LOS 44.2 D 9.7 A 47.5 D 0.0 Intersection Delay, s/veh / LOS 29.4 C C C C C Aultimodal Results EB WB NB SB SB SB Pedestrian LOS Score / LOS Intersection Delay Score / LOS<		s/veb		22.5	22.6	38.2	6.8		40.7		30.5				
initial Queue Delay (d/3), s/veh 0.0	Incremental Dalau			94 9	22.0	<u>00.2</u>	10.0		10.7		9 A				
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A A A S D UU Intersection Delay, s/veh / LOS 29.4 C Autimodal Results EB WB NB SB Pedestrian LOS Score / LOS		2/ 5/4/65								10100 1 0150			d IIII		
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Multimodal Results EB WB NB SB Pedestrian LOS Score / LOS Image: Score / LOS Image: Score / LOS Image: Score / LOS	milersection Delay, \$/		성학 문화		25	7.4				je <u>č</u> N					
Pedestrian LOS Score / LOS				ER.			WB			NR		19 maari	Q	B	
Sicycle II OS Score / I OS	Pedestrian LOS Soor	a/10S				UNION CONTRACTOR	mundis and it			nteksandi			en sind an		MORE
	Ricycle OS Score //	08.000													

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General Inform	nation	· ·					-		Interse	ection In	forma	tion		2 1 10		
Agency		****		T					Duratio	n, h	0.2	5				
Analyst				Analy	/sis Da	te 7/22	/2019		Area Ty	/pe	Oth				n .1 .	+
Jurisdiction				Time	Period				PHF		0.9	1		'n	5 5	
Urban Street			-	Analy	sis Yea	ar 2019	3		Analysi	s Period	1>	7:00				
Intersection		Route 130 & Washi	ngto	File N	lame	130	& Wash	ington	Pm NoE	Build.xus		****		1		
Project Descrip	otion	Pm NoBuild		1.1.1.1.1.12		1.5111111							389	renter		
	netion						atul Destru	λ.			N	9		c in the second	SP.	
Approach Move	ement							T T	P - P		Тт			REFERENCE	T	R
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P-ASINGMENTAL	A TUAL THE				HERR	121 103		o I IV				1999-1999-169 1999-1999-169				
Signal Informa	ation				i sidi -											
Cycle, s	100.0	Reference Phase	2				•	7								
Offset, s	0	Reference Point	End		45.0			<u> </u>								
Uncoordinated	No	Simult. Gap E/W	On	Yellov	1 15.0 v 5.0	53.0	30									
Force Mode	Fixed	Simult. Gap N/S	On	Red	0.0	2.0	2.0	0.0	0.0	0.0						Ň
E E A VEREN ANNA E E E E E E E E E E E E E E E E											1					eten kange
Timer Results				EB	L	EBT	W	3L	WBT	NB	L I	NBT	SE	3	SB	8T -
Assigned Phase	Э					2	1		6			8				
Case Number						8.3	2.	o i	4.0			9.0				
Phase Duration	, S	·				60.0	20.	.0	80.0			20.0				
Change Period,	(Y+R	c), S				7.0	5.0	o l	7:0			5.0		beni		
Max Allow Head	way (A	<i>MAH</i>), s				0.0	3.4	1	0.0			3.2				
Queue Clearan	ce Time	((gs), S					1	9				13.1				
Green Extensio	n Time	(ge), s	AMERINGER, KARAN			0.0	0.1	1	0.0	T OFFICIAL OFFICIAL	10000100 2004	0.1		Desire Star Star Star	NUCLEON ACCESS	
Phase Call Prot	bability						1.0	0				1.00				
Max Out Probat	oility						0.9	9				1.00				
	andi - nan										Viel			i i i i i i i i i i i i i i i i i i i	-1.000	
Approach Movo	up nes mont	outs		1		Гр						Ть			2200000	D
Approach Move												N A D				
Adjusted Flow F	Pote (v) veb/b			072	072	182	1020		202		06				
Adjusted Flow N), ven/n w/Pate (a), veh/b/b			912 4044	1912	1752	1752		1752		1660				A Maria
