JOHN COLLINS ENGINEERS, P.C. TRAFFIC • TRANSPORTATION ENGINEERS

===== 11 BRADHURST AVENUE • HAWTHORNE, N.Y. • 10532 • (914) 347-7500 • FAX (914) 347-7266 =====

July 19, 2012

Pastor Carmine Zottoli 3500 Mohegan Avenue Mohegan Lake, NY 10547

Faith Bible Church Expansion and Renovation RE: Mohegan Avenue Town of Yorktown, New York

Dear Pastor Zottoli:

John Collins Engineers, P.C. has completed our preliminary review and analysis of the traffic and parking operations for the above referenced project. The existing site is located at the intersection of Mohegan Avenue and Sagamore Avenue Town of Yorktown, New York (See Figure No.1). The following is a summary our evaluation:

1. 2012 Existing Traffic Volumes (Figures No. 2, 3 and 4)

Representatives of John Collins Engineers, P.C. have collected existing turning movement traffic counts during the weekday afternoon and evening and Sunday peak hours at the site driveways and intersection of Sagamore Avenue and Mohegan Avenue. These counts included a Sunday and Wednesday observation. These counts are summarized on Figure No. 2, 3 and 4 and identify the existing traffic conditions. In addition, it was also confirmed that these would cover the peak periods identified by the church based on the typical schedule of events as summarized in the attached table of operations.

2. 2015 No-Build Traffic Volumes (Figures No. 5, 6, and 7)

The 2012 Existing Traffic Volumes were projected the 2015 Design Year using a 2% per year growth factor. The growth factor accounts for normal traffic growth on the study area roadways as

well as other potential developments in the area. The resulting 2015 No-Build Traffic Volumes are shown on Figures No. 5, 6 and 7 for the Weekday PM Highway Hour, PM Evening Hour and Sunday Peak Hour, respectively.

3. Site Generated Traffic Volumes (Table No. 1)

Estimates of the amount of traffic to be generated by Expansion of the Church during each of the peak hours were developed based on data published by the Institute of Transportation Engineers (ITE) as contained in their publication entitled, Trip Generation, 8th Edition, 2008. Table No. 1 provides the Hourly Trip Generation Rates and Anticipated Site Generated Traffic Volumes for each of the Peak Hours based on a maximum capacity of 344 seats. Note that these volumes are conservatively high for the Sunday conditions because the ITE database is based on a church with multiple services. Faith Bible has a single service and it was found that the exiting period was spread out more over a longer period. In any event, the higher ITE volumes were used for the analysis contained herein.

4. Arrival and Departure Distributions (Figures No. 8 and 9)

Arrival and departure distributions were established based on the existing traffic volume patterns at the site to assign the additional site generated traffic volumes to the roadway network. Separate arrival and departure distributions were developed for the site parking areas. The resulting arrival and departure distributions are shown on Figures No. 8 and 9, respectively.

5. 2015 Build Traffic Volumes (Figures No. 10, 11, 12, 13, 14 and 15)

The site generated traffic volumes shown on Table No. 1 were assigned to the roadway network utilizing the above referenced arrival and departure distributions. The resulting site generated traffic volumes are shown on Figures No. 10, 11 and 12 for each of the Peak Hours. These site generated traffic volumes were then added to the 2015 No-Build Traffic Volumes resulting in the 2015 Build Traffic Volumes which are shown on Figures No. 13, 14 and 15 for the Peak Hours, respectively.

6. Description of Analysis Procedures

It was necessary to perform capacity analyses based on procedures from the 2010 Highway Capacity Manual in order to determine existing and future traffic operating conditions at the study area intersections. The unsignalized intersection capacity analysis method utilized in this report was also performed in accordance with the procedures described in the 2010 Highway Capacity Manual. The procedure is based on total elapsed time from when a vehicle stops at the end of the queue until the vehicle departs from the stop line. The average total delay for any particular critical movement is a function of the service rate or capacity of the approach and the degree of saturation. In order to identify the Level of Service, the average amount of vehicle delay is computed for each critical movement to the intersection. Additional information concerning unsignalized Levels of Service can be found in Appendix "D" of this report.

7. Capacity Analysis Results (Table No. 2)

Capacity analyses were performed at the adjacent intersections and site driveways utilizing the procedures described above in order to evaluate current and future operating conditions. Summarized below is a brief description of the exiting geometrics, traffic control and a summary of the existing and future Levels of Service and any recommended improvements.

Table No. 2 summarizes the results of the capacity analysis (Levels of Service and delays) for the Year 2012 Existing, Year 2015 No-Build and Year 2015 Build Conditions. Copies of the capacity analysis for each of the individual intersections are contained in Appendix "C" of this report. The geometry of the intersection of Sagamore Avenue and Mohegan Avenue currently results in confusing operations due to the open uncontrolled conditions. As part of the proposed development, this intersection is proposed to be improved to a more conventional "T" type intersection with "stop sign" control. (See Site Design site plan drawing.) In addition, vegetative clearing, intersection—ahead warning signs, and striping including "stop" bars should also be added to the intersection. Additionally based on a review of the current volumes, it would be appropriate to provide "All Way Stop" control at the intersection in conformance with the signing and striping based on the Manual on Uniform Traffic Control Devices (MUTCD). This "All Way Stop" would also accommodate future volumes at acceptable Levels of Service.

8. Parking Considerations

Under current conditions, the church congregants park in the adjacent lot as well as the unstriped lot across the street and parking monitors are used to accommodate this. Parking is also available at the lake during peak times. The site plan prepared by Site Design Consultants indicates that a total of 63 striped parking spaces will be provided on the site and adjacent ancillary parking areas. The total number of parking spaces provided on the plan satisfies the Town requirements for 252 seats and is consistent with the peak parking ratios recommended by the Institute of Transportation Engineers as contained in their report entitled Parking Generation, 4th Edition. The provision of the 63 spaces will help accommodate the existing shortfall during peak periods and serve the expanded building under normal conditions. In order to handle peak conditions and accommodate a seating capacity of in excess of 300 seats, a "stacked" parking plan which would function similar to a "valet" system and controlled by the church monitors would be implemented. This would provide parking for up to 86 cars. Also, the use of the lake parking for peak Sundays should also be maintained and the use of a shuttle during these peak times for this remote parking should be provided so that congregants do not have to walk to the church to and from this location.

9. Summary and Conclusion

Based on the results of the capacity analysis contained herein, the proposed Expansion of the Faith Bible Church can be accommodated by the study area intersections and surrounding area roadway network and that the proposed improvements to the Sagamore Avenue and Mohegan Avenue intersection will improve the safety and efficiency of the operation. Furthermore, the proposed parking addition will help accommodate existing and expected demands for the expanded church and the recommendations above should be implemented.

Respectfully submitted,

JOHN COLLINS ENGINEERS, P.C.

Philip J. Grealy, Ph.D., P

7/13/2012 – Faith Bible Church – Current status

Weekday/Season	Day/Evening	Activity	Attendance
Monday – Tuesday	Day/Evening	No formal activity	3-4 people
Wednesday	Day	No formal activity	
Wednesday	Evening 6:45 – 7:45 (entering) 9:00 – 9:30 (exiting)	Bible Study Worship & Prayer	20-30 people
Thursday	Day	No formal activity	
Thursday	Evening	Worship Team Practice	15-20 people
Friday Evening 6:30 (entering) 9:30 (exiting)		Youth Night	50-60 teens 10 adults 10-20 cars stay
Saturday	Day/Evening	Misc. activity Funerals Weddings Women's Fellowship (7 times/year)	30 women
Sunday	Day 8:45 (entering) 9:45 - 10:00 (entering) 12:30 - 1:30 (exiting)	Worship team Parishioners Team & Parishioners	150 people (summer) 200 people (outside of summer)
September - June	Day	Sunday School prior to service	Children/Adults
Summer Day (entering/exiting)		Vacation Bible School	30 to 50 (mostly drop-offs) Children/Adults

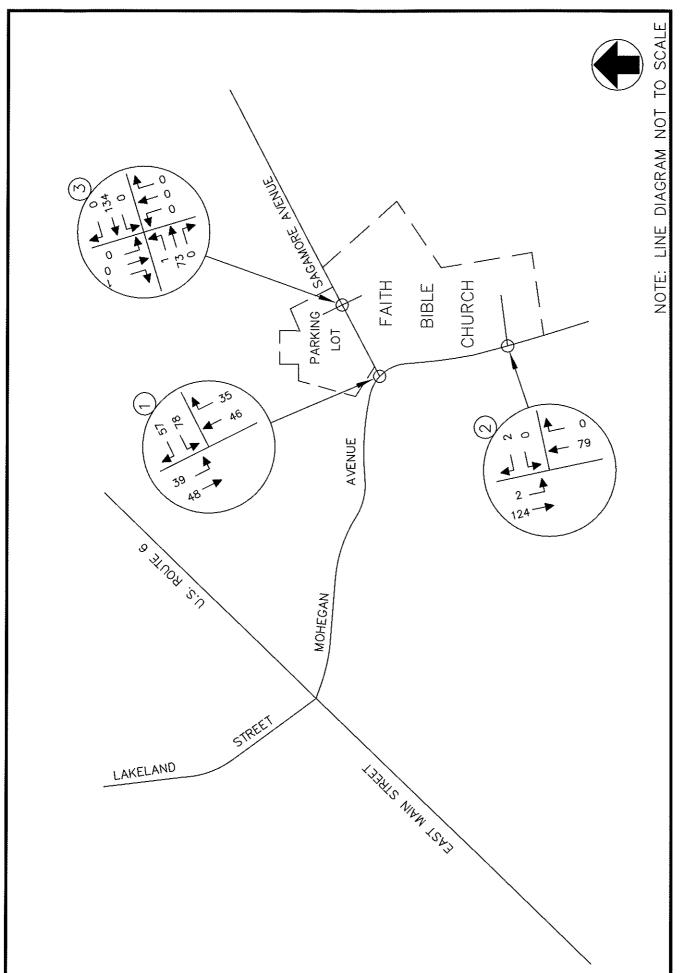
Notes: There are no rentals or use of the facility for private parties and catering.

APPENDIX "A"

FIGURES

SITE LOCATION MAP

FAITH BIBLE CHURCH YORK YORK JOHN COLLINS ENGINEERS, P.C. HAWTHORNE, NEW YORK



FAITH BIBLE CHURCH Yorktown, new york

2012 EXISTING TRAFFIC VOLUMES WEEKDAY PEAK PM HIGHWAY HOUR

FAITH BIBLE CHURCH YORK YORK JOHN COLLINS ENGINEERS, P.C. HAWTHORNE, NEW YORK

2012 EXISTING TRAFFIC VOLUMES WEEKDAY PEAK PM CHURCH HOUR

FAITH BIBLE CHURCH
YORKTOWN, NEW YORK
JOHN COLLINS ENGINEERS, P.C.
HAWTHORNE, NEW YORK

2012 EXISTING TRAFFIC VOLUMES WEEKEND PEAK SUNDAY HOUR

FAITH BIBLE CHURCH
YORKTOWN, NEW YORK
JOHN COLLINS ENGINEERS, P.C.
HAWTHORNE, NEW YORK

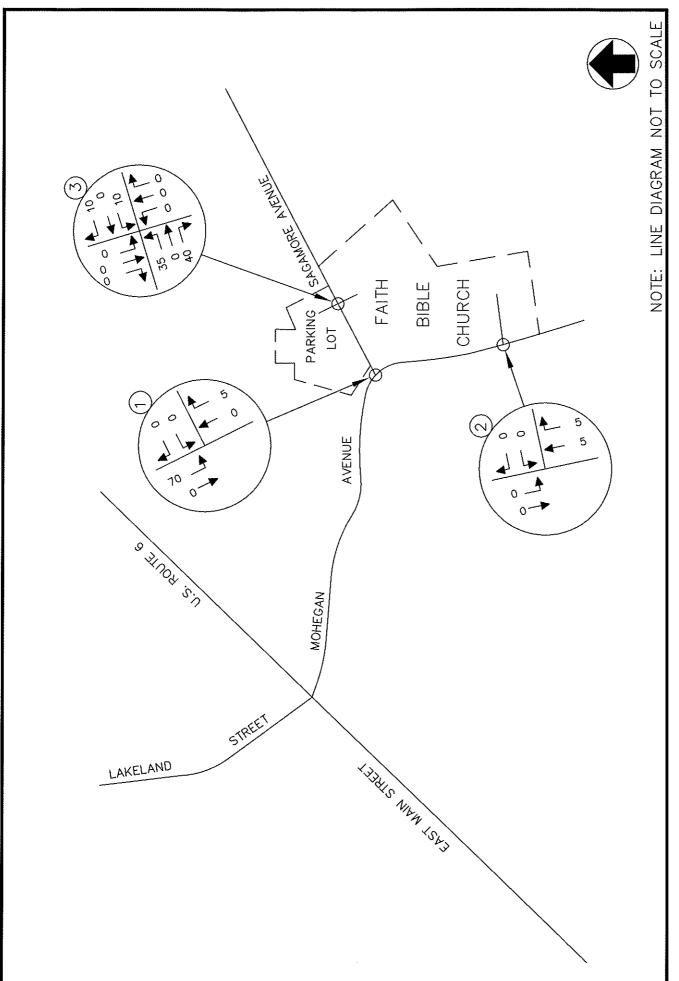
2015 NO-BUILD TRAFFIC VOLUMES WEEKDAY PEAK PM HIGHWAY HOUR

