Traffic Impact Analysis and Site Plan Review of Faith Bible Church Expansion and Renovation at 3500 Mohegan Avenue

Town of Yorktown, NY

March 2013

Prepared For:

Town of Yorktown Planning Department
1974 Commerce Street, Room 222
Yorktown Heights, NY 10598

Prepared By:

Jacobs Civil Consultants, Inc.
2 Penn Plaza
New York, NY 10121
212-944-2000

JACOBS

Table of Contents

I. Introduction

At the request of the Town of Yorktown Planning Department, Jacobs Civil Consultants, Inc. (JCCI) has reviewed the site plan and traffic impact analysis performed for the Faith Bible Church Expansion and Renovation project in the Town of Yorktown, NY.

The site plan prepared for the approximately 1.2 acre property identifies a proposed place of worship and parking for 36 vehicles bounded by Sagamore and Mohegan Avenues. An additional lot with 27 standard striped spaces is located across Sagamore Avenue. The site plan identifies a curb cut for each lot along Sagamore Avenue and an additional curb cut along Mohegan Drive, which is controlled by a stop sign. The subject property lies within the R-140 "One Acre One-Family Residential" zoning district.

II. Methodology

A review of the traffic impact analysis and site plan was conducted to verify the results and recommendations identified in the Traffic Impact Study conducted by Maser Consulting. The following was reviewed as part of the assessment:

A. Data Collection

Data collected as part of the traffic analysis was evaluated and compared with available traffic count data from NYSDOT to verify existing traffic conditions at study intersections.

B. Traffic Forecasts

Background growth and trip generation rates were reviewed to verify 2015 peak hour traffic volumes in the study area with construction of the project. Trip estimates were compared with standard trip rates compiled by the Institute of Transportation Engineers (ITE). The distributions of project trips were assessed to confirm that they were reasonable and based on existing traffic patterns.

C. Traffic Analysis

Capacity analyses at study area intersections were reviewed to verify the results and conclusions presented in the Traffic Impact Study. The review was conducted using accepted industry standards identified in the *Highway Capacity Manual 2010*. Improvement recommendations were reviewed to verify their needs and effectiveness. Alternate mitigation measures were also identified, if necessary.

D. Site Plan Review

The assessment of the site plan covered internal traffic circulation, parking supply and layout, pedestrian access, access management, and town code compliance.

III. Traffic Impact Analysis

A. Review of Traffic Data and Existing Conditions

The current geometry and traffic controls were identified for the intersection of Sagamore and Mohegan Avenue in the vicinity of the proposed project. Sagamore Avenue runs in a northeast-southwest direction and carries traffic from Main Street to Mohegan Avenue near Mohegan Lake. Proximate to the project study area, Sagamore Avenue typically provides a travel lane in each direction. Mohegan Avenue runs in an east-west direction connecting Route 6 to the Project Site. At the intersection with Sagamore Avenue, Mohegan Avenue continues southward along Lake Mohegan.

The 2012 existing traffic volumes in the vicinity of the project site were obtained from the traffic analysis conducted by Maser Consulting for the proposed Faith Bible Church. A review of the existing traffic data from this analysis indicates that PM weekday peak hour traffic volumes on Mohegan Avenue in the vicinity of the project site are roughly 100 vehicles. Background traffic volumes during the weekend peak Sunday hour are relatively low with less than 80 vehicles in either direction. Similarly, Sagamore Avenue experiences higher traffic volumes during the weekday PM peak hour when compared to the Sunday peak hour. Historical weekday traffic data provided by the New York State Department of Transportation (NYSDOT) indicates similar traffic volumes reported at this location along Sagamore and Mohegan Avenues in 2006. This confirms the traffic volumes collected by Maser Consulting.

The capacity analysis presented in the Traffic Impact Study was conducted during the weekday PM, and Sunday peak hours at 3 unsignalized study intersection locations along Mohegan and Sagamore Avenues. Project study intersections include:

- Mohegan Avenue at Sagamore Avenue
- Sagamore Avenue at Church Parking Lot Access
- Mohegan Avenue at Church Parking Lot Access

A review of the capacity analysis indicates that all intersections currently operate at acceptable levels. All approaches appear to operate at level of service (LOS) B or better during the weekday PM and Sunday peak hours.