	lion i lo Time (c				52.2	53.0	00	327		11 1		5.5	Service and the service of the servi	0 000000	0001 0000	
	aarance				63.3	52.0	9.9	32.7		44.4		5.5				
Green Ratio (a/	C)	s inne (g v A g			0.53	00.0	0.15	0.73		0.15		0.0		322.002		
Canacity (c) y			12 ALAR	Applied 3	976	0.00	263	2558		263		234		1 50000	1910 M M M	
Volume-to-Cana	city Rat	tio(X)		(79009109). (790		1 010	0 694	0 750		0 769		0 409				12521057422
Back of Queue (n (50 th perceptile)			723 4	7101	119.8	250 1		143		54.6			isa ann	
Back of Queue (h/ln (50 th percentile	7) 1935-193416		28.0	28.8	4.6	10.0		55		21		1 Billion and	<u>1995</u> 7885	
	Ratio //	R0 \ (50 th percentil			0.00	0.00	 01010	000		0.00		0.00				
Iniform Delay (d () sh	veh	37.0000 A		23.4	23.5	<u>4</u> ∩ 3	8 1		40.8		38.5				
ncremental Dela	$\frac{d}{d}$) s/veh			27.0	31.5	65	21		11 8		<u>na</u>				
nitial Queue Del	av (d •	<u>//acases.com/ac</u>			<u></u>		0.0								<u>1995 (1997)</u>	UNRAPI PR
Control Delay		ь, ,, олон			51 4	55.0	46.8	101		52.6		38.0				
evel of Service	(108)				<u></u>	F		R		n N						REFER
Annmach Delev	chich /	105		 			120		l R	100			<u> </u>			
ntersection Dela	W chick	<u></u>	KREEDER I	99.2		20 20	3.5						C.	anany U		
	y, 3/981					50			. de						4.03	
MultimodaliRes	ults				EB			WB			NB			SF		
Pedestrian LOS	Score /	LOS			iorozeronii I	nancelation.			ALCON DECIMAL OF A			eren na den Nichail		and the second second	HEIRERE	aler Köller
Bicycle I OS Sco		<u>-</u>						ulen ser								de de

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			HCS7	Two	-Wa	y Sto	op-Co	ontro	ol Rep	port						
General Information							Sile	Antor	matio)n						
Analyst	EIC						Inte	rsection			Rt. 1	30 & Si	te Drivev	vav		
Agency/Co.	DD						Jüri	sdiction								
Date Performed	7/24	/2019					East	:/West St	reet		Rt. 1	30				
Analysis Year	2019						Nor	th/South	Street		Site	Drivewa	y de		i	
Time Analyzed	Am E	Build		1488900000000000000000000000000000000000			Peal	k Hour Fa	actor		0.94				2008204 (0.002000000	
Intersection Orientation	East	West					Ana	lysis Tlm	e Period	(hrs)	0.25					
Project Description												**********				
Lanes															0.000	
			2.1.1.1.1													0.000000000
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						·										
					Maj	or Street: Ea	ast-West									
Vehicle Volumes and Adju	ustme	nts														
Approach		Eastb	ound			West	bound			North	bound			South	bound	
Movement	U		r T	R	ບ	L	Ť	R	U	ι. L	Т	R	ΰ	L.	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	0	0	0	0	12,1	O		0	0	0		0	0	1
Configuration		10407 MINISTRATIO		Oddabartelarcela	est-brightenderter P	E-4510000000000000000	Т	TR		1441-0401-0534-0					N 544751 (02.0777102	R
Volume (veh/h)							1487.	89								86
Percent Heavy Vehicles (%)		are distance	AND	ANAL MARKED				A ISBAN KANSANDERS	SETSING							8
Proportion Time Blocked			c. 99													
Percent Grade (%)				1996-1916	SUDARDER		ikon inder	e de la testa	19950 (1994)						0 909-03899-04	
Right Turn Channelized				1 1 I ¹	المعادية محادثة									ALCONT Y	es	
Median Type Storage				Undr	laea											