FAITH BIBLE CHURCH YORK YORK JOHN COLLINS ENGINEERS, P.C. HAWTHORNE, NEW YORK

2015 NO-BUILD TRAFFIC VOLUMES WEEKDAY PEAK PM CHURCH HOUR

FAITH BIBLE CHURCH
YORKTOWN, NEW YORK
JOHN COLLINS ENGINEERS, P.C.
HAWTHORNE, NEW YORK

2015 NO-BUILD TRAFFIC VOLUMES WEEKEND PEAK SUNDAY HOUR



JOHN COLLINS ENGINEERS, P.C. HAWTHORNE, NEW YORK FAITH BIBLE CHURCH YORKTOWN, NEW YORK

ARRIVAL DISTRIBUTION (ALL VALUES EXPRESSED AS A %)

FAITH BIBLE CHURCH YORK YORK JOHN COLLINS ENGINEERS, P.C. HAWTHORNE, NEW YORK

DEPARTURE DISTRIBUTION (ALL VALUES EXPRESSED AS A %)

FAITH BIBLE CHURCH YORK YORK JOHN COLLINS ENGINEERS, P.C. HAWTHORNE, NEW YORK

SITE GENERATED TRAFFIC VOLUMES WEEKDAY PEAK PM HIGHWAY HOUR

FAITH BIBLE CHURCH YORK YORK JOHN COLLINS ENGINEERS, P.C. HAWTHORNE, NEW YORK

SITE GENERATED TRAFFIC VOLUMES WEEKDAY PEAK PM CHURCH HOUR

FAITH BIBLE CHURCH YORK YORK JOHN COLLINS ENGINEERS, P.C. HAWTHORNE, NEW YORK

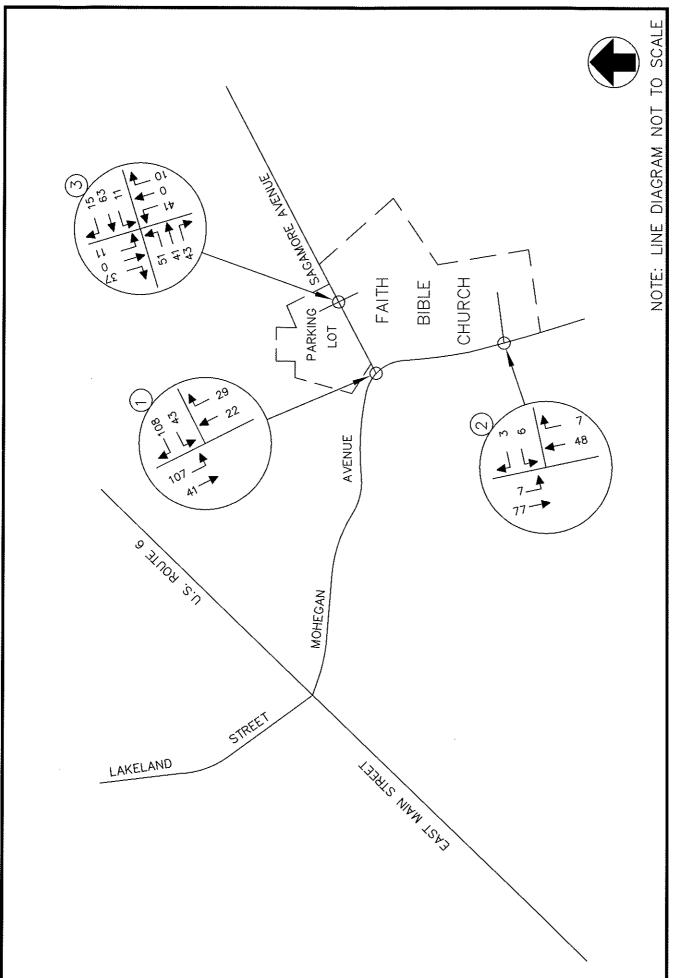
SITE GENERATED TRAFFIC VOLUMES WEEKEND PEAK SUNDAY HOUR

FAITH BIBLE CHURCH YORK YORK JOHN COLLINS ENGINEERS, P.C. HAWTHORNE, NEW YORK

2015 BUILD TRAFFIC VOLUMES WEEKDAY PEAK PM HIGHWAY HOUR

FAITH BIBLE CHURCH YORK YORN COLLINS ENGINEERS, P.C. HAWTHORNE, NEW YORK

2015 BUILD TRAFFIC VOLUMES WEEKDAY PEAK PM CHURCH HOUR



FAITH BIBLE CHURCH YORKTOWN, NEW YORK

2015 BUILD TRAFFIC VOLUMES WEEKEND PEAK SUNDAY HOUR

APPENDIX "B"

TABLES

TABLE NO. 1

HOURLY TRIP GENERATION RATES (HTGR) AND ANTICIPATED SITE GENERATED TRAFFIC VOLUMES

	EN	TRY	Eλ	(IT
FAITH BIBLE CHURCH YORKTOWN, NY	HTGR*	VOLUME	HTGR*	VOLUME
CHURCH (344 SEATS)				
PEAK PM HOUR	0.03	10	0.02	8
PEAK PM CHURCH HOUR	0.12	41	0.07	24
PEAK SUNDAY HOUR	0.31	107	0.30	103

NOTES:

1) * THE HOURLY TRIP GENERATION RATES (HTGR) ARE BASED ON DATA PUBLISHED BY THE INSTITUTE OF TRANSPORTATION ENGINEERS (ITE) AS CONTAINED IN THE TRIP GENERATION HANDBOOK, 8TH EDITION, 2008. ITE LAND USE CODE - 560 - CHURCH.

7/11/2012 JCE JOB 1897

TABLE NO. 1A

HOURLY TRIP GENERATION RATES (HTGR) AND ANTICIPATED
SITE GENERATED TRAFFIC VOLUMES

FAITU DIDLE CUUDOU	EN	TRY	E>	(IT
FAITH BIBLE CHURCH YORKTOWN, NY	HTGR*	VOLUME	HTGR*	VOLUME
CHURCH (252 SEATS)				
PEAK PM HOUR	0.03	7	0.02	6
PEAK PM CHURCH HOUR	0.16	41	0.10	24
PEAK SUNDAY HOUR	0.31	79	0.30	75

NOTES:

1) * THE HOURLY TRIP GENERATION RATES (HTGR) ARE BASED ON DATA PUBLISHED BY THE INSTITUTE OF TRANSPORTATION ENGINEERS (ITE) AS CONTAINED IN THE TRIP GENERATION HANDBOOK, 8TH EDITION, 2008. ITE LAND USE CODE - 560 - CHURCH.

7/12/2012 JCE JOB 1897

TABLE NO. 2

LEVEL OF SERVICE SUMMARY TABLE

			2	2012 EXISTING	9	20	2015 NO-BUILD	Q		2015 BUILD	
			Md	Рм сниясн	SUNDAY	PM	PM CHURCH	SUNDAY	ΡM	PM CHURCH	SUNDAY
-	MOHEGAN AVENUE & SAGAMORE AVENUE	UNSIGNALIZED WB SB	B[10.0] A[7.5]	Af9.61 Af7.4]	A[9.2] A[7.4]	B[10.2] A[7.5]	Af9.71 Af7.41	Af9.2] Af7.4]	B[10.3] A[7.5]	B[10.0] A[7.5]	A[10.0] A[7.5]
~	MOHEGAN AVENUE & CHURCH DRIVEWAY	UNSIGNALIZED WB SB	AI8.71 AI7.41	Af8.91 Af7.41	A[8.7] A[7.3]	AI8.71 AI7.41	Af8.91 Af7.41	Af8.71 Af7.31	Af8.71 Af7.41	Af9.01 Af7.41	Af9.11 Af7.31
ო	SAGAMORE AVENUE & CHURCH PARKING LOT	SIGNALIZED EB WB NB SB	AI7.5 - AI9.0]	A[7.4] - A[8.7]	AI7.41 - AI8.91	AI7.51 - AI9.11	AI7.41 - - AI8.81	AF7.41 - AF9.01	AF7.51 AF7.41 AF9.91 AF9.31	AF7.41 AF7.41 AF9.81 AF9.01	AI7.51 AI7.41 BI11.11 AI9.41

NOTES:

THE ABOVE REPRESENTS THE LEVEL OF SERVICE AND VEHICLE DELAY IN SECONDS, C [16.2], FOR EACH KEY APPROACH AS WELL AS FOR THE OVERALL INTERSECTION FOR THE SIGNALIZED INTERSECTION.

JOB NO. 1897

APPENDIX "C"

CAPACITY ANAYLSIS

Analyst: R.H. Agency/Co.: JCE

Date Performed: JUNE 2012

Analysis Time Period: PEAK PM HIGHWAY HOUR

Intersection: MOHEGAN AVENUE & SAGAMORE AVEN

Jurisdiction:

Units: U. S. Customary
Analysis Year: 2012 EXISTING TRAFFIC VOLUMES

Project ID: 1897PMEX1

East/West Street: SAGAMORE AVENUE North/South Street: MOHEGAN AVENUE

Intersection Orientation: NS Study poriod (hre). 0 25

Intersection Or	ientation:	NS		St	udy	period	(hrs):	0.25	
		icle Volu			tme				
	Approach	Nor	thbound			Sout	thbound		
	Movement	1	2	3	1	4	5	6	
		L	${f T}$	R		L	${f T}$	R	
Volume			46	35		39	48		
Peak-Hour Facto			0.89	0.89		0.89	0.89		
Hourly Flow Rat			51	39		43	53		
Percent Heavy V						2			
Median Type/Sto	rage	Undivi	_ded			/			
RT Channelized?									
Lanes			1 0			0	1		
Configuration			TR			$_{ m LT}$			
Upstream Signal	?		No				No		
	Approach	Wes	tbound			Eas	tbound		
	Movement	7	8	9	1	10	11	12	
		L	${f T}$	R	1	Ŀ	${f T}$	R	
Volume		78		57					
Peak Hour Facto		0.89		0.89					
Hourly Flow Rat		87		64					
Percent Heavy V		2		2					
Percent Grade (-4				0		
Flared Approach	: Exists?/	'Storage		No	/				/
Lanes		0	0						
Configuration			LR						
		Queue Ler			1 0	f Servi			
Approach	NB	SB		bound			Eastb	ound	
Movement	1	4		8	9	1	0 1	1	12
Lane Config		LT		LR					
/ 1- 1									
v (vph)		43		151					
C(m) (vph)		1505		869					
V/C	,	0.03		0.17					
95% queue lengt	n	0.09		0.63					
Control Delay		7.5		10.0+					
LOS		A		В					
Approach Delay				10.0+					
Approach LOS				В					

Analyst: R.H. Agency/Co.: JCE

Date Performed: JUNE 2012

Analysis Time Period: PEAK PM CHURCH HOUR

Intersection: MOHEGAN AVENUE & SAGAMORE AVEN

Jurisdiction: (CHURCH HOURS)

Units: U. S. Customary

Analysis Year: 2012 EXISTING TRAFFIC VOLUMES

Project ID: 1897PMCHEX1

East/West Street: SAGAMORE AVENUE North/South Street: MOHEGAN AVENUE

Intersection O		negan aver : NS	NOE	St	udy	perio	od (hrs):	0.25	
		hicle Volu			tme	nts			
Major Street:	Approach	Not	rthbound			Sc	uthbound		
	Movement	1	2	3		4	5	6	
		L	T	R		L	T	R	
Volume			55	23		28	79		
Peak-Hour Fact			0.89	0.89		0.89	0.89		
Hourly Flow Ra			61	25		31	88		
Percent Heavy						2			
Median Type/Start Channelized		Undiv:	lded			/			
Lanes			1 0			0	1		
Configuration			TR			I	т		
Upstream Signa	1?		No				No		
Minor Street:	Approach		stbound				stbound		
	Movement	7	8	9		10	11	12	
		${f L}$	${f T}$	R		\mathbf{L}	T	R	
Volume		44		40	****				
Peak Hour Fact		0.89		0.89					
Hourly Flow Ra	•	49		44					
Percent Heavy		2		2					
Percent Grade			-4				0		
Flared Approact	h: Exists	?/Storage		No	/				/
Lanes		0	0						
Configuration			LR						
	Delay,	Queue Lei	ngth. an	d Leve	-	f Serv	vice		
Approach	NB NB	SB		bound			Eastk	oound	
Movement	1	4	7	8	9	1			.2
Lane Config		LT		LR		İ			-
v (vph)		31		93					
C(m) (vph)		1510		874					
v/c		0.02		0.11					
95% queue leng	th	0.06		0.36					
Control Delay		7.4		9.6					
LOS		A		A					
Approach Delay				9.6					
Approach LOS				A					