Review of Trip Generation and Distribution

Trip generation for the proposed Faith Bible Church was performed based on the procedures in the *Trip Generation Handbook.*[1] Trip rates are based on (ITE code 560) "Church" using the proposed number of seats. The gross square footage of the proposed project was utilized to estimate the number trips generated during the weekday PM peak hour since weekday trip projections as a function of seating capacity were not available in the *Trip Generation Handbook.*

The Traffic Impact Study based the projected trip generation volume on the existing 252 seats (Table No.2 in the applicant's Traffic Impact Study). These trip projections are not accurate as they did not account for the total number of seats when the project is completed (344 seats) nor did the study take credit for the existing seats (252 seats). Jacobs estimated project related weekday PM and Sunday peak hour trips. Since Jacobs has no information on the number of church occupants at the time traffic data was collected, no credit for existing trips were taken as a conservative measure. Table 1 below identifies project related trips during each of the peak periods.

Table 1: Project Trip Generation

Time Period	Seats or Sqft	Ave Rates	Trip Generation	Enter	Exit
Weekday	8.5k	Ln(T)=0.42Ln(X)+2.00	18	10	8
Saturday Peak Hour of Gen	344	0.61	206	89	117
Sunday Peak Hour of Gen	344	0.61	**210**	107	103

B. Review of Future Traffic Conditions

A comparison of the baseline No Build condition shows that analysis results reported by in the Traffic Impact Study were generally consistent with the analysis conducted by Jacobs. All study intersection locations operate at LOS C or better.

C. Future with the Proposed Project

Capacity analysis contained in the Traffic Impact Study indicates that study intersections operate at acceptable levels of service with the project in place. However, the analysis is based on inaccurate trip generation information. Jacobs' conducted new capacity analysis using conservative trip generation assumptions as described above. The Jacobs analysis concluded that all study intersections continue to operate at an acceptable level of service C or better. Furthermore, the project peak period (Sunday peak hour) occurs at a time where background traffic appear to be significantly lower than during the weekday AM and PM peak commuter periods. As such, the proposed project would not likely result in significant adverse traffic impacts.

[1] *Trip Generation, 8th Edition; Institute of Transportation Engineers, (ITE,2008)*

The Traffic Impact Study recommends the implementation of an all-way stop control at the intersection of Sagamore and Mohegan Avenues. Based on the relatively balanced traffic volumes on each approach, and on the capacity analysis, Jacobs concurs with this recommendation. However, a warrant analysis should be conducted along with an engineering study that will assess a safe traffic control at the intersection. New pavement markings at the intersection and lane markings at all three approaches along with advanced signage may potentially be required.

IV. Site Plan Review

A. Site Access

Vehicular Access

The proposed site layout indicates driveway parking lot access along Sagamore and Mohegan Avenues. A separate lot across from the proposed Bible Church provides access along Sagamore Avenue.

B. Parking/Internal Circulation

On-Site Parking

The site plan identifies two adjacent parking lots with a capacity of 28 (39 stacked) and 8 striped spaces along Sagamore Avenue and Mohgan Avenue, respectively. Each lot provides ADA access for wheelchairs. In addition, a separate lot with a capacity of 27 striped (39 stacked) spaces is also identified on the plan.

The applicant indicates the potential of implementing a stacked parking plan. The traffic study identifies a period of one hour between 12:30 p.m. and 1:30 p.m. where parishioners and staff leave during Sunday worship. Stack parking may become an issue if vehicles do not leave the lot at the same time. Vehicles may be forced to utilize public streets to provide access to blocked cars. If stacked parking is implemented, Jacobs recommends that the applicant develops a plan that demonstrates the ability to access vehicles without impeding traffic on local streets.

The Traffic Impact Study identifies the use of an off-site parking lot. The study should document the location and capacity of the off-site parking lot and confirm that the total capacity provided by the proposed project meets town code. In addition, plans for transport between the off-site lot and the Project Site should be identified. The absence of sidewalks could pose a safety concern for pedestrians walking to/from the off-site parking lot and/or drop-off location.