Critical and Pollow-up He	adway	/5														
Base Critical Headway (sec)			Margarian	Al Marine and	and a state of the						un normana					6.9
Critical Headway (sec)																7.06
Base Follow-Up Headway (sec)		01930323		Terrenter			al statistics		TERMININ		SIN SERVICE			100000000		3.3 9999999
- Follow-Up Headway (sec)					a in the second				Maratan	i. Rođeni				ang tang tang tang tang tang tang tang t		3.58
Delay, Queue: Length, and	Level	of Se	rvice													
Flow Rate, v (veh/h)	THE REAL CONTINUES AND IN	AN AGAIN THE ANALY	AN COLONIA COLONIA	NEXT CONTRACTOR	KUTSKAMIN SKIMINIS			771025546405556	18030-441E-04448-0444	1774682422262484682	and the state of the			TRUCKSKETTPELET AUDO	212 2 17 (2, 18 RKN 1, 4 12	91 [·]
Capacity, c (veh/h)																297
v/c Ratio			THE ROAD SHORE	R March 1997 State		COMPRESSION	1111111111111111	STATES STATES	any Sagana	STREET,	1994 COMPANY				1417071884780	0.31
95% Queue Length, Q ₉₅ (veh)																13
Control Delay (s/veh)	1005510005000						-									22.4
Level of Service (LOS)																G
Approach Delay (s/veh)													ana ana an	22	4 4	MARANDIN
Approach LOS														(

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			ICS7	Two	-Wa	y Sto	p-Co	ontro	l Rep	ort						
General Information							Sic	Minio	matio	'n						
Analyst	EIC					Litter State	Inte	rsection			Nim	itz & Rt.	130		i an	ATSM DOLLARS
Agency/Co.	DD					Activities	Juri	diction								
Date Performed	7/19	/2019				******	East	/West St	reet		Rout	e 130			CHANNEL CONTRACTOR	
Analysis Year	2019						Nor	th/South	Street		Nim	itz Place				
Time Analyzed	Am E	Build					Peal	k Hour Fa	actor		0.94		2009/10/06/10/06/10/06	9237989778988		
Intersection Orientation	East-	West				Conde South	Ana	ysis Tim	e Period	(hrs)	0.25					
Project Description	E. JERNISSENSKING			aleksendoer i verside						entres anna anna anna anna anna anna anna an	R AND DESCRIPTION	1000200140000		20120202014107735		
Lanes				i ange		ine era										
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						urziesi J										
				senare senar abrys								÷				
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								20.0								
Vehicle Volumes and Adju	ıstme	nts			iviaj		ist-west									
Approach		Eastb	ound		<u>i interes</u>	West	bound			North	bound	EURICEUME		South	bound	
Movement	U	S. L.	T. a	R	U	hai Lia.	Turi	R	U.	L	T	Ř	nd U j	l	T	R
Priority	1U	1	2	3	4U	4	5	6	. 19499883999993999	7	8	9		10	11	12
Number of Lanes	11. O 11.	0	0	0	0 -	0	2	Ō		0	0	0		0	0	1
Configuration							Т	TR				1.27533271402.3/28		A CONTRACTOR OF CONTRACTOR		R
Volume (veh/h)							1552	5								24
Percent Heavy Vehicles (%)			27.007.007.0012	THE CONSTRUCTION	111111111111111111111111111111111111111										<u> </u>	8
Proportion Time Blocked																
Percent Grade (%)															0	
Right Turn Channelized														N	lo 👘	
Median Type Storage				Undi	vided											
Critical and Follow-up He	adway	/5						ula parte Résultation								
Base Critical Headway (sec)													I			6.9
Critical Headway (sec)																7.06