Analyst: R.H. Agency/Co.: JCE

Date Performed: JUNE 2012

Analysis Time Period: PEAK SUNDAY HOUR

Intersection: MOHEGAN AVENUE & SAGAMORE AVEN

Jurisdiction:

Units: U. S. Customary

Analysis Year: 2012 EXISTING TRAFFIC VOLUMES

Project ID: 1897SUNEX1

East/West Street: SAGAMORE AVENUE North/South Street: MOHEGAN AVENUE

Intersection Orientation: NS Study period (hrs): 0.25

		110		50	.uay	berroc	X (111.5)	. 0.2.	,
Madda G			umes and		tme				
Major Street:	Approach		rthbound				ıthboun		
	Movement	1	2	3	ł	4	5	6	
		L	T	R		L	T	R	
Volume			21	22		30	39		
Peak-Hour Fact	or, PHF		0.89	0.89		0.89	0.89		
Hourly Flow Ra	ite, HFR		23	24		33	43		
Percent Heavy	Vehicles					2			
Median Type/St RT Channelized		Undiv	rided			/			
Lanes			1 0			0	1		
Configuration			TR			L.			
Upstream Signa	1?		No				No		
	•		110				NO		
Minor Street:	Approach		stbound				stbound	l	
	Movement	7	8	9	1	10	11	12	
		L	T	R		L	T	R	
Volume		36		34					
Peak Hour Fact	or, PHF	0.89		0.89					
Hourly Flow Ra		40		38					
Percent Heavy		2		2					
Percent Grade		-	-4	<i>ن</i>			0		
Flared Approac		//Storage	_	No	/		U		1
Lanes	Erioco.	0			/				/
Configuration		O	LR						
Configuration			LK						
	Delay,	Ougara Ta	noth an	al T a ** a	. 7	£ 0			
Approach	NB	SB	ngth, an	а њеve bound	T O	r serv.		- lo o	
Movement	1	4		8	9	1	Last 10	bound 11	10
Lane Config	7	LT			9		TO	TT	12
Danie Confrig		ו זיד		LR		ı			
v (vph)		33		78					
C(m) (vph)		1560		938					
v/c		0.02		0.08					
95% queue leng	th	0.06		0.27					
Control Delay		7.4		9.2					
LOS		A		A					
Approach Delay		~ *		9.2					
Approach LOS				A					
T- I				* *					

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY____

Analyst:

R.H.

Agency/Co.:

JCE

Date Performed: JUNE 2012

Analysis Time Period: PEAK PM HIGHWAY HOUR

Intersection:

MOHEGAN AVENUE & SAGAMORE AVEN

Jurisdiction:

Units: U. S. Customary

Analysis Year: 2015 NO-BUILD TRAFFIC VOLUMES

Project ID: 1897PMNB1

East/West Street: SAGAMORE AVENUE North/South Street: MOHEGAN AVENUE

Intersection Orientation: NS

Study period (hrs): 0.25

Vehi	cle Vol	umes and	Adjus	tme	nts		
Major Street: Approach		rthbound				thbound	
Movement	1	2	3	- 1	4	5	6
	L	Т	R	1	L	T	R
Volume		49	37		41	51	
Peak-Hour Factor, PHF		0.89	0.89		0.89	0.89	
Hourly Flow Rate, HFR		55	41		46	57	
Percent Heavy Vehicles					2		
Median Type/Storage RT Channelized?	Undiv	ided			/		
Lanes		1 0			0	1	
Configuration		TR			LT		
Upstream Signal?		No				No	
Minor Street: Approach	We	stbound			Eas	tbound	
Movement	7	8	9	1	10	11	12
	L	Т	R	1	L	T	R
Volume	83		60				
Peak Hour Factor, PHF	0.89		0.89				
Hourly Flow Rate, HFR	93		67				
Percent Heavy Vehicles	2		2				
Percent Grade (%)		-4				0	
Flared Approach: Exists?/	Storage		No	/			/
Lanes	Õ	0					,
Configuration		LR					
Delay, Q	ueue Te	aath an	d Tarra	1 ^	f Corri	~~	
Approach NB	ueue леі SB		u веve bound	тО	r pervi	ce Eastb	ound
Movement 1	4		8	9	1		

Approach	_Delay, NB	Queue SB	Le	ngt	h, and Westb		el of	Ser		lastbound	<u> </u>
Movement	1	4		7	8		9		10	11	12
Lane Config		LT			L	R		1			
v (vph)		46	•••••		1	60					
C(m) (vph)		1498	}		8	55					
v/c		0.03	}		0	.19					
95% queue length		0.09)		0	.69					
Control Delay		7.5			1	0.2					
LOS		A				В					
Approach Delay					1	0.2					
Approach LOS						В					

Analyst: Agency/Co.:

JCE

Date Performed: JUNE 2012

Analysis Time Period: PEAK PM CHURCH HOUR

Intersection: MOHEGAN AVENUE & SAGAMORE AVEN

Jurisdiction: (CHURCH HOURS)

Units: U. S. Customary

Analysis Year: 2015 NO-BUILD TRAFFIC VOLUMES

R.H.

Project ID: 1897PMCHNB1
East/West Street: SAGA

East/West Stre North/South St Intersection O	reet: MC	AGAMORE AV DHEGAN AVE D: NS		St	-udv	period	(hrs)·	0.25	5
		1		D.	Juuy	perroa	(1113).	0.2.	,
		ehicle Vol			stme				
Major Street:	Approach		rthboun				thbound		
	Movement	1	2	3		4	5	6	
		L	Т	R	1	L	Т	R	
Volume			58	24		30	84		
Peak-Hour Fact			0.89	0.89		0.89	0.89		
Hourly Flow Ra			65	26		33	94		
Percent Heavy			····			2			
Median Type/Storm RT Channelized		Undiv	ided			/			
Lanes	*		1	0		0	1		
Configuration				R		LT			
Upstream Signa	1?		No	1/		71 T	No		
							240		
Minor Street:	Approach	We	stbound			Eas	tbound		
	Movement	7	8	9		10	11	12	
		L	T	R	1	L	T	R	
Volume		47		42					
Peak Hour Facto	or, PHF	0.89		0.89					
Hourly Flow Ra		52		47					
Percent Heavy		2		2					
Percent Grade			4				0		
Flared Approach	h: Exists	s?/Storage		No	/				/
Lanes		0		0					
Configuration			LR						
2		Queue Le			el o	f Servi			
Approach	NB	SB		tbound			Eastb		
Movement	1	4	7	8	9	1	0 1	.1	12
Lane Config		LT		LR		I			
v (vph)		33		99					•
C(m) (vph)		1504		864					
v/c		0.02		0.11					
95% queue lengt	th	0.07		0.39					
Control Delay		7.4		9.7					
LOS		A		A					
Approach Tos				9.7					
Approach LOS				A					

Analyst: R.H. Agency/Co.: JCE

Date Performed: JUNE 2012

Analysis Time Period: PEAK SUNDAY HOUR

Intersection: MOHEGAN AVENUE & SAGAMORE AVEN

Jurisdiction:

Units: U. S. Customary
Analysis Year: 2015 NO-BUILD TRAFFIC VOLUMES

Project ID: 1897SUNNB1

East/West Street: SAGAMORE AVENUE North/South Street: MOHEGAN AVENUE

Vehicle Volumes and Adjustments	Intersection O		NS	INOL	St	cudy	period	l (hrs):	0.25	
Major Street: Approach Movement 1 2 3 4 5 6 R		Veh	icle Vol	umes and	Adjus	stme:	nts			
L T R L T R L T R L T R	Major Street:	Approach	No					ithbounc	ł	
Volume		Movement						5	6	
Peak-Hour Factor, PHF			L	T	R	-	L	T	R	
Peak-Hour Factor, PHF	Volume			22	23		3.0	17		
Hourly Flow Rate, HFR 24 25 35 46 Percent Heavy Vehicles 2 2		or, PHF								
Percent Heavy Vehicles	Hourly Flow Ra	te, HFR								
Median Type/Storage Undivided / RT Channelized? 1 0 0 1 Configuration TR IT IT No Minor Street: Approach Movement Westbound Factor Eastbound Factor No No Volume 38 36 Service Seak Hour Factor, PHF Factor 0.89 0.89 Hourly Flow Rate, HFR Factor 42 40 40 40 40 Percent Heavy Vehicles 2 3 3 3 3 3 4 3 4 3 4 3 4 3 4 3 4 3 4 3 4 4 </td <td>Percent Heavy</td> <td>Vehicles</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	Percent Heavy	Vehicles								
RT Channelized? Lanes	Median Type/St	orage	Undiv	ided			/			
Configuration Upstream Signal? No	RT Channelized	?					,			
TR				1 0			0	1		
Minor Street: Approach Westbound Eastbound Movement 7 8 9 10 11 12 L T R				TR						
Movement 7	Upstream Signa	1?		No				No		
Movement 7 8 9 10 11 12 12 T R L T R L T R L T R R L T R R L T R R L T R R L T R R R R R R R R R R R R R R R R R R R R R R R R R R R R R R R R R R R R R R R R R R R R R R R R R R R R R R R R R R R R R R R R R R R R R R R	Minor Street.	Approach	Wa	athound				1.1		
L T R L T R L T R L T R L T R L T R L T R L T R L T R L T R L T R L T R	manor bereet.				a	1			10	
Volume 38 36 Peak Hour Factor, PHF 0.89 0.89 Hourly Flow Rate, HFR 42 40 Percent Heavy Vehicles 2 2 Percent Grade (%) -4 0 Flared Approach: Exists?/Storage No / / Lanes 0 0 0 Configuration LR Eastbound Movement 1 4 7 8 9 10 11 12 Lane Config LT LR		110 / CINCIIC				l I				
Peak Hour Factor, PHF 0.89 0.89 Hourly Flow Rate, HFR 42 40 Percent Heavy Vehicles 2 2 Percent Grade (%) -4 0 Flared Approach: Exists?/Storage No / / Lanes 0 0 0 Configuration LR Eastbound Movement 1 4 7 8 9 10 11 12 Lane Config LT LR Image: LT LR Image: LT				<u>.</u>	11	ı	7.3	ī	Ν.	
Hourly Flow Rate, HFR 42 40 Percent Heavy Vehicles 2 2 Percent Grade (%) -4 0 Flared Approach: Exists?/Storage No / Lanes 0 0 Configuration LR Delay, Queue Length, and Level of Service Approach NB SB Westbound Eastbound Movement 1 4 7 8 9 10 11 12 Lane Config LT LR V (vph) 35 82 C(m) (vph) 1558 933 V/c 0.02 0.09 95% queue length 0.07 0.29 Control Delay 7.4 9.2 LOS A A Approach Delay 9.2			38		36					
Percent Heavy Vehicles 2 2 Percent Grade (%) -4 0 Flared Approach: Exists?/Storage No / Lanes 0 0 Configuration LR Delay, Queue Length, and Level of Service					0.89					
Percent Grade (%)			42		40					
Flared Approach: Exists?/Storage No / Lanes 0 0 0 Configuration LR Delay, Queue Length, and Level of Service Eastbound Approach NB SB Westbound Eastbound Movement 1 4 7 8 9 10 11 12 Lane Config LT LR			2		2					
Lanes Configuration Delay, Queue Length, and Level of Service Approach Movement 1				_				0		
Delay, Queue Length, and Level of Service		n: Exists?,	_		ИО	/				/
Delay, Queue Length, and Level of Service Approach NB SB Westbound Eastbound Movement 1 4 7 8 9 10 11 12 Lane Config LT LR			0	· =						
Approach NB SB Westbound Eastbound Movement 1 4 7 8 9 10 11 12 Lane Config LT LR	Configuration			LR						
Approach NB SB Westbound Eastbound Movement 1 4 7 8 9 10 11 12 Lane Config LT LR		Delay. ()nene Le	noth an	d Leve	م آد	f Sorvi	CO		
Movement 1 4 7 8 9 10 11 12 Lane Config LT LR v (vph) 35 82 C(m) (vph) 1558 933 v/c 0.02 0.09 95% queue length 0.07 0.29 Control Delay 7.4 9.2 LOS A A Approach Delay 9.2	Approach					, i	r Dervi		ound	
Lane Config LT LR v (vph) 35 82 C(m) (vph) 1558 933 v/c 0.02 0.09 95% queue length 0.07 0.29 Control Delay 7.4 9.2 LOS A A Approach Delay 9.2				_		9	1 1			12
C(m) (vph) 1558 933 v/c 0.02 0.09 95% queue length 0.07 0.29 Control Delay 7.4 9.2 LOS A A Approach Delay 9.2	Lane Config	-	•			,	1			12
C(m) (vph) 1558 933 v/c 0.02 0.09 95% queue length 0.07 0.29 Control Delay 7.4 9.2 LOS A A Approach Delay 9.2	/ la \									
v/c 0.02 0.09 95% queue length 0.07 0.29 Control Delay 7.4 9.2 LOS A A Approach Delay 9.2										
95% queue length 0.07 0.29 Control Delay 7.4 9.2 LOS A A Approach Delay 9.2										
Control Delay 7.4 9.2 LOS A A Approach Delay 9.2		- h								
LOS A A AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA		II								
Approach Delay 9.2										
			L.J.							
T L L L L L L L L L L L L L L L L L L L	~ -									
	T. T				Λ					