Although the site plan provides for ADA accessible spaces, they may not satisfy grade requirements. At the time of Jacobs' initial comment letter (See Appendix A), both areas providing handicapped parking identified 5% slopes, which do not meet ADA requirement of 2.08% in all direction. If these requirements are not possible to meet due

to current existing grades, Jacobs recommends the relocation of these spaces to a different area for accessible parking that would enable the ADA compliant parking spaces to be constructed at the proper grade. Since the parking lots are being reconfigured, and not just repaved/restriped, grandfathering due to existing conditions is not permissible.

C. Other Site Comments

Action items/responses to Jacobs' initial comments dated February 15, 2013 and contained in Appendix A, should be confirmed to be incorporated into the project and depicted on updated plans. These include items 2, 3, 5, 8, 9, and 11.

V. Conclusion

The following conclusions as well as issues that may require further investigation identified below are based on an analysis of the traffic impacts and review of the site layout for the proposed Faith Bible Church Expansion and Renovation.

1. The Jacobs review concludes that traffic volumes in the study area remains low with the proposed project in place. All study intersections are projected to operate at acceptable levels of service.
2. Capacity analysis indicates that converting the intersection of Sagamore and Mohegan Avenue to an all way stop control may improve traffic operations. A warrant analysis should be conducted along with an engineering study that will assess a safe traffic control plan for the intersection.
3. Implementing a stacked parking plan could potentially interfere with traffic on adjacent roadways. The Applicant should demonstrate that sufficient vehicular maneuvering space exists within the parking lot.
4. The traffic study identifies the use of an off-site lot. The traffic study should explain in detail both the capacity and location of the lot as well as plans to transport parishioners and/or staff to the project site. If walking would be the primary mode, safety could become an issue as there appears to be no sidewalks leading to the project site.
5. Jacobs recommends that the project site lot's are reconfigured to meet ADA requirements.
6. Updated site plan(s) should be reviewed to confirm revisions from Site Design Consultant's responses dated February 15, 2013 (See Appendix A).

APPENDIX A: Jacobs' Comments with Responses from Applicant's Consultant

Project Site Plan Comments (January 22, 2013)

Overflow Parking Plan:

1. According to Article XIX, § 300-182.G, the required percentage of mid-size spaces (8.5'x16.5') is 35%, with the remainder of the spaces reserved for larger cars (9'x18.5'). The number of midsize space exceeds 35% and remaining spaces are not reserved for larger cars, but instead reserved for the standard size space of 8.5'x18.5'. A variance may be required.

Grading and Utility Plan:

2. Missing spot elevations where new curb meets existing pavement according to Article VII, § 195-40.A (3).
3. All parking lot entrances have grades that exceed the required 3% within 30 feet of the ROW per Article VII, § 195-41.D (3).
4. All parking lots exceed grades required by Article VII, § 195-41.G.
5. Sidewalk on the west side of the building exceeds the 5% allowable grade for ADA accessibility.
6. Accessible parking exceeds the maximum allowed slope (2.08%) by ADA in all directions.
7. Accessible path to accessible parking shall not exceed 5% per ADA requirements.

Site Plan:

8. In accordance with Article VII, § 195-41.H., Sagamore and Mohegan Avenue's right-of-ways may need to be widened to 50'
9. Landscape plan are referenced on this sheet. Landscape plans are missing from the set. Article VII, § 195-40.B.
10. Adjacent property Zoning is not indicated on the plans. Article VII, § 195-40.A (10).
11. Provide dimensions of the proposed building expansion. Article VII, § 195-40.A (6).

Traffic Comments (January 15, 2013)