Base Follow-Up Headway (sec)																3.3
Follow-Up Headway (sec)																3.38
Delay, Queue Length, and	Level	of Se	rvice													
Flow Rate, v (veh/h)	<u>re genos</u>			25023318							ana ika	in search				26
Capacity, c (veh/h)																302
v/c Ratio	ogy Hybrid I	ngkaŭRiji		1993-1993-1993	RANKIN MARY	anton a Mé	000000000000000000000000000000000000000	anaditti (fili)		szerentele	ogeneense see	ene antigi	-reast and the	ann an Air	anan IRS	0.08
95% Queue Length, Qas (veh)								S. Maria								0.3
Control Delay (s/veh)		9.899495-878 (MANSING BERGE	asariisiitsii	ana naif	ang piki			unini in trastini		1011010	maximatiziti.		18.0
Level of Service (LOS)																C
Approach Delay (s/veh)			SIN AND ST			CANCEL MERIC		opendia bibli	***************				anan sa ku	18	199999999999 3.0	
Approach LOS																

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						<u> </u>							1994 PH
General Information							Interse	ction In	formati	on	-i I		
Agency							Duration	1, h	0.25				
Analyst		Analy	sis Da	e 7/22/	2019		Area Ty	ре	Othe	r.	_ 		<u>م</u>
Jurisdiction		Time	Period				PHF		0.94		→ ↑	W	
Urban Street		Analy	sis Yea	ar 2019			Analysis	S Period	1> 7:	:00			
Intersection	Route 130 & Washingto	File N	lame	130 8	& Wash	ington A	Am Build	.xus				11	
Project Description	Am Build										•	a a la and	SEIG
ni- The sector in the terms of the sector in the sector is		o berendinae	NIX NEED AND AND AND AND AND AND AND AND AND AN		enen imeneren			enatia karastellenati					and the second
Demand Information						W	3					<u> </u>	
Approach Movement		L	T AHI SHIPHPIPE	R		T	R	L SOLO MANDARIA	nin nangere	K	L. References		R
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Notest and the second second	THE CAR STATE HER MERING AND A STATE												
	Reference Phase 2		2.	<u>, </u>	H ens	•							4
Offset s	Reference Point End					<u> </u>							
	Simult Gan E/M On	Greer	<u>15.0</u>	53.0	15.0	0.0	0.0	0.0					
Force Mode Eived	Simult Gap N/S	Red	0.0	5.0	3.0	0.0	0.0	0.0					
REPORT OF A					12.0	10.0	10.0	10.0	N.SEGGY			1221097-0223222351	recontrate and its
imer Results		ER		EBT	V/VE		WBT	NB		NBT	SB		SBT
Assigned Phase		5		2	1	6 - 10 - 17 - 17 - 17 - 17 - 17 - 17 - 17	6		STREAM STREAM	8	in the second		4
Case Number		20		40			4.0			70			7.0
Phase Duration s		20		60.0	20	0	60.0			20.0			20.0
Change Period (V+R	(c) S	5.0		70	51		7.0			50			5.0
Max Allow Headway (MAH)s	3 1		0.0	3 1		0.0			3.2		1001000000000000000	3.2
Queue Clearance Tim	Α(η.) S	4.9	nalia Rai		B B					17.0			79
Green Extension Time	(a_{e}) s	0.0	NORM SING	0.0	0 1		0.0			0.0			0.6
Phase Call Probability	(90),0	1.0			10	0				1.00			1.00
Max Out Probability		0.0))		0.0	0				1.00		DERIVER NUMBER	0.08
Movement Group Re	sults		EB			- WB			NB			SB	
Approach Movement		L	T	R	L	Т	R	L	Т	R	L	Т	R
Assigned Movement		5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (v	∕), veh/h	43	907	906	90	797	786		204	68		59	98
Adjusted Saturation Fl	ow Rate ((s)), veh/h/ln	1697	1781	1771	1697	1781	1743		1356	1510		1426	1510