Analyst: R.H. Agency/Co.: JCE

Date Performed: JUNE 2012

Analysis Time Period: PEAK PM HIGHWAY HOUR

Intersection: MOHEGAN AVENUE & SAGAMORE AVEN

Jurisdiction:

Jurisdiction.
Units: U. S. Customary
2015 BUILD TRAFFIC VOLUMES

East/West Street: SAGAMORE AVENUE North/South Street: MOHEGAN AVENUE

Intersection Orientation	HEGAN AVEI : NS	NUE	St	udy	perio	d (hrs)	: 0.25	•
Ve	hicle Vol	umes and	d Adjus	tme	nts			
Major Street: Approach		rthbound				uthboun	d	
Movement	1	2	3	-	4	5	6	
	L	T	R	1	L	Т	R	
Volume		49	38		48		· · · · · · · · · · · · · · · · · · ·	
Peak-Hour Factor, PHF		0.89	0.89		0.89	0.89		
Hourly Flow Rate, HFR		55	42		53	57		
Percent Heavy Vehicles					2	····		
Median Type/Storage RT Channelized?	Undiv	ided			/			
Lanes		1 ()		0	1		
Configuration		TF	₹		I	T		
Upstream Signal?		No				No		
Minor Street: Approach		stbound				stbound		
Movement	7	8	9		10	11	12	
	Ŀ	T	R	ļ	L	T	R	
Volume	83		66					
Peak Hour Factor, PHF	0.89		0.89					
Hourly Flow Rate, HFR	93		74					
Percent Heavy Vehicles	2		2					
Percent Grade (%)	a	-4		,		0		
Flared Approach: Exists			No	/				/
Lanes	0	T TD (}					
Configuration		LR						
Delay,	Queue Lei	nơth, ar	nd Leve	el o	f Serv	rice		
Approach NB	SB		bound				bound	
Movement 1	4	7	8	9	!	10	11	12
Lane Config	LT		LR		Ì			
v (vph)	53	*****	167		······································			
C(m) (vph)	1496		850					
v/c	0.04		0.20					
95% queue length	0.11		0.73					
Control Delay	7.5		10.3					
LOS	A		В					
Approach Delay			10.3					
Approach LOS			В					

Analyst: R.H. Agency/Co.: JCE

Date Performed: JUNE 2012

Analysis Time Period: PEAK PM CHURCH HOUR

Intersection: MOHEGAN AVENUE & SAGAMORE AVEN

Jurisdiction: (CHURCH HOURS)

Units: U. S. Customary

Analysis Year: 2015 BUILD TRAFFIC VOLUMES

Project ID: 1897PMCHB1

East/West Street: SAGAMORE AVENUE North/South Street: MOHEGAN AVENUE

Intersection O	rientation:	NS	.	St	udy	period	(hrs):	0.25	
	Vehi	.cle Vol	umes and	. Adjus	tme	nts			
Major Street:	Approach		cthbound			***************************************	thbound		
J	Movement	1	2	3	1	4	5	6	
		L	T	R	i	Ĺ	T	R	
					•				
Volume			58	26		58	84		
Peak-Hour Fact			0.89	0.89		0.89	0.89		
Hourly Flow Ra			65	29		65	94	•	
Percent Heavy	Vehicles					2			
Median Type/St	orage	Undiv.	ided			/			
RT Channelized	?								
Lanes			1 0			0	1		
Configuration			TR			LT	•		
Upstream Signa	1?		No				No		
Minor Street:	Approach	Wе	stbound			Eas	tbound		
	Movement	7	8	9	j	10	11	12	
		\mathbf{L}_{i}	T	R	1	L	T	R	

Volume		48		59					
Peak Hour Fact		0.89		0.89					
Hourly Flow Ra	te, HFR	53		66					
Percent Heavy	Vehicles	2		2					
Percent Grade	(%)		-4				0		
Flared Approac	h: Exists?	/Storage		No	/				/
Lanes		Ō	C)					
Configuration			LR						
								····	
	Dolar (NIAIA TA	nath ar	d Tarra	.1 ^	f Cantri	G0		
Approach	beray, (Queue Le SB		id beve bound	T C	or servi		oound	
Movement	1	4 1	7	8	9	1 3		1	12
Lane Config	_	LT)	,	LR	,	-		. J.	7.5
zane oomaay		ا مشاسف ا		AMA N		1			
v (vph)		65		119					
C(m) (vph)		1500		838					
v/c		0.04		0.14					
95% queue leng	th	0.14		0.49					
Control Delay	•	7.5		10.0+					
LOS		A		В					
Approach Delay	,	4.3		10.0+					
				B					
Approach LOS				D					

Analyst: R.H. Agency/Co.: JCE

Date Performed: JUNE 2012

Analysis Time Period: PEAK SUNDAY HOUR

Intersection: MOHEGAN AVENUE & SAGAMORE AVEN

Jurisdiction:

Units: U. S. Customary

Analysis Year: 2015 BUILD TRAFFIC VOLUMES

Project ID: 1897SUNB1

East/West Street: SAGAMORE AVENUE North/South Street: MOHEGAN AVENUE

Intersection Orientation: NS Study period (hrs): 0.25

Intersection Orientation: NS Study period (hrs): 0.25									
		.cle Volu			tme				
	Approach		thbour			Sou	thbound		
I.	Iovement	1	2	3	1	4	5	6	
		L	T	R		L	T	R	
Volume			22	29		107	A 7		
Peak-Hour Factor	י הווט					107	41		
			0.89	0.89		0.89	0.89		
Hourly Flow Rate			24	32		120	46		
Percent Heavy Ve		المسالة المست				,2		···	
Median Type/Stor RT Channelized?	.aye	Undivi	.aea			/			
Lanes			1	0		0	1		
Configuration			Γ	r'R		$_{ m LT}$			
Upstream Signal?			No				No		
Minor Street: A	Approach	Wes	tbounc	i k		Eas	tbound		
Ŋ	lovement	7	8	9	1	10	11	12	
		L	${f T}$	R	1	L	T	R	
T.T. 3									
Volume	. DII.	43		108					
Peak Hour Factor		0.89		0.89					
Hourly Flow Rate	•	48		121					
Percent Heavy Ve		2	_	2					
Percent Grade (%	· ·	<i>!</i> ~ .	-4				0		
Flared Approach:	Exists?/	_		No	/				/
Lanes		0		0					
Configuration			LR						
		Queue Ler			el o	f Servi			
Approach	NB	SB		stbound			Eastb	ound	
Movement	1	4	7	8	9	1	.0 1	1	12
Lane Config		LT		LR		I			
v (vph)		120		169					
C(m) (vph)		1549		893					
v/c		0.08		0.19					
95% queue length	1	0.25		0.69					
Control Delay		7.5		10.0-					
LOS		A		Α.					
Approach Delay				10.0-					
Approach LOS				Α					
* * —				~ ~					

Analyst: R.H. Agency/Co.: JCE

Date Performed: JUNE 2012

Analysis Time Period: PEAK PM HIGHWAY HOUR Intersection: MOHEGAN AVENUE & CHURCH

Jurisdiction:

Units: U. S. Customary

Analysis Year: 2012 EXISTING TRAFFIC VOLUMES

Project ID: 1897PMEX2

95% queue length

Control Delay

Approach Delay

Approach LOS

LOS

East/West Street: CHURCH DRIVEWAY North/South Street: MOHEGAN AVENUE

Intersection Orientation: NS Study period (hrs): 0.25

Intersection C	rientation:	NS		St	udy	period	i (hrs):	0.25		
	Veh	nicle Volu	mes and	d Adius	tme	nts				
Major Street:	Approach		thbound				thbound	1		
,	Movement	1	2	3	1	4	5	6		
		L	T	R	İ	L	T	R		
Volume			79	0		2	124			
Peak-Hour Factor, PHF			0.89	0.89		0.89	0.89			
Hourly Flow Rate, HFR			88	0		2	139			
Percent Heavy	Vehicles					2				
Median Type/Storage RT Channelized?		Undivi	Undivided			/				
Lanes			1 ()		0	1			
Configuration			T	-		LJ				
Upstream Signa	1?		No				No			
Minor Street:	Approach	Wes	tbound			Eas	stbound	······································		
	Movement	7	8	9	1	10	11	12		
		L	T	R	1	$\mathbf L$	T	R		
Volume		0		2						
Peak Hour Fact	•	0.89		0.89						
Hourly Flow Ra		0		2						
Percent Heavy		2		2						
Percent Grade			0				0			
Flared Approac	h: Exists?	?/Storage		No	/			/	′	
Lanes		0	İ	0						
Configuration			LR							
	Delay,	Queue Ler	ngth, a	nd Leve		f Serv	ice			
Approach	NB	SB		tbound				bound		
Movement	1	4	7	8	9			11 12)	
Lane Config		LT	,	LR	-			one one also ke	•	
v (vph)		2		2						
C(m) (vph)		1508		970						
V/C		0.00		0.00						
0.50										

0.01

8.7

Α

8.7

Α

0.00

7.4

Α

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY____

Analyst: R.H. Agency/Co.: JCE

Date Performed: JUNE 2012

Analysis Time Period: PEAK PM CHURCH HOUR Intersection: MOHEGAN AVENUE & CHURCH

Jurisdiction: (CHURCH HOURS)

Units: U. S. Customary

Analysis Year: 2012 EXISTING TRAFFIC VOLUMES

Project ID: 1897PMCHEX2

East/West Street: CHURCH DRIVEWAY North/South Street: MOHEGAN AVENUE

Intersection Orientation: NS Study period (hrs): 0.25

intersection (rlentation	: NS		St	udy	perio	d (hrs)	: 0.25	
	Vel	nicle Vol	umes and	d Adius	tme	ats			
Major Street:	Approach		rthbound		· • • • • • • • • • • • • • • • • • • •		uthboun	d	
J	Movement	1	2	3	1	4	5	6	
		L	T	R	Ì	L	T	R	
Volume			66	3		18	105		
Peak-Hour Fact	or PHF		0.89	0.89		0.89	0.89		
Hourly Flow Ra			74	3		20	117		
Percent Heavy			/ -1	J 		2	T T 1		
Median Type/St		Undiv:	: dod			<u> </u>			
RT Channelized		OHGIV.	raea			/			
Lanes			1 ()		0	1		
Configuration			T			Γ			
Upstream Signa	al?		No				No		
Minor Street:	Annanah	Y.7	_ 1 1						
MINOI Street.	Approach	we: 7	stbound	0	1		stbound		
	Movement	·	8	9		10	11	12	
		L	Т	R	1	L	T	R	
Volume		2		12					
Peak Hour Fact	or, PHF	0.89		0.89					
Hourly Flow Ra	ate, HFR	2		13					
Percent Heavy	Vehicles	2		2					
Percent Grade	(용)		0				0		
Flared Approac	ch: Exists	?/Storage		No	/				/
Lanes		ő	()	,				,
Configuration			LR						
		Queue Le			el o	f Serv			
Approach	NB	SB		tbound				.bound	
Movement	1	4	7	8	9	1	10	11	12
Lane Config		LT		LR		-			
v (vph)		20		15					
C(m) (vph)		1522		944					
77/0		0 01		0.00					

Approach	_Delay, NB	Queue SB	Le	ngt	h, and Leve Westbound	el of	Ser		astbound	d
Movement	1	4		7	8	9	1	10	11	12
Lane Config		$_{ m LT}$			LR					
v (vph)		20			15					
C(m) (vph)		1522	2		944					
v/c		0.03	1		0.02					
95% queue length		0.0	4		0.05					
Control Delay		7.4			8.9					
LOS		A			A					
Approach Delay					8.9					
Approach LOS					A					

HCS+: Unsignalized Intersections Release 5.6

TWO-WAY STOP CONTROL SUMMARY _____

Analyst: R.H. Agency/Co.: JCE

Date Performed: JUNE 2012

Analysis Time Period: PEAK SUNDAY HOUR

Intersection: MOHEGAN AVENUE & CHURCH

Jurisdiction:

Units: U. S. Customary

Analysis Year: 2012 EXISTING TRAFFIC VOLUMES

Project ID: 1897SUNEX2

East/West Street: CHURCH DRIVEWAY North/South Street: MOHEGAN AVENUE

Intersection Orientation: NS Study period (hrs): 0.25

incersection C	rrencacion	. из		5	cuay	berro	a (mrs)	: 0.2	5	
				and Adju	stme			-		
Major Street:	Approach		orthbou				uthboun			
	Movement	1	2	3	ļ	4	5	6		
		L	T	R		L	T	R		
Volume			40	2		7	68			
Peak-Hour Fact	or, PHF		0.89	0.89		0.89	0.89			
Hourly Flow Ra			44	2		7	76			
Percent Heavy						2				
Median Type/St		Undi	vided			/				
RT Channelized		Onar	VIACA			/				
Lanes			1	0		0	1			
			T	0		_	1			
Configuration	10		N7 -	TR		L				
Upstream Signa	11:		No				No			
Minor Street:	Approach	W	estbour	nd		Ea	stbound	l		
	Movement	7	8	9		10	11	12		
		L	T	R	ĺ	L	T	R		
Volume		1							,	·····
	D.11.	1		3						
Peak Hour Fact		0.89		0.89						
Hourly Flow Ra		1		3						
Percent Heavy		2		2						
Percent Grade	(%)		0				0			
Flared Approac	h: Exists	?/Storag	e	No	/				/	
Lanes		Ō		0						
Configuration			LR							
	Delay,	Onene I	enath.	and Lev	el o	f Serv	ice			
Approach	NB	SB		estbound		_ ~~		bound		
Movement	1	4	7	8	9	1	10	11	12	
Lane Config	*	LT	,	LR	,	j j		Tr Tr	12	
name confrig		חד ו		את		l				
v (vph)		7		4						~
C(m) (vph)		1562		976						
v/c		0.00		0.00						
95% queue leng	rth	0.01		0.01						
Control Delay		7.3		8.7						
LOS		A		Α						
Approach Delay	,	Λ								
				8.7						
Approach LOS				A						

TWO-WAY STOP CONTROL SUMMARY

Analyst: R.H. Agency/Co.: JCE

Date Performed: JUNE 2012

Analysis Time Period: PEAK PM HIGHWAY HOUR Intersection: MOHEGAN AVENUE & CHURCH

Jurisdiction:

Units: U. S. Customary
Analysis Year: 2015 NO-BUILD TRAFFIC VOLUMES

Project ID: 1897PMNB2

East/West Street: CHURCH DRIVEWAY North/South Street

North/South Street: Intersection Orienta	MOHEGAN tion: NS	AVENUE	S	tudy	period	(hrs):	0.25	
	Vehicle	Volumes	and Adju	stme	nts			
Major Street: Appro		Northbo				thbound		
Movem	ent 1	2	3	1	4	5	6	
	L	Т	R	į	L	T	R	
Volume		84	0		2	131		
Peak-Hour Factor, PH		0.8	39 0.89		0.89	0.89		
Hourly Flow Rate, HF		94	0		2	147		
Percent Heavy Vehicl			manne , Avoire		2			
Median Type/Storage RT Channelized?	Ur	ndivided			/			
Lanes		1	0		0	1		
Configuration			TR		LT			
Upstream Signal?		No				No		
Minor Street: Appro		Westbo				tbound	***************************************	
Movem		8	9	1	10	11	12	
	L	Т	R	-	L	Т	R	
Volume	0		2					
Peak Hour Factor, PH		. 89	0.89					
Hourly Flow Rate, HF			2					
Percent Heavy Vehicl	es 2		2					
Percent Grade (%)		0				0		
Flared Approach: Ex	ists?/Stoi	<u> </u>	No	/				/
Lanes		0	0					
Configuration		LR						
De	lay, Queue	Length	and Lev	el o	f Servi	CA		
	NB SB		Westbound		r ocivi	Eastb	ound	
Movement	1 4	1 7	8	9	1 1			12
Lane Config	LT		LR	_	i			12
v (vph)	2		2					
C(m) (vph)	150	00	963					
v/c	0.0		0.00					
95% queue length	0.0		0.01					
Control Delay	7.4	<u>l</u>	8.7					
LOS	A		A					
Approach Delay			8.7					
Approach LOS			A					

TWO-WAY STOP CONTROL SUMMARY

Analyst: R.H. Agency/Co.: JCE

Date Performed: JUNE 2012

Analysis Time Period: PEAK PM CHURCH HOUR Intersection: MOHEGAN AVENUE & CHURCH

Jurisdiction: (CHURCH HOURS)

Units: U. S. Customary

LOS

Approach Delay

Approach LOS

Analysis Year: 2015 NO-BUILD TRAFFIC VOLUMES

Project ID: 1897PMCHNB2

East/West Street: CHURCH DRIVEWAY North/South Street: MOHEGAN AVENUE

Intersection Orientation	n: NS	St	tudy perio	d (hrs):	0.25
Ve	ehicle Volumes				
Major Street: Approach	Northbo			uthbound	
Movement	1 2	3	4	5	6
	L T	R	L	T	R
Volume	70	3	19	111	
Peak-Hour Factor, PHF	0.8		0.89	0.89	
Hourly Flow Rate, HFR	78	3	21	124	
Percent Heavy Vehicles			2		
Median Type/Storage	Undivided		/		
RT Channelized?	omar v i aca		/		
Lanes	1	0	0	1	
Configuration	-	TR		T	
Upstream Signal?	No	210	ببد	No	
				2.0	
Minor Street: Approach	Westbo	und	Ea	stbound	
Movement	7 8	9	10	11	12
	${f L}$ ${f T}$	R	l L	${f T}$	R
\$77					
Volume	2	13			
Peak Hour Factor, PHF	0.89	0.89			
Hourly Flow Rate, HFR	2	14			
Percent Heavy Vehicles	2	2			
Percent Grade (%)	0		,	0	
Flared Approach: Exist:	s?/Storage	No	/		/
Configuration	0	0			
Configuration	LR				
Delay	Queue Length	, and Leve	el of Serv	ice	
Approach NB		Westbound		Eastb	ound
Movement 1	4 7	8	9	10 1	
Lane Config	LT İ	LR			and and the
			·		
v (vph)	21	16			
C(m) (vph)	1517	940			
V/C	0.01	0.02			
95% queue length	0.04	0.05			
Control Delay	7.4	8.9			

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8.9

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TWO-WAY STOP CONTROL SUMMARY

Analyst: R.H. Agency/Co.: JCE

Date Performed: JUNE 2012

Analysis Time Period: PEAK SUNDAY HOUR

Intersection: MOHEGAN AVENUE & CHURCH

Jurisdiction:

Units: U. S. Customary
Analysis Year: 2015 NO-BUILD TRAFFIC VOLUMES

Project ID: 1897SUNNB2

East/West Stre North/South St Intersection C	reet: MC	IURCH DRIV DHEGAN AVE 1: NS		St	udy	perio	d (hrs)): 0.2	25
	V∈	hicle Vol	umes and	l Adjus	tme	nts			
Major Street:	Approach		rthbound				uthbour	nd	
	Movement	1	2	3	1	4	5	6	
		L	${f T}$	R	Ì	L	T	R	
Volume			42	2		7	72		
Peak-Hour Fact	or, PHF		0.89	0.89		0.89	0.89		
Hourly Flow Ra			47	2		7	80		
Percent Heavy			****	****		2			
Median Type/St	orage	Undiv	ided			/			
RT Channelized	[?								
Lanes			1 0			0	1		
Configuration	3.0		TF			\mathbf{L}	${f T}$		
Upstream Signa	.L?		No				ИО		
Minor Street:	Approach		stbound			Ea	stbound	d	
	Movement	7	8	9		10	11	12	
		L	T	R		L	T	R	
Volume		1		3					
Peak Hour Fact		0.89		0.89					
Hourly Flow Ra		1		3					
Percent Heavy		2		2					
Percent Grade			0				0		
Flared Approac	h: Exists	:?/Storage		No	/				/
Lanes		0	0	l					
Configuration			LR						
	Delav.	Queue Le	nath. an	d Leve	·1 ^	f Serv	ice		
Approach	NB,	SB		bound			******	tbound	
Movement	1	4	7	8	9	1	10	11	12
Lane Config		LT	·	LR	,	1	. 0	11	14
v (vph)		7		4					·
C(m) (vph)		1558		971					
v/c		0.00		0.00					
95% queue leng	th	0.01		0.01					
Control Delay		7.3		8.7					
LOS		A		A					
Approach Delay				8.7					
Approach LOS				A					

TWO-WAY STOP CONTROL SUMMARY____

Analyst: R.H. Agency/Co.: JCE

Date Performed: JUNE 2012

Analysis Time Period: PEAK PM HIGHWAY HOUR Intersection: MOHEGAN AVENUE & CHURCH

Jurisdiction:

Units: U. S. Customary

Analysis Year: 2015 BUILD TRAFFIC VOLUMES

Project ID: 1897PMB2

95% queue length

Control Delay

Approach Delay

Approach LOS

East/West Street: CHURCH DRIVEWAY North/South Street: MOHEGAN AVENUE

Intersection Orientation: NS Study period (hrs): 0.25

Intersection Or	ientation:	NS		St	udy	period	(hrs):	0.25	
	Veh	icle Volu	ımes and	d Adius	tme	nts			
Major Street:	Approach		thbound				thbound	***************************************	
	Movement	1	2	3	1	4	5	6	
		L	${f T}$	R	ĺ	L	T	R	
Volume			84	1		2	132		
Peak-Hour Facto	r, PHF		0.89	0.89		0.89	0.89		
Hourly Flow Rat	e, HFR		94	1		2	148		
Percent Heavy V						2			
Median Type/Sto		Undivi	ded			/			
RT Channelized?						,			
Lanes			1 ()		0	1		
Configuration			TF			LT			
Upstream Signal	?		No				No		
N/ i			· <u>-</u>						
	Approach		stbound	_			tbound		
	Movement	7	8	9		10	11	12	
		L	T	R		L	T	R	
Volume		0		2					
Peak Hour Facto	r, PHF	0.89		0.89					
Hourly Flow Rat		0		2					
Percent Heavy V	ehicles	2		2					
Percent Grade (웅)		0				0		
Flared Approach	: Exists?	/Storage		No	/		Ū		/
Lanes		ő	()	,				,
Configuration			LR						
	Do.1 /	7 T	1.	1 **		<i>-</i>			
Approach		Queue Ler			T O	I Servi			
Movement	NB 1	SB 4 I		bound	0	, 4	Eastb		
Lane Config	T	LT	7	8 TD	9	į I	0 1	1	12
Dane Contag		Tr F		LR		1			
v (vph)		2		2					
C(m) (vph)		1499		963					
v/c		0.00		0.00					

0.01

8.7

Α

8.7

Α

0.00

7.4

Α

TWO-WAY STOP CONTROL SUMMARY

Analyst: R.H. Agency/Co.: JCE

Date Performed: JUNE 2012

Analysis Time Period: PEAK PM CHURCH HOUR Intersection: MOHEGAN AVENUE & CHURCH

Jurisdiction: (CHURCH HOURS)

Units: U. S. Customary

Analysis Year: 2015 BUILD TRAFFIC VOLUMES

Project ID: 1897PMCHB2

Approach LOS

East/West Street: CHURCH DRIVEWAY
North/South Street: MOHEGAN AVENUE
Intersection Orientation: NS

Intersection O	rientation:	: NS		St	udy	period	(hrs)	: 0.2	5
	Vel	nicle Volu	mes and	Adius	tme	nts			
Major Street:	Approach		thbound				thbound		
	Movement	1	2	3	1	4	5	6	
		- Τ.	T	R	i	Ĺ	T T	R	
		2	_	10	i		*	11	
Volume			72	5		19	113		
Peak-Hour Fact	or, PHF		0.89	0.89		0.89	0.89		
Hourly Flow Ra	te, HFR		80	5		21	126		
Percent Heavy	Vehicles					2			
Median Type/St		Undivi	.ded			/			
RT Channelized						•			
Lanes			1 0			0	1		
Configuration			TR			LT			
Upstream Signa	1?		No				No		
Minor Street:	Approach		tbound				tbound		
	Movement	7	8	9		10	11	12	
		L	${f T}$	R		L	T	R	
Y 7									
Volume		3		13					
Peak Hour Fact	•	0.89		0.89					
Hourly Flow Ra		3		14					
Percent Heavy		2		2					
Percent Grade			0				0		
Flared Approac	h: Exists'	?/Storage		No	/				/
Lanes		0	0						
Configuration			LR						
	Delay,	Queue Ler	orth an	d Leve	. T. C	f Servi	CO		
Approach	NB	SB	-	bound	5 L C	T DETAI		bound	
Movement	1	4 I		8	9	1 1		11	12
Lane Config	–	LT		LR	9		-0	4.4	1. 4
name coming		77.7		TIL		ı			
v (vph)		21		17					
C(m) (vph)		1512		922					
v/c		0.01		0.02					
95% queue leng	th	0.04		0.06					
Control Delay		7.4		9.0					
LOS		A		Α					
Approach Delay		**		9.0					
Tapped South				_					