1. The project is an expansion and renovation. Is credit being taken for the existing facility and use? What is the existing number of seats and the additional number of seats added with the expansion?
2. The study mentions 344 seats will require 86 parking spaces based on 1 parking space per 4 seat or pew space requirements. The plan sheet is showing that with the stacked parking, there will be 86 vehicles stored in the 3 parking lots for the facility. The information is not clear. Will there be 344 new seats or 344 total seats with the expansion? What is the planned use of the expansion space?
3. The trip generation rates listed in Table No. 1 of the John Collins Engineers, P.C. Traffic Impact Assessment does not match the trip rates identified in the ITE Trip Generation Manual, 8th Edition for ITE Land Uses Code 560 – Church. The ITE Trip Gen Manual list trip ends by Gross Floor Area (GFA) and by number of seats. Since the GFA was not provided and 344 seats were identified, we checked the trip gen by the 344 seats. Table No. 1 and Table No. 1A list trip rates for Peak PM Peak Hour, Peak PM Church Hour, and Peak Sunday Hour. THE ITE Trip Gen Manual does not list a peak PM hour trip rate and does not list a peak PM Church hour trip rate. What is the source of those rates listed in the tables? The ITE Trip Gen Manual identifies an average trip rate of 0.61 trip per seat while the Bible Church Study (Table 1) utilizes 0.31 trips per seat. Why are the trip rates in Table 1 and Table 1A different?
4. Where is the source of the 2 percent annual growth rate?
5. There is no mention of what happens if the church has more than 344 guest? Will standing room only condition be prohibited. What is the fire code max occupancy limit for the expanded facility? Item 8 of the TIA letter mentions a “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.” That statement needs further explanation.
6. Table no. 1A in the report that is not referenced. Please clarify the trip rate and trips listed on Table No. 1A.
7. Item 7 of the TIA letter mentions the proposed improvements at the Sagamore Avenue and Mohegan Avenue intersection includes a vegetative clearing, and stop sign control. The report does not state which approach should be posted with a stop sign. It is also mentioned that “it would be appropriate to provide ‘All Way Stop’ control at the intersection” but the TIA does not provide any support and guidance in the installation of an All Way Stop. (MUTCD Section 2B.07 - Multi-Way Stop Applications). The capacity analysis of the intersection was performed with side street stop condition. No analysis of an All Way Stop control was provided.

Applicant's Response

Site Design Consultants

Civil Engineers • Land Planners

February 15, 2013

Mr. John Tegeder, R.A.
Director of Planning
Planning Department
1974 Commerce Street
Yorktown Heights, NY 10598

Re: Faith Bible Church
3500 Mohegan Avenue
Mohegan Lake

Dear John:

We are writing to address the comments submitted to the Town and John Collins Engineers, PC, from Ray Dominguez, Traffic Consultant for the Town of Yorktown, as delivered in an email dated January 22, 2013.

Overflow Parking Plan:

1. The parking provided is standard 8.5' x 18.5' parking. It should be noted that 2' of the 18.5' length overhangs the curb line. Therefore you have 16.5 feet of delineated parking space, the curb, and the 2' overhang. Please see the dimensions on the Site Plan. This is an acceptable practice previously employed in the Town Code.

Grading and Utility Plan:

2. Spot grades have been provided.
3. This has been adjusted to meet the requirement.
4. The east parking and the off-site parking lot have been modified to properly reflect the grade requirements of the Code. It should be noted that the westerly parking lot as is the off-site parking lot are existing parking lots and we have continued to maintain the existing grades.
5. The grade has been adjusted to meet the 5% requirement.
6. The ADA accessible spaces on the east parking meet the required grades. The accessible spots in the west parking lot do not, but as stated, these grades are existing.
7. The accessible path to the accessible parking in the west parking lot are existing grades.

Site Plan:

8. We will provide further study of this issue and if it can be provided, we will do so; or we will provide justification as to why this would not be possible.
9. Noted.
10. All adjoining properties are the same as the subject site.
11. Architectural plans have been submitted with the dimensions.

251-F Underhill Avenue • Yorktown Heights, New York 10598
60 Walnut Grove Road • Ridgefield, Connecticut 06877
(914) 962-4488 (203) 431-9504 Fax (914) 962-7386

Enclosed please find twelve copies of the following items for the above referenced project for distribution for the February 25, 2013 Planning Board Meeting:

- Traffic Study prepared by Maser Consulting P.A. (joined by John Collins Engineers, P.E.), dated February 14, 2013;
- Twelve copies of the revised plan sheets, "Sheet 1 of 10 - Site Plan," and "Sheet 4 of 10 - Grading Plan," dated 6/4/09 last revised 2/15/13 from the plan set titled "Proposed Site Plan Prepared for Faith Bible Church;"

Should you require additional information, please do not hesitate to contact me.