Queue Service Time (g s), S	2.2	48.8	49.2	1.8	38.0	38.6		11.5	4.0	ALTON PROPERTY	0.0	5.9
Cycle Queue Clearanc	æ Time (g c), s	2.2	48.8	49.2	1.8	38.0	38.6		15.0	4.0		3.5	5.9
Green Ratio (g/C)		0.15	0.53	0.53	0.68	0.53	0.53	0514980010110000	0.15	0.15		0.15	0.15
Capacity (c), veh/h		254	944	938	331	944	924		273	226		278	226
Volume-to-Capacity Ra	atio (X)	0.167	0.961	0.965	0.273	0.844	0.851		0.748	0.301		0.210	0.432
Back of Queue (Q), ft	/in (150 th percentile)	24	636.5	604,1	28.3	444.5	418.4		149.6	39.3		33.5	57.9
Back of Queue (Q), v	eh/In (50 th percentile)	0.9	23.9	24.2	1.1	16.7	16.7		5.6	1.5		1.3	2.2
Queue Storage Ratio (RQ) (50 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00
Uniform Delay (d1), s	/veh	37.1	22.5	22.6	19.4	20.0	20.1	Syrian Course 1	42.5	37.8		37.6	38.6
Incremental Delay (d 2	.), s/veh	0.1	21.2	22.1	0.2	9.1	9.7		9.7	0.3		0.1	0.5
Initial Queue Delay (d	3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	CONTRACTOR NO.	0.0	0.0
Control Delay ((d)), s/w	əhrəfəri ildə sənərə	37.2	43.7	44.7	19.6	29.1	298		52.2	38.1		37.7	39.1
Level of Service (LOS)		D	D	D	В	I C	I C	1777-1879-188-78	D	D	2200201110-000-000	D	LD
Approach Delay, s/veh	/LOS	44.0		D	28.9	9.00		48.7		D	38.6		D
Intersection Delay, s/ve	h / LOS			37	7.7				•])		
	NING PUNT SILEN STATE OF THE ST			SING STREET		aikawa-eni							
			EB			U VYB			NR.			<u> </u>	
Pedestrian LOS Score			11111111111111111111111111111111111111										
DICYCIE LUS SCORE / LC	John Marine M			en Trens						an solution i		REPORTS	

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			HCS7	' Twc	o-Wa	y Sto	op-C	ontro	ol Re	port						
General Information		n Dan S Heringen					ISR	Sinfo	ment	m						
Analyst	EIC						Inte	ersection			Rt.	130 & Sil	te Drivev	vav		
Agency/Co.	DD						Juri	sdiction						THE COL		
Date Performed	7/24	/2019	120020200000000000000000000000000000000			Ramon Man	Eas	t/West S	treet		Rt. 1	30				
Analysis Year	2019						Nör	th/Souti	n Street		Site	Drivewa	ý .			
Time Analyzed	Am I	Build	01000/012200388		2004032203682388		Pea	k Hour F	actor		0.91					
Intersection Orientation	East	West					Ana	lysis Tim	e Perioc	(hrs)	0.25					
Project Description															-	
Lanes																
		15100122115														
						ل ا	and they have									
								4								
								7								
					Ma	ijor Street E	ast-West									
Vehicle Volumes and Adj	ustme	nts														
Approach		Eastk	ound			West	bound			Norti	nbound			Sout	nbound	
Movement	U.,	L	T	R	U	L.	T	R	U	L	T	R	U	₿. L.	Ţ	R
Priority	1U	1	2	3	4U	4	5	6	* 7003386 04201968	7	8	9	A MARTING REAL PROPERTY	10	11	12
Number of Lanes	0	::.0i	0	0	0	0.0	2	0		0	0	0		0 (0	
Configuration				******			T	TR								R
Volume (veh/h)							1856	75								71
Percent Heavy Vehicles (%)																4
Proportion Time Blocked							Bunds?						104104450		0	
Percent Grade (%)															oc	
Median Type Storage				Undi	vided										63	
	auwa						r I	i i i i i i i i i i i i i i i i i i i					n Dan I	500 (S) I		
Base Critical Headway (sec)									Hiteropoin							6.9 6.9
Base Follow-Up Headway (sec)						- AN										33 19730