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TWO-WAY STOP CONTROL SUMMARY____

Analyst: R.H. Agency/Co.: JCE

Date Performed: JUNE 2012

Analysis Time Period: PEAK SUNDAY HOUR

Intersection: MOHEGAN AVENUE & CHURCH

Jurisdiction:

Units: U. S. Customary

Analysis Year: 2015 BUILD TRAFFIC VOLUMES

Project ID: 1897SUNB2

East/West Street: CHURCH DRIVEWAY North/South Street: MOHEGAN AVENUE

Intersection O		: NS	IOE.	St	udy	perio	d (hrs):	0.25	ı
		nicle Volu			tme				
Major Street:	Approach		thbound				uthbound		
	Movement	1	2	3		4	5	6	
		L	T	R		L	T	R	
Volume			48	7		7	77		
Peak-Hour Fact			0.89	0.89		0.89	0.89		
Hourly Flow Ra			53	7		7	86		
Percent Heavy						.2			
Median Type/St RT Channelized		Undivi	.ded			/			
Lanes			1 0			0	1		
Configuration			TR			L	T		
Upstream Signa	1?		No				No		
Minor Street:	Approach	Wes	stbound			Ea	stbound		
	Movement	7	8	9		10	11	12	
		${ m L}$	Т	R		L	T	R	
Volume		6		3					
Peak Hour Fact	•	0.89		0.89					
Hourly Flow Ra		6		3					
Percent Heavy		2		2					
Percent Grade			0				0		
Flared Approac	ch: Exists	?/Storage		No	/				/
Lanes		0	0						
Configuration			LR						
	Delav.	Queue Ler	ngth. an	d Leve	el o	f Serv	ice		
Approach	NB	SB		bound				bound	
Movement	1	4	7	8	9	1	10	11	12
Lane Config		LT		LR					
v (vph)		7	····	9					
C(m) (vph)		1544		883					
v/c		0.00		0.01					
95% queue leng	ŗth	0.01		0.03					
Control Delay		7.3		9.1					
LOS		A		A					
Approach Delay	,			9.1					
Approach LOS				A					

TWO-WAY STOP CONTROL SUMMARY____

Analyst: R.H. Agency/Co.: JCE

Date Performed: JUNE 2012

Analysis Time Period: PEAK PM HIGHWAY HOUR

Intersection: SAGAMORE AVENUE & CHURCH PARKI

Jurisdiction:

Units: U. S. Customary

Analysis Year: 2012 EXISTING TRAFFIC VOLUMES

Project ID: 1897PMEX3

East/West Street: CHURCH PARKING LOT North/South Street: SAGAMORE AVENUE

Intersection Orientation: EW Study period (hrs): 0.25

intersection O	rientation:	EW		2	stuay p	period	(nrs)	: 0.2	5
	Veh	icle Voi	lumes an	d Adju	ıstment	ts			
Major Street:	Approach		astbound				tbound	l	
	Movement	1	2	3	4	4	5	6	
		L	${f T}$	R		L	${f T}$	R	
Volume		1	73				134	0	
Peak-Hour Fact	or, PHF	0.89	0.89				0.89	0.89	
Hourly Flow Ra	te, HFR	1	82				150	0	
Percent Heavy	Vehicles	2	-						
Median Type/St RT Channelized	orage	Undi	vided		/				
Lanes	•	0	1				1	0	
Configuration			LT				_	r R	
Upstream Signa	12	•	No					. К	
opociedii bigila	J. :		NO				No		
Minor Street:	Approach	No	orthboun	d		Sou	ıthbour	nd	
	Movement	7	8	9	1	10	11	12	
		L	T	R	:	L	Ţ	R	
Volume						0		1	
Peak Hour Fact	or, PHF				1	0.89		0.89	
Hourly Flow Ra	te, HFR				į	0		1	
Percent Heavy	Vehicles					2		2	
Percent Grade	(%)		0				0		
Flared Approac	h: Exists?	/Storage	e		/			No	/
Lanes		2			,	0		0	•
Configuration						-	LR	•	
	Delay,	Onene T.	ength, a	nd Ler	πel ∩f	Sarvi	CO		
Approach	EB	WB		thbour		00101		hbound	
Movement	1	4	7	8	9	1	.50a(11	12
Lane Config	LT	- X	,	3	Į		. 0	LR	T Z
ranc contrag	11.1	i				I		'nΓ	

Annyonah	_Delay,		Le	ngt	h, and Lev		Ser	•		
Approach	EB	WB			Northboun	.a		S	outhboun	nd .
Movement	1	4		7	8	9		10	11	12
Lane Config	LT								LR	
v (vph)	1			·					1	
C(m) (vph)	1431								896	
v/c	0.00								0.00	
95% queue length	0.00								0.00	
Control Delay	7.5								9.0	
LOS	Α								А	
Approach Delay									9.0	
Approach LOS									А	

HCS+: Unsignalized Intersections Release 5.5

TWO-WAY STOP CONTROL SUMMARY

Analyst: R.H. Agency/Co.: JCE

Date Performed: JUNE 2012

Analysis Time Period: PEAK PM CHURCH HOUR

Intersection: SAGAMORE AVENUE & CHURCH PARKI

Jurisdiction: (CHURCH HOURS)

Units: U. S. Customary

Analysis Year: 2012 EXISTING TRAFFIC VOLUMES

Project ID: 1897PMCHEX3

North/South Str Intersection Or		MORE AVE EW	INUE	St	udy	peri	od (hr	3): 0.2	5
	Vehi	cle Volu	ımae and	l Adine	tma	nte			
Major Street:	Approach		stbound	najus	cine.		lestbou	nd	
	Movement	1	2	3	1	4	5	6	
		L	T	R	İ	L	T	R	
Volume		2	49				84	0	
Peak-Hour Facto		0.89	0.89				0.8	9 0.89	l
Hourly Flow Rat		2	55				94	0	•
Percent Heavy V		2				,	-		
Median Type/Sto RT Channelized?		Undivi	ided			/			
Lanes		0	1				1	0	
Configuration		L	ľ					TR	
Upstream Signal	.?		No				No		
7.4	70		1.1.1.	1			7	1	
Minor Street:	Approach		cthbound		1		Southbo		
	Movement	7 L	8	9 R		10 L	11 T	12 R	
		ניד	${f T}$	K	ı	نىل	1	А	
Volume						0		1	
Peak Hour Facto	or, PHF					0.89	9	0.89)
Hourly Flow Rat	ce, HFR					0		1	
Percent Heavy V	/ehicles					2		2	
Percent Grade	(용)		0				0		
Flared Approach	n: Exists?/	Storage			/			No	/
Lanes						()	0	
Configuration							LR		
	Delay, Q	ueue Lei	ngth, ar	nd Leve	el o	f Se:	rvice		
Approach	EB	WB		hbound				uthbound	ż
Movement	1	4	7	8	9	1	10	11	12
Lane Config	LT					1		LR	
v (vph)	2							1	
C(m) (vph) v/c	1500 0.00							963 0.00	
95% queue lengt								0.00	
Control Delay	7.4							8.7	
LOS	A							Α	
Approach Delay	7.7							8.7	
Approach LOS								A	
".T.T. T. T. T. T. T. T. T. T. T. T. T. T								_	

__TWO-WAY STOP CONTROL SUMMARY_

Analyst: R.H. Agency/Co.: JCE

Date Performed: JUNE 2012

Analysis Time Period: PEAK SUNDAY HOUR

Intersection: SAGAMORE AVENUE & CHURCH PARKI

Jurisdiction:

Units: U. S. Customary

Analysis Year: 2012 EXISTING TRAFFIC VOLUMES

Project ID: 1897SUNEX3

Intersection O		MORE AVI EW	ENUE	S	tudy p	period	(hrs)	: 0.25	
	Vehi	cle Vol	mes ar	urbA be	stment	- S			
Major Street:	Approach		stbound		o cinom		tbound]	
<u> </u>	Movement	1	2	3	4		5	6	
		L	T	R	i I		T	R	
57 - 1		10							
Volume	T	13	39				59	4	
Peak-Hour Facto		0.89	0.89				0.89	0.89	
Hourly Flow Ra		14	43				66	4	
Percent Heavy		2			,		***		
Median Type/Sto RT Channelized		Undiv:	ıded		/				
Lanes		0	1				1	0	
Configuration		L'						'R	
Upstream Signa	1?		No				No	. ~ .	
Minor Street:	Approach		rthbour				thbour		
	Movement	7	8	9		10	11	12	
		L	\mathbf{T}	R]	L	T	R	
Volume						1	****	1	
Peak Hour Facto	or, PHF				(0.89		0.89	
Hourly Flow Ra	te, HFR					1		1	
Percent Heavy		•				2		2	
Percent Grade	(%)		0				0		
Flared Approach	h: Exists?/	Storage			/			No	/
Lanes		-				0		0	·
Configuration							LR		
	Delay, Q	ueue Lei	ngth, a	and Lev	el of	Servi	.ce		
Approach	EB	WB	No:	rthboun	ıd		Sout	hbound	
Movement	1	4	7	8	9	1	.0	11	12
Lane Config	LT	I				1		LR	
v (vph)	14							2	
C(m) (vph)	1531							914	
v/c	0.01							0.00	
95% queue leng	th 0.03							0.01	
Control Delay	7.4							8.9	
LOS	A							A	
Approach Delay								8.9	
Approach LOS								A	

TWO-WAY STOP CONTROL SUMMARY____

Analyst: R.H. Agency/Co.: JCE

Date Performed: JUNE 2012

Analysis Time Period: PEAK PM HIGHWAY HOUR

Intersection: SAGAMORE AVENUE & CHURCH PARKI

Jurisdiction:

Units: U. S. Customary

Analysis Year: 2015 NO-BUILD TRAFFIC VOLUMES

Project ID: 1897PMNB3

Intersection Orientation: EN	ORE AVE	NUE	Sti	udy	period	d (hrs):	0.25	j
Vehic	le Volu	mes and	Adjust	tme:	nts			
Major Street: Approach	Eas	tbound			Wes	tbound		· · · · · · · · · · · · · · · · · · ·
Movement	1	2	3	- 1	4	5	6	
	L	T	R	-	L	T	R	
Volume	1	77	***.**			142	0	·
Peak-Hour Factor, PHF	0.89	0.89				0.89	0.89	
Hourly Flow Rate, HFR	1	86				159	0	
Percent Heavy Vehicles	2							
Median Type/Storage	Undivi	.ded			/			
RT Channelized?								
Lanes	0	1				1 ()	
Configuration	LT					TH		
Upstream Signal?		No				No		
Minor Street: Approach		thbound				ıthbound		
Movement	7	8	9		10	11	12	
	L	${f T}$	R		L	T	R	
Volume			****		0		1	
Peak Hour Factor, PHF					0.89		0.89	
Hourly Flow Rate, HFR					0		1	
Percent Heavy Vehicles					2		2	
Percent Grade (%)		0				0		
Flared Approach: Exists?/S	torage			/			No	/
Lanes	,			•	0	()	,
Configuration					-	LR	•	
						·····		
Delay, Qu	eue Len	igth, an	d Leve	1 0	f Servi	ice		
	WB		hbound				nbound	
	4 I		8	9	1 -		11	12
Lane Config LT	* 		Ŭ	_			LR	12
						-		
v (vph) 1							1	
C(m) (vph) 1420							386	
v/c 0.00							00.0	
95% queue length 0.00							0.00	
Control Delay 7.5							9.1	
LOS A							Α	
Approach Delay							9.1	
Approach LOS							A	

TWO-WAY STOP CONTROL SUMMARY____

Analyst: R.H. Agency/Co.: JCE

Date Performed: JUNE 2012

Analysis Time Period: PEAK PM CHURCH HOUR

Intersection: SAGAMORE AVENUE & CHURCH PARKI

Jurisdiction: (CHURCH HOURS)