Yours Truly,

Joseph C. Riina, P.E.

JCR/cm/Enc./sdc 0644

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February 14, 2013

VIA E-MAIL

Mr. John Tegeder, R.A.
Director of Planning
Town of Yorktown
1974 Commerce Street, Room 222
Yorktown Heights, NY 10598

Re: Faith Bible Church
Yorktown, New York
MC Project No. 12100087A

Dear Mr. Tegeder:

We have received comments on the Traffic Impact Assessment for the proposed Faith Bible Church, which are contained in an email dated January 15, 2013 from the Town's Traffic Consultant Ray Dominguez of Jacobs. The following are our responses to each of his specific comments.

1. The project is an expansion and renovation. Is credit being taken for the existing facility and use? What is the existing number of seats and the additional number of seats added with the expansion?

   Response:
   Credit has not been taken in the traffic analysis for the existing facility and uses. The existing facility consists of approximately 200 seats. We will provide an exact number of existing seats when we receive the information from the Faith Bible Church.

2. The study mentions 344 seats will require 86 parking spaces based on 1 parking space per 4 seat or pew space requirements. The plan sheet is showing that with the stacked parking, there will be 86 vehicles stored in the 3 parking lots for the facility. The information is not clear. Will there be 344 new seats or 344 total seats with the expansion? What is the planned use of the expansion space?

Response:
The renovation/expansion will result in a total of 344 seats in the church. The expansion space is planned to be used for additional seating for church services as well as other relate uses such as Bible Study Worship and Youth Night.

3. The trip generation rates listed in Table No. 1 of the John Collins Engineers, P.C. Traffic Impact Assessment does not match the trip rates identified in the ITE Trip Generation Manual, 8th Edition for ITE Land Uses Code 560 – Church. The ITE Trip Gen Manual list trip ends by Gross Floor Area (GFA) and by number of seats. Since the GFA was not provided and 344 seats was identified, we checked the trip gen by the 344 seats. Table No. 1 and Table No. 1A list trip rates for Peak PM Peak Hour, Peak PM Church Hour, and Peak Sunday Hour. The ITE Trip Gen Manual does not list a peak PM hour trip rate and does not list a peak PM Church hour trip rate. What is the source of those rates listed in the tables? The ITE Trip Gen Manual identifies an average trip rate of 0.61 trip per seat while the Bible Church Study (Table 1) utilizes 0.31 trips per seat. Why are the trip rates in Table 1 and Table 1A different?

Response:
The trips rates used for the Peak PM Hour were based on data for ITE Land Use Code 650 for the PM Peak Hour of Generator per 1,000 sq. ft. of GFA using the fitted curve equation. Although the GFA for the site was not provided, it was measured from the site plan to perform this calculation. The GFA of the proposed church is approximately 8,500 sq. ft. The trip rates used for the Peak PM Church Hour were based on a combination of the existing traffic count data collected by our office as well as data provided by Faith Bible Church on their weekly activities and the number of people expected to attend. As shown in the table contained at the end of the report the two largest evening activities are the Bible Study Worship, which occurs on Wednesday evenings and the Youth Night, which occurs on Friday evenings. The trip generation rates used for the Peak PM Church Hour account for existing attendance of these activities as well as any potential future growth in attendance. Finally, the trip rates for the Peak Sunday Hour were based on ITE Land Use Code 560 for the Peak Hour of Generator on a Sunder per seat using the average rate of 0.61 seats per 1,000 sq. ft. Note copies of the appropriate pages from the Institute of Transportation Engineers publication "Trip Generation" 8th Edition, 2008 are attached for reference.

4. Where is the source of the 2 percent annual growth rate?

Response:
Historical traffic volume information available from NYSDOT in their "Traffic Volume Report" dated 2011 (see attached) indicates that traffic volumes along U.S. Route 6 in the vicinity of Mohegan Avenue were estimated to grow by approximately 0.30% per year between 2009 and 2011. Therefore, that we used a

conservative growth rate of 2.0% per year to project the existing traffic volumes to the 2015 Design Year. This growth factor was used to account for normal background traffic growth in the study area as well as traffic associated with any other potential developments in the area.