Follow-Lip Headway (sec)																334
				in stand	nasinadi Minjetas											
peray, queues engris and	нисис	UP	amice				ing seniph The senior I									
Flow Rate, v (veh/h)												Partner Ma				/8 1527
v/c Patio																0.36
95% Orgene Length Oct Web																16
Control Delay (s/veh)																30.7
Level of Service (LOS)																D
Approach Delay (s/veh)							ason and a second s							30).7	
Approach LOS															S tilling	
	popper a de la deservación de la deserv La deservación de la d												STREET,	会是的等的者的	anas an ing	

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			HCS7	7 Twc	o-Wa	y Sto	p-C	ontro	ol Re	port						
General Information							Site	linto	mail	m						
Analyst	EIC						Inte	ersection	NAME N		Rt.	130 & Si	te Drive	way		
Agency/Co.	DD						Juri	sdiction								
Date Performed	7/24	4/2019					Eas	t/West Si	treet		Rt.	130				
Analysis Year	201	9		Musicaj			Nor	th/South	Street		Site	Drivewa	iý (
Time Analyzed	Am	Build		*****	-	COLUMN STATES	Pea	k Hour F	actor		0.91		112 24 20 21 12 10 11 12 20			
Intersection Orientation	East	-West					Ana	lysis Tim	e Perioc	(hrs)	0.25					
Project Description																
Lanes	in ne sa															
					nin in the second s											
						ل ا										
													•			
								新聞								
								4 ↓								
					Ma	jor Street E	ast-West	-				•				
Vehicle Volumes and Adju	ustime	ents -											line en se			
Approach	I	East	bound		I	West	bound			North	nbound			Sout	nbound	
Movement	U	¦rikt i	T	R	U	Ľ	Т	. R.::	U	L	Ť	R	U	L.	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	·0	0	0	· 0	0	2	0		0	0	0.1		0	0	1
Configuration							Т	TR								R
Volume (veh/h)							1856	75								71
Percent Heavy Vehicles (%)																4
Proportion Time Blocked																
Percent Grade (%)													a ad Atta Androites		0	
Right Turn Channelized															és	
Median Type Storage	NO. 10 STORE		Cyrraid an an	Undi	vided			TI MILAN	1.4.1.Stellerste						Magakatan	
Critical and Follow-up He	adwa	ys														
Base Critical Headway (sec)																6.9
Critical Headway (sec)																6.98
Base Follow-Up Headway (sec)	10767 Aug	222 5 224 4 4200 1100	oggegennak/	Pilling Concernment	4100001021040634	Markey Markey	Face protection and	- and the second se		China de Canada de C	3545000000-000-000-000-000-000-000-000-00	Contentant Artes	Carighteen	36.5997.35257.7×1	1004 01 10 10	3.3
Follow-Up Headway (sec)																3.34
Delay, Queue Length, and	Leve	l of Se	ervice								ir Rigi					
Flow Rate, v (veh/h)												Ι				78
Capacity, c (veh/h)																217
v/c Ratio	·															0.36
95% Queue Length, Qos (veh)																1.6
Control Delay (s/veh)																30.7
Level of Service (LOS)																D
Approach Delay (s/veh)				<u>,</u>		0850.4347								30).7	
Approach LOS) J	

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			HCS7	' Twc)-Wa	y Sto	op-C	ontro	ol Re	port						
General Information			an a				Sit	e info	imatil	on						