Units: U. S. Customary

Approach LOS

Analysis Year: 2015 NO-BUILD TRAFFIC VOLUMES

Project ID: 1897PMCHNB3

East/West Street: CHURCH PARKING LOT North/South Street: SAGAMORE AVENUE

North/South Stree Intersection Orie		ORE AV	ENUE	S	tudy	period	l (hrs)	: 0.2	25
	Vehic	cle Vol	umes and	l Adju	stmer	nts			
Major Street: Ap	proach		stbound				tbounc	}	
Mo	vement	1	2	3	1	4	5	6	
		L	${f T}$	R		L	T	R	
Volume		2	52			······································	89	0	
Peak-Hour Factor,		0.89	0.89				0.89	0.89)
Hourly Flow Rate,	HFR	2	58				100	0	
Percent Heavy Veh	icles	2							
Median Type/Stora RT Channelized?	ge	Undiv	ided		,	/			
Lanes		0	1				1	0	
Configuration		L						ੌR	
Upstream Signal?			No				No		
	proach		rthbounc			Sou	ıthbour	nd	
Мо	vement	7	8	9		10	11	12	
		L	T	R	I	L	T	R	
Volume						0		1	
Peak Hour Factor,	PHF					0.89		0.89	9
Hourly Flow Rate,	HFR					0		1	
Percent Heavy Veh						2		2	
Percent Grade (%)			0				0	-	
Flared Approach:	Exists?/S	Storage			/			No	/
Lanes		5			·	0		0	,
Configuration							LR	-	
	Delay, Qu	ıeue Le	ngth, ar	nd Lev	rel o	f Servi	ice		
Approach	EB	WB	Nort	hbour	nd		Sout	hbounc	i
Movement	1	4	7	8	9	3	LO	11	12
Lane Config	LT	1				I		LR	
v (vph)	2							1	
C(m) (vph)	1493							956	
v/c	0.00							0.00	
95% queue length	0.00							0.00	
Control Delay	7.4							8.8	
LOS	A							A	
Approach Delay								8.8	

Α

TWO-WAY STOP CONTROL SUMMARY_

Analyst: R.H. Agency/Co.: JCE

JUNE 2012 Date Performed:

Analysis Time Period: PEAK SUNDAY HOUR

Intersection: SAGAMORE AVENUE & CHURCH PARKI

Jurisdiction:

Approach LOS

Units: U. S. Customary
Analysis Year: 2015 NO-BUILD TRAFFIC VOLUMES

Project ID: 1897SUNNB3

East/West Street: CHURCH PARKING LOT North/South Street. SACAMORE AVENUE

North/South Stre Intersection Ori		IORE AVE	ENUE	St	tudy	perio	od (hrs): 0.2	5
	Vehic	cle Volu	ımes and	l Adju:	stmer	nts			
Major Street: A	pproach		stbound	~			stboun	d	
M	ovement	1	2	3	1	4	5	6	
		L	Т	R	1	L	Т	R	
Volume		14	41				63	4	
Peak-Hour Factor	, PHF	0.89	0.89				0.89	0.89	
Hourly Flow Rate	, HFR	15	46				70	4	
Percent Heavy Ve	hicles	2							
Median Type/Stor	age	Undiv	lded		/	/			
RT Channelized?									
Lanes		0	1				1	0	
Configuration		L:	C					TR	
Upstream Signal?	•		No				No		
Minor Street: A	pproach	No	cthbound	1		Sc	outhbou	ınd	
M	ovement	7	8	9	1	10	11	12	
		L	${f T}$	R		L	${f T}$	R	
Volume						1		1	
Peak Hour Factor	, PHF					0.89		0.89)
Hourly Flow Rate	, HFR					1		1	
Percent Heavy Ve						2		2	
Percent Grade (%)		0				0		
Flared Approach:	Exists?/S	Storage			/			No	/
Lanes		-				0		0	
Configuration							LR		
	Delay, Qu	ueue Lei	ngth, ar	nd Lev	el o	f Ser	vice		
Approach	EB	WB	Nort	hboun	d		Sou	thbounc	i
Movement	1	4	7	8	9	1	10	11	12
Lane Config	LT	İ				ļ		LR	
v (vph)	15							2	· · · · · · · · · · · · · · · · · · ·
C(m) (vph)	1526							907	
v/c	0.01							0.00	
95% queue length								0.01	
Control Delay	7.4							9.0	
LOS	A							A	
Approach Delay	**							9.0	
Name and TOC								7.	

A

HCS+: Unsignalized Intersections Release 5.5

TWO-WAY STOP CONTROL SUMMARY_____

Analyst: R.H. Agency/Co.: JCE

Date Performed: JUNE 2012

Analysis Time Period: PEAK PM HIGHWAY HOUR

Intersection: SAGAMORE AVENUE & CHURCH PARKI

Jurisdiction:

Units: U. S. Customary

Analysis Year: 2015 BUILD TRAFFIC VOLUMES

Project ID: 1897PMB3

Intersection O	VUIVOL	St	udy	period	(hrs)	: 0.25	;		
Marian Chuach			lumes and	Adjus	tme				
Major Street:	Approach		astbound	2			tbound		
	Movement	1	2	3		4	5	6	
		L	T	R	I	L	T	R	
Volume		5	77	4		1	142	1	
Peak-Hour Fact		0.89		0.89		0.89	0.89	0.89	
Hourly Flow Ra	•	5	86	4		1	159	1	
Percent Heavy		2		ww ***		,2			
Median Type/St RT Channelized		Undi	vided			/			
Lanes		0	1 0			0	1	0	
Configuration			LTR			LT	R		
Upstream Signa	1?		No				No		
Minor Street:	Approach	N	orthbound			Sou	thbour	ıd	
	Movement	7	8	9		10	11	12	
		L	T	R		L	Т	R	
Volume		3	0	1		1	0	4	
Peak Hour Fact	or, PHF	0.89	0.89	0.89		0.89	0.89	0.89	
Hourly Flow Ra	te, HFR	3	0	1		1	0	4	
Percent Heavy		2	2	2		2	2	2	
Percent Grade	(%)		0				0		
Flared Approac	h: Exists?/	Storag	re	No	/			No	/
Lanes		C) 1 0			0	1	0	
Configuration			LTR				LTR		
	Delay. O	ueue T	ength, an	d Leve	٦ ۵	f Servi	Ce		
Approach	EB	WB		hbound		T DOLVI		hbound	
Movement	1	4		8	9	1 1	0	11	12
Lane Config	LTR	LTR		LTR	-		•	LTR	1.2
	5		·			·			
v (vph)		1		4				5	
C(m) (vph)	1419	1505		740				838	
V/C	0.00	0.00		0.01				0.01	
95% queue leng		0.00		0.02				0.02	
Control Delay	7.5	7.4		9.9				9.3	
LOS	A	A		A				A	
Approach Delay				9.9				9.3	
Approach LOS				A				A	

TWO-WAY STOP CONTROL SUMMARY

Analyst: R.H. Agency/Co.: JCE

Date Performed: JUNE 2012

Analysis Time Period: PEAK PM CHURCH HOUR

Intersection: SAGAMORE AVENUE & CHURCH PARKI

Jurisdiction: (CHURCH HOURS)

Units: U. S. Customary

Analysis Year: 2015 BUILD TRAFFIC VOLUMES

Project ID: 1897PMCHB3

East/West Street: CHURCH PARKING LOT North/South Street: SAGAMORE AVENUE

Intersection Orientation: EW Study period (hrs): 0.25

									
	Veh:	icle Volu	umes and	Adjus	tme	nts			
Major Street: A	Approach	Eas	tbound			Wes	stbounc	k	
D.	lovement	1	2	3		4	5	6	
		L	${f T}$	R		L	${f T}$	R	
	<u></u>								
Volume		16	52	16		4	89	4	
Peak-Hour Factor		0.89	0.89	0.89		0.89	0.89	0.89	
Hourly Flow Rate		17	58	17		4	100	4	
Percent Heavy Ve		2				2			
Median Type/Stor RT Channelized?	rage	Undivi	.ded			/			
Lanes		0	1 0	;		0	1	0	
Configuration		LI	'R			L'	ľR		
Upstream Signal?	?		No				No		
Minor Street: A	Approach		thbound				uthbour		
P	Movement	7	8	9		10	11	12	
		L	T	R		L	T	R	
Volume		10	0	2		2	0	9	
Peak Hour Factor	. PHF	0.89	0.89	0.89		0.89	0.89	0.89	
Hourly Flow Rate		11	0	2		2	0	10	
Percent Heavy Ve		2	2	2		2	2	2	
Percent Grade (9			0	_		_	0	_	
Flared Approach		/Storage	•	No	/		•	No	/
Lanes		0	1 0		,	0	1	0	,
Configuration			LTR			v	LTR	ŭ	
	Dolor	O		-) T	٦.	£ 0			
Approach	Delay, (B	Queue Ler WB		ia Leve :hbound		I Serv		- la la a	
Movement	1	w.b	7	.nbouna 8	9	1	30u 10	thbound	10
Lane Confiq		LTR	/	o LTR	9	 	TO	11	12
name confrig	LTR	LIK		LTK		1		LTR	
v (vph)	17	4		13				12	
C(m) (vph)	1488	1524		758				908	
v/c	0.01	0.00		0.02				0.01	
95% queue length		0.01		0.05				0.04	
Control Delay	7.4	7.4		9.8				9.0	
LOS	A	A		A				A	
Approach Delay	4.4	**		9.8				9.0	
Approach LOS				A				A.	
of Leasure, was				**				**	

HCS+: Unsignalized Intersections Release 5.5

TWO-WAY STOP CONTROL SUMMARY

Analyst: R.H. Agency/Co.: JCE

Date Performed: JUNE 2012

Analysis Time Period: PEAK SUNDAY HOUR

Intersection: SAGAMORE AVENUE & CHURCH PARKI

Jurisdiction:

Units: U. S. Customary

Analysis Year: 2015 BUILD TRAFFIC VOLUMES

Project ID: 1897SUNB3

East/West Street: CHURCH PARKING LOT North/South Street: SAGAMORE AVENUE

Intersection Orientation: EW Study period (hrs): 0.25

intersection of	LICILLACIOII.	E) W		51	uay	berroo	(nrs)	0.25)
			umes and	Adjus	tme				
Major Street:	Approach		stbound				tbound		
	Movement	1	2	3		4	5	6	
		L	Т	R	1	L	Т	R	
Volume		51	41	43		11	63	15	
Peak-Hour Facto	or, PHF	0.89	0.89	0.89		0.89	0.89	0.89	
Hourly Flow Ra		57	46	48		12	70	16	
Percent Heavy		2				2			
Median Type/Sto		Undiv:	ided			/			
RT Channelized	?								
Lanes		0	1 0			0	1	0	
Configuration		L?	ΓR			LT	'R		
Upstream Signa	1?		No				No		
Minor Street:	Approach	No	rthbound			Cov	ıthbour		
HITHOI DCTGGC.	Movement	7	e enbouna 8	9	1	10	11	12	
	HOVEMENT	Ĺ	T	R	į.	L	T	R R	
		15	*	10	ı		Ŧ	1/	
Volume		41	0	10		11	0	37	
Peak Hour Facto	or, PHF	0.89	0.89	0.89		0.89	0.89	0.89	
Hourly Flow Rat	te, HFR	46	0	11		12	0	41	
Percent Heavy		2	2	2		2	2	2	
Percent Grade		_	0			_	0	_	
Flared Approach		Storage	Ů	No	/		V	No	/
Lanes	<u> </u>	0	1 0		,	0	1	0	/
Configuration		V	LTR			V	LTR	V	
							11,1,1,1		
	Dalass	· · · · · · · · · · · · · · · · · · ·	1.1.	· -	-	<i>-</i>			
Approach	Delay, Ç EB	weue Lei WB	ngth, an	а ьеve hbound		ı Servi	***************************************	thbound	
Movement	1	4 1		8	9	; 1	.0	11	12
Lane Config	LTR	LTR		LTR)	} J	. 0		1.2
Dane Confrig	דודע	TIL 1		TIK		1		LTR	
v (vph)	57	12		57				53	
C(m) (vph)	1510	1500		646				872	
v/c	0.04	0.01		0.09				0.06	
95% queue lengt	th 0.12	0.02		0.29				0.19	
Control Delay	7.5	7.4		11.1				9.4	
LOS	A	A		В				A	
Approach Delay				11.1				9.4	
Approach LOS				В				A	

Phone: E-Mail:

Fax:

ALL-WAY STOP CONTROL (AWSC) ANALYSIS_____

Analyst: R.H. Agency/Co.: JCE

Date Performed: JUNE 2012
Analysis Time Period: PEAK PM HOUR

Intersection: MOHEGAN AVENUE & SAGAMORE AVE.

Jurisdiction:

Units: U. S. Customary

Analysis Year: 2015 BUILD TRAFFIC VOLUMES

Project ID: 1897PMB1

East/West Street: SAGAMORE AVENUE North/South Street: MOHEGAN AVENUE

Worksheet 2 - Volume Adjustments and Site Characteristics

	Ea	astbo	und	We	estbou	und	l No	orthbo	und	Sc	outhbo	ound	1
	L	${f T}$	R	L	${f T}$	R	L	${f T}$	R	L	\mathbf{r}	R	-
	1						1			j			
Volume	10	0	0	83	0	66	<u> </u>	49	38		51	0	_
% Thrus	Left Lar	ne											

	Eastbound		Westbound		Northb	ound	Southbound		
	L1	L2	L1	L2	L1	L2	L1	L2	
Configuration			LR		TR		LT		
PHF			0.89		0.89		0.89		
Flow Rate			167		97		110		
% Heavy Veh			2	ű.	2		2		
No. Lanes			1		1	_	1		
Opposing-Lanes			0		1	<u>.</u>	1		
Conflicting-lanes			1		1	L	1	-	
Geometry group			1		1	L	1	-	
Duration, T 0.25	hrs.								