5. There is no mention of what happens if the church has more than 344 guests? Will standing room only condition be prohibited. What is the fire code max occupancy limit for the expanded facility? Item 8 of the TIA letter mentions a "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." That statement need further explanation.

   Response:
   Information on the fire code maximum occupancy limit for the renovated church will be provided by the church. However as previously noted in the Traffic Impact Assessment there is a remote parking area Lake Mohegan that the church uses for special occasions and would be continued in the future using a shuttle to get congregants to and from this parking area.

6. Table no. 1A in the report that is not referenced. Please clarify the trip rate and trips listed on Table No. 1A.

   Response:
   Table No. 1A shows the trip generation estimates for a 252 seat church. This is the maximum number of seats that could be accommodated if the stacked parking plan were not approved by the Town. The trip generation rates used in this table are based on the same data used in Table No. 1 as discussed in the Response 3 above. Note, that since the Peak PM Church Hour trip generation rates are dependent on special evening activities, the same trip generation estimates were assumed as the for the 344 seat church.

7. Item 7 of the TIA letter mentions the proposed improvements at the Sagamore Avenue and Mohegan Avenue intersection includes a vegetative clearing, and stop sign control. The report does not state which approach should be posted with a stop sign. It is also mentioned that "it would be appropriate to provide 'All Way Stop' control at the intersection" but the TIA does not provide any support and guidance in the installation of an All Way Stop. (MUTCD Section 2B.07 - Multi-Way Stop Applications). The capacity analysis of the intersection was performed with side street stop condition. No analysis of an All Way Stop control was provided.

   Response:
   At a minimum a "stop" sign should be posted on the Sagamore Avenue approach. The recommended the "All-way Stop" control is appropriate since the volumes on each of the approaches to the intersection are approximately equal as required my MUTCD Section 2B.07 – 01. The "All-way Stop" control it also appears appropriate

to better accommodate alignment of the intersection. The decision to make this intersection an "All-way Stop" controlled intersection will be made by the Town. The analysis of the intersection under "All-way Stop" control, which was contained in Appendix "C" of the report, is attached. The results indicate that the intersection can be expected to operate at a Level of Service "A" during each of the peak hours.

Very truly yours,

MASER CONSULTING P.A.

Philip J. Grealy, Ph.D., P.E.
Principal Assocaite/Department Manager

PJG/rgd
Enclosures
cc: J. Riina [w/ enclosures]
R. Domiguez [w/ enclosures]
C. Zottoli [w/ enclosures]

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FAITH BIBLE CHURCH

ITE TRIP GENERATION REFERNCE SHEETS

TRIP GENERATION

An ITE Informational Report

8th Edition • Volume 3 of 3

Trip Generation Rates, Plots and Equations

- Institutional (Land Uses 500 - 599)
- Medical (Land Uses 600 - 699)
- Office (Land Uses 700 - 799)
- Retail (Land Uses 800 - 899)
- Services (Land Uses 900 - 999)

Institute of Transportation Engineers

Land Use: 560
Church

Description

A church is a building in which public worship services are held. A church houses an assembly hall or sanctuary; it may also house meeting rooms, classrooms and, occasionally, dining, catering, or party facilities. Synagogue (Land Use 561) is a related use.

Additional Data

Worship services are typically held on Sundays.

Some of the surveyed churches offered day care or extended care programs during the week.

Peak hours of the generator—

The weekday a.m. peak hour varied between 10:00 a.m. and 12:00 p.m. The weekday p.m. peak hour varied between 7:00 p.m. and 11:00 p.m. The Saturday peak hour varied between 5:00 p.m. and 8:00 p.m. The Sunday peak hour varied between 9:00 a.m. and 1:00 p.m.

The sites were surveyed between the late 1970s and the 2000s throughout the United States.