Analyst	EIC						Inte	rsection			Nim	nitz & Rt	. 130			
Agency/Co.	DD						Juri	sdiction								
Date Performed	7/19)/2019					Eas	t/West S	treet		Rou	ite 130				
Analysis Year	2019)					No	th/South	1 Street		Nim	nitz Place	•			
Time Analyzed	Pm I	Build					Pea	k Hour F	actor		0.91					
Intersection Orientation	East	-West					Ana	lysis Tim	e Period	(hrs)	0.25	i de la com				
Project Description													• •		-	
Lanes																
						J J							•			
							79799		-							
		19922493949349993			Ma Ma	ijor Street E	ast-West					-		#1.010000000000000000000000000000000000		
Vehicle Volumes and Adju	ustme	stments														
Approach		East	oound			West	bound			North	nbound			South	nbound	
Movement	U	L	Т	R	Ų	Ļ,	Т	R	U	Ľ	Т	R	". U.	Ξ.L.	T.	R
Priority	10	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	<u>.</u>	0	0	0	2	0		ю. О	0	0		0	0	
Configuration				KAPAN DAN BARANARA			T	TR	2 2340597035050	1 1103/1020232			4. 90000505200	- Kerdekansane	1. 14:5-19:19:52:23	R
Volume (veh/h)							1925	16								6.0
Percent Heavy Vehicles (%)		SHERING	NAMES OF	1.000 (Shifted)		. HEROMONIA		Industria		a and a state of the				S NAMES AND	- HERBRAR	4
Proportion Line Blocked													- Constant			
Percent Grade (%)															0	
Median Type Storage				Lindi	vided							1999 OF ST			WO THE REAL	
Critical and Follow up Pla												la de la co				
	auwa	79		ren (selen) Frida selen		i and and a second s I		INARA INA T		i i i i i i i i i i i i i i i i i i i	regeler for T		den in T	i i i i i i i i i i i i i i i i i i i	and and a second se T	jenik I
base Critical Headway (sec)					17.1810-850											6.9
Base Follow-Up Headway (sec)																5 2 0.98
Follow-Up Headway (sec)																3.3 3 32
Delay Queue Length and		ofici	nvice													
Flow Rate, y (yeb/b)													i i i i i i i i i i i i i i i i i i i	n de la compañía T		7 T
Canacity c (veh/h)																215
v/c Ratio	NUMBER OF							\$76863D)	skarstill.							0.03
95% Queue Length, Q _{es} (veh)					<u>English</u>											0.1
Control Delay (s/veh)	neton in the second second	MALE AND A DECIMAL OF A	oconteles (1944)	43041334 (BHS)	10000000000	COMPOSITION OF T			SANCISTIC.	-1431721926			annourself???	skeihieliji		22.3
Level of Service (LOS)																Ċ
Approach Delay (s/veh)		CANESDER PERSONNEL		1992511110 2 10 10 10 10 10 10 10 10 10 10 10 10 10					and transformed		AUX 107 117 (2007)		As a second cheffi	22	2.3	
Approach LOS															1	2

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HCS7 S	ignaliz	ed In	tersed	ction	Resu	Its Su	mma	ry				
General Information						Interse	ction In	format	ion	I		
Agency						Duration	1, h	0.25			~~~~	
Analyst	Analy	/sis Dat	e 7/22/	2019		Area Ty	ре	Othe	er	×		↓
Jurisdiction	Time	Period				PHF		0.91			W # 2 5	
Urban Street	Analy	/sis Yea	ır 2019	l		Analysis	s Period	1> 7	:00			Ŷ
Intersection Route 130 & Washingto	File N	lame	130 8	& Wash	ington I	^o m Bùilc	l.xus			June .	ተሸ	· ·
Project Description Pm Build												R P
							mente kommunistrativa		minimum	NAME AND ADDRESS OF		pation besterior