Worksheet	3 -	- Saturation	Headway	Adiustment	Worksheet
********		Dacaracaca	TICACIVICIA		**************************************

	Eastbound L1 L2		Westbound L1 L2		Northl	oound L2		nbound
	ىك ئىك	Lı Z.	тт	L: Z	ᄮᆚ	17.7	L1	L2
Flow Rates:								
Total in Lane			167		97		110	
Left-Turn			93		0		53	
Right-Turn			74		42		0	
Prop. Left-Turns			0.6		0.0		0.5	
Prop. Right-Turns			0.4		0.4		0.0	
Prop. Heavy Vehicle			0.0		0.0		0.0	
Geometry Group			-	1		1		1
Adjustments Exhibit	17-33	:						
hLT-adj			(0.2	(0.2		0.2

hRT-adj -0.6 1.7 hHV-adj hadj, computed -0.1

Worksheet 4 - Departure Headway and Service Time_____

0.1

	Eastbound		Westl	oound	North	oound	Southbound		
	L1	L2	L1	L2	$_{ m L}1$	L2	L1	L2	
Flow rate			167		97		110		
hd, initial value	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20	
x, initial			0.15		0.09		0.10		
hd, final value			4.25		4.19		4.52		
x, final value			0.20		0.11		0.14		
Move-up time, m			,	2.0		2.0	,	2.0	
Service Time			2.3		2.2		2.5		

__Worksheet 5 - Capacity and Level of Service_____

	Easth	oound	Westk	ound	Northb	ound	South	bound
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rate Service Time Utilization, x Dep. headway, hd Capacity Delay LOS			167 2.3 0.20 4.25 417 8.29 A		97 2.2 0.11 4.19 347 7.72 A		110 2.5 0.14 4.52 360 8.24 A	
Approach: Delay LOS Intersection Delay	8.13		I		7 A on LOS A	7.72		8.24 A

Phone: E-Mail:

Fax:

ALL-WAY STOP CONTROL (AWSC) ANALYSIS_____

Analyst: R.H. Agency/Co.: JCE

Date Performed: JUNE 2012 Analysis Time Period: PEAK PM HOUR

Intersection: MOHEGAN AVENUE & SAGAMORE AVE.

Jurisdiction: (CHURCH HOURS)

Units: U. S. Customary

Analysis Year: 2015 BUILD TRAFFIC VOLUMES

Project ID: 1897PMCHB1

East/West Street: SAGAMORE AVENUE
North/South Street: MOHEGAN AVENUE

Worksheet 2 - Volume Adjustments and Site Characteristics

	E ă	astbo	und	W∈	estbo	und	No	orthbo	ound	Sc	outhbo	ound	1
	L	${f T}$	R	L	\mathbf{T}	R	L	\mathbf{T}	R	L	${f T}$	R	1
	I						1						
Volume	10	0	0	48	0	59	10	58	26	58	84	0	
% Thrus	Left Lar	ne											

Eastbound Westbound Northbound Southbound L1 L2 L1 L2 L1 L2 L1 L2 Configuration LR TR LT0.89 0.89 PHF 0.89 Flow Rate 119 94 159 % Heavy Veh 2 2 2 No. Lanes 1 1 1 Opposing-Lanes 1 0 1 Conflicting-lanes 1 1 1 Geometry group 1 1 1 Duration, T 0.25 hrs.

Worksheet 3 - Saturation Headway Adjustment Worksheet____

	Eastb	ound	West	oound	North	oound	South	abound
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rates:								
Total in Lane			119		94		159	
Left-Turn			53		0		65	
Right-Turn			66		29		0	
Prop. Left-Turns			0.4		0.0		0.4	
Prop. Right-Turns			0.6		0.3		0.0	
Prop. Heavy Vehicle			0.0		0.0		0.0	
Geometry Group			•	L		1		1
Adjustments Exhibit	17-33	:						
hLT-adj			(0.2	(0.2		0.2

hRT-adj hHV-adj -0.2 hadj, computed

___Worksheet 4 - Departure Headway and Service Time_____

	Eastl	oound	West	oound	North	oound	South	oound
	L1	L2	L1	L2	$_{ m L1}$	L2	L1	L2
Flow rate			119		94		159	
hd, initial value	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20
x, initial			0.11		0.08		0.14	
hd, final value			4.26		4.20		4.39	
x, final value			0.14		0.11		0.19	
Move-up time, m			2	2.0		2.0	:	2.0
Service Time			2.3		2.2		2.4	

Worksheet 5 - Capacity and Level of Service_____

Capacity Delay LOS Approach:		0.14 4.26 369 7.96 A	2.2 0.11 4.20 344 7.71 A		2.4 0.19 4.39 409 8.44 A	
Delay LOS Intersection Delay 8.	1.0	A	Ion LOS A	7.71 A		3.44 A

Phone: E-Mail:

Fax:

ALL-WAY STOP CONTROL (AWSC) ANALYSIS_____

Analyst: R.H. Agency/Co.: JCE

Date Performed: JUNE 2012

Analysis Time Period: PEAK SUNDAY HOUR

Intersection: MOHEGAN AVENUE & SAGAMORE AVE.

Jurisdiction:

Units: U. S. Customary

Analysis Year: 2015 BUILD TRAFFIC VOLUMES

Project ID: 1897SUNB1

East/West Street: SAGAMORE AVENUE North/South Street: MOHEGAN AVENUE

Worksheet 2 - Volume Adjustments and Site Characteristics

	Ea	astbo	und	We	estbo	ınd	l N	orthbo	ound	l So	uthbo	ound	1
	L	T	R	L	T	R	L	${f T}$	R	L	${f T}$	R	
Volume	 0	0	0	I 1 <u>43</u>	0	108	_	22	29	 107	41	0	
% Thrus	Left Lar	ne		,	•		, •	-		(20,	4	Ü	i

Eastbound Westbound Northbound Southbound L1 L2 L1 L2 L1 L2 L1 L2Configuration LR TR LT0.89 56 2 PHF 0.89 0.89 169 Flow Rate 166 % Heavy Veh 2 2 2 No. Lanes 1 1 1 Opposing-Lanes 1 0 1 Conflicting-lanes 1 1 1 Geometry group 1 1 1 Duration, T 0.25 hrs.

_Worksheet 3 - Saturation Headway Adjustment Worksheet____

	Eastb	ound	West	ound	North	oound	South	nbound
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rates:								
Total in Lane			169		56		166	
Left-Turn			48		0		120	
Right-Turn			121		32		0	
Prop. Left-Turns			0.3		0.0		0.7	
Prop. Right-Turns			0.7		0.6		0.0	
Prop. Heavy Vehicle			0.0		0.0		0.0	
Geometry Group			-	L	-	1		1
Adjustments Exhibit	17-33	:						
hLT-adj			().2	(0.2		0.2

-0.6 hRT-adj -0.6 hHV-adj 1.7 1.7 hadj, computed -0.3 -0.3

Worksheet 4 - Departure Headway and Service Time____

1.7

0.2

	Eastl	oound	West	oound	North	oound	South	oound
	$_{ m L1}$	L2	$_{ m L1}$	L2	L1	L2	L1	L2
Flow rate			169		56		166	
hd, initial value	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20
x, initial			0.15		0.05		0.15	
hd, final value			4.08		4.15		4.51	
x, final value			0.19		0.06		0.21	
Move-up time, m			,	2.0	:	2.0		2.0
Service Time			2.1		2.2		2.5	

__Worksheet 5 - Capacity and Level of Service_____

	Eastl	oound	Westh	ound	North	oound	South	oound
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rate			169		56		166	
Service Time			2.1		2.2		2.5	
Utilization, x			0.19		0.06		0.21	
Dep. headway, hd			4.08		4.15		4.51	
Capacity			419		306		416	
Delay			8.04		7.44		8.70	
LOS			A		A		A	
Approach:								
Delay			8	3.04		7.44	{	3.70
LOS			P	Ā		A	Ž	A
Intersection Delay	8.23		Inte	ersection	on LOS A			

APPENDIX "D" LEVEL OF SERVICE STANDARDS

APPENDIX "D"
STANDARDS

LEVEL OF SERVICE STANDARDS

LEVEL OF SERVICE FOR SIGNALIZED INTERSECTIONS

Level of Service (LOS) can be characterized for the entire intersection, each intersection approach, and each lane group. Control delay alone is used to characterize LOS for the entire intersection or an approach. Control delay and volume-to-capacity (v/c) ratio are used to characterize LOS for a lane group. Delay quantifies the increase in travel time due to traffic signal control. It is also a measure of driver discomfort and fuel consumption. The volume-to-capacity ratio quantifies the degree to which a phase's capacity is utilized by a lane group.

LOS A describes operations with a control delay of 10 s/veh or less and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is low and either progression is exceptionally favorable or the cycle length is very short. If it is due to favorable progression, most vehicles arrive during the green indication and travel through the intersection without stopping.

LOS B describes operations with control delay between 10 and 20 s/veh and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is low and either progression is highly favorable or the cycle length is short. More vehicles stop than with LOS A.

LOS C describes operations with control delay between 20 and 35 s/veh and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when progression is favorable or the cycle length is moderate.

LOS D describes operations with control delay between 35 and 55 s/veh and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is high and either progression is ineffective or the cycle length is long.

LOS E describes operations with control delay between 55 and 80 s/veh and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is high, progression is unfavorable, and the cycle length is long.

LOS F describes operations with control delay exceeding 80 s/veh or a volume-to-capacity ratio greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is very high, progression is very poor, and the cycle length is long.

A lane group can incur a delay less than 80 s/veh when the volume-to-capacity ratio exceeds 1.0. This condition typically occurs when the cycle length is short, the signal progression is favorable, or both. As a result, both the delay and volume-to-capacity ratio are considered when lane group LOS is established. A ratio of 1.0 or more indicates that cycle capacity is fully utilized and represents failure from a capacity perspective (just as delay in excess of 80 s/veh represents failure from a delay perspective).

The Level of Service Criteria for signalized intersections are given in Exhibit 18-4 from the 2010 Highway Capacity Manual published by the Transportation Research Board.

Exhibit 18-4

	LOS by Volume-	to-Capacity Ratio
Control Delay (s/veh)	v/c ≤1.0	v/c > 1.0
≤10	A	F
>10-20	В	F
>20-35	C	F
>35-55	D	F
>55-80	E	F
>80	F	F

For approach-based and intersectionwide assessments, LOS is defined solely by control delay.

LEVEL OF SERVICE CRITERIA

FOR TWO-WAY STOP-CONTROLLED (TWSC) UNSIGNALIZED INTERSECTIONS

Level of Service (LOS) for a two-way stop-controlled (TWSC) intersection is determined by the computed or measured control delay. For motor vehicles, LOS is determined for each minor-street movement (or shared movement) as well as major-street left turns. LOS is not defined for the intersection as a whole or for major-street approaches.

The Level of Service Criteria for TWSC unsignalized intersections are given in Exhibit 19-1 from the 2010 Highway Capacity Manual published by the Transportation Research Board.

Exhibit 19-1

	LOS by Volume-	to-Capacity Ratio
Control Delay (s/veh)	v/c ≤1.0	v/c > 1.0
0-10	A	F
>10-15	В	F
>15-25	С	\mathbf{F}
>25-35	D	\mathbf{F}
>35-50	E	F
>50	F	F

The LOS criteria apply to each lane on a given approach and to each approach on the minor street.

LOS is not calculated for major-street approaches or for the intersection as a whole.

As Exhibit 19-1 notes, LOS F is assigned to the movement if the volume-to-capacity ratio for the movement exceeds 1.0, regardless of the control delay.

The Level of Service Criteria for unsignalized intersections are somewhat different from the criteria for signalized intersections.

LEVEL OF SERVICE CRITERIA

FOR ALL-WAY STOP-CONTROLLED (AWSC) UNSIGNALIZED INTERSECTIONS

The Levels of Service (LOS) for all-way stop-controlled (AWSC) intersections are given in Exhibit 20-2. As the exhibit notes, LOS F is assigned if the volume-to-capacity (v/c) ratio of a lane exceeds 1.0, regardless of the control delay. For assessment of LOS at the approach and intersection levels, LOS is based solely on control delay.

The Level of Service Criteria for AWSC unsignalized intersections are given in Exhibit 20-2 from the 2010 Highway Capacity Manual published by the Transportation Research Board.

Exhibit 20-2

	LOS by Volume-	to-Capacity Ratio
Control Delay (s/veh)	$v/c \le 1.0$	v/c > 1.0
0-10	A	F
>10-15	В	F
>15-25	C	\mathbf{F}
>25-35	D	\mathbf{F}
>35-50	Е	F
>50	F	\mathbf{F}

For approaches and intersectionwide assessment, LOS is defined solely by control delay.