Demand Information		EB			W	3		NB			SB	
Approach Movement	L	Т	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	33	1686	6 166	160	3 168	6 75	1.84	10	87		10	77
Signal Information					The second se							
Cycle s 100.0 Reference Phase 2) 							
Offset s										Y I		
Uncoordinated No Simult Gan E/W Or		<u>14.0</u>	54.0	15.0	0.0	0.0	0.0					
Force Mode Eixed Simult Gap N/S Or	Red	V 5.0	2.0	20		0.0	0.0					
IBINARAANANAANANAINII MUUMAANI INAMMAANINAANI MUUMAANINAANI MUUMAANINI MUUMAANINI MUUMAANINI MUUMAANINI MUUMAAN								DERVEAUE	RELATED BY A DATE	(YEI) GAIN BRIG MAXER BY	AN INCOMENTATION OF	Research Franks
HimeriResults			EBT	WE	31.	WBT	NB	L	NBT	SB	<u>C</u>	SBT
Assigned Phase	5	10000000 20110	2	1	NARANG TANAN TAAPAT	6	C CONTRACTOR		8			4
Case Number	2.0		4.0	1.	1	4.0			7,0			7.0
Phase Duration, s	19.	0	61.0	19.	0	61.0	A SAMPLANCO CANCO	20080000 C 2244	20.0			20.0
Change Period. (Y+R a), s	5.0) III	7.0	5.0	51410	7.0			5.0			5.0
Max Allow Headway (<i>MAH</i>), s	3.1		0.0	3.1	1	0.0	at Ment appoints		3.2			3.2
Queue Clearance Time (q s), s	3,6			7.4					16.7			6.7
Green Extension Time (g_e), s	0.0)	0.0	0.2	2	0.0			0.0			0.5
Phase Call Probability	1.0	o I		1.0	0				1.00			1.00
Max Out Probability	0.0	0		0.0	3				1.00			0.03
n y Roberts Schwerzen gester in "Die Der Verkensteren sternen Berein werde	hii miioneea				WAYID		BRONDING	No			സ്ത	
Movement Group Results		EB T			U VVB T T						T T	
Approach wovement			<u>л</u> И						10			144
Adjusted Flow Reta (v) voh/h	26	064	062	192	1200	636		212	19		51	85
Adjusted Flow Rate (V), Ven/In		19/4	1915	1753	1233	1700		1444	1560		1522	1610
Oueue Service Time (a_s) s	1.8	50.6	52.0	54	25.1	25.2		11.9	2.8		0.0	4.7
Cycle Quelle Clearance Time (a c) s	1.0	50.6	52.0	54	25.1	252		14.7	2.8		2.8	4.7
Green Ratio (q/C)	0.14	0.54	0.54	0.68	0.54	0.54		0.15	0.15		0.15	0.15
Capacity (c) veh/h	253	994	980	317	1988	971		287	234		292	242
Volume-to-Capacity Ratio (X)	0.143	0.970	0.983	0.575	0.653	0.655	ADDIER CONTROL	0.743	0.211	ALCONTRACTOR OF THE	0.173	0.350
Back of Queue (Q), ft/in (50 th percentile)	19.4	662	665.3	59,8	262	260.9		145.8	27.3		26.9	46.3
Back of Queue (Q), veh/ln (50 th percentile)	0.8	25.7	26.6	2.3	10.2	10.4	199220324452653	5.8	1.1	CAN SHARE STORE	1.1	1.9
Queue Storage Ratio (/RQ) (50 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00
Uniform Delay (d 1), s/veh	37.7	22.2	22.5	25.6	16.3	16.4		42.4	37.3		37.3	38.1
Incremental Delay (d 2), s/veh	0.1	22,1	24.9	1.7	1,7	3.4		8.9	0.2		0.1	0,3
Initial Queue Delay (d 3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Control Delay (d), s/veh	37.8	44.3	47.4	27,3	18.0	19.8		51.3	37.5		37.4	38.5
Level of Service (LOS)	D	D	D	С	В	В		D	D		D	D
Approach Delay, s/veh / LOS	45.7		D	19,4	1	В	48.7		D.	38.0	5 I	D
Intersection Delay, s/veh / LOS			33	3.2			(BACH)			С		
				n i terreta Narret		1	8					
Multimodal Results		EB			WB			NB			SB	
Pedestrian LOS Score / LOS									100.000 (0.10 ⁻¹		2017-0-1444-0-100-070-000	
Bicycle LOS Score / LOS												

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