Source Numbers

90, 120, 169, 170, 423, 428, 436, 554, 571, 583, 629, 631

Church
(560)

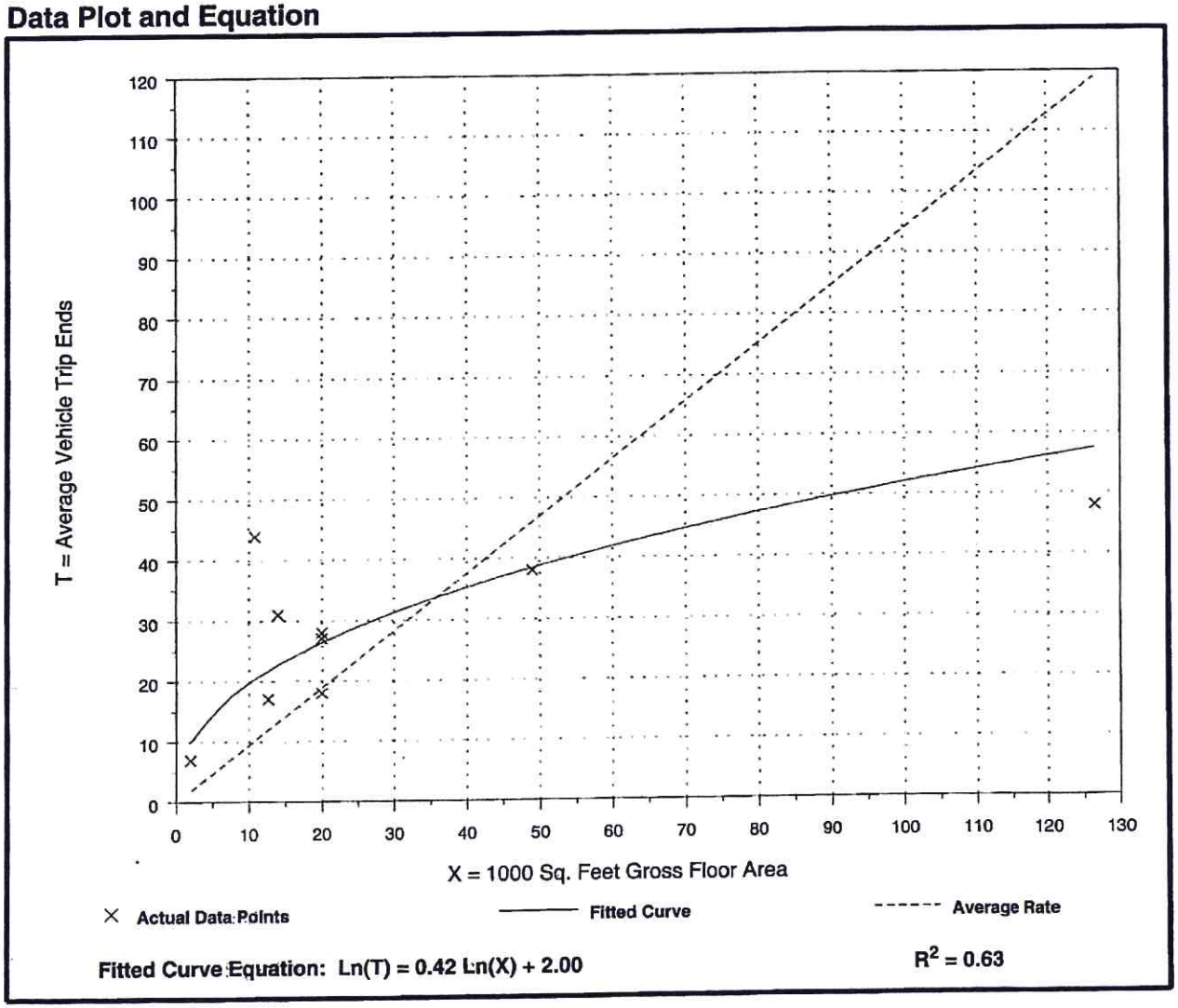
Average Vehicle Trip Ends vs: **1000 Sq. Feet Gross Floor Area**
On a: **Weekday,**
P.M. Peak Hour of Generator

Number of Studies: 9
Average 1000 Sq. Feet GFA: 31
Directional Distribution: 54% entering, 46% exiting

Trip Generation per 1000 Sq. Feet Gross Floor Area

Average Rate	Range of Rates	Standard Deviation
0.94	0.38 - 4.04	1.26

Data Plot and Equation



Fitted Curve Equation: $Ln(T) = 0.42\ Ln(X) + 2.00$

$R^2 = 0.63$

Church
(560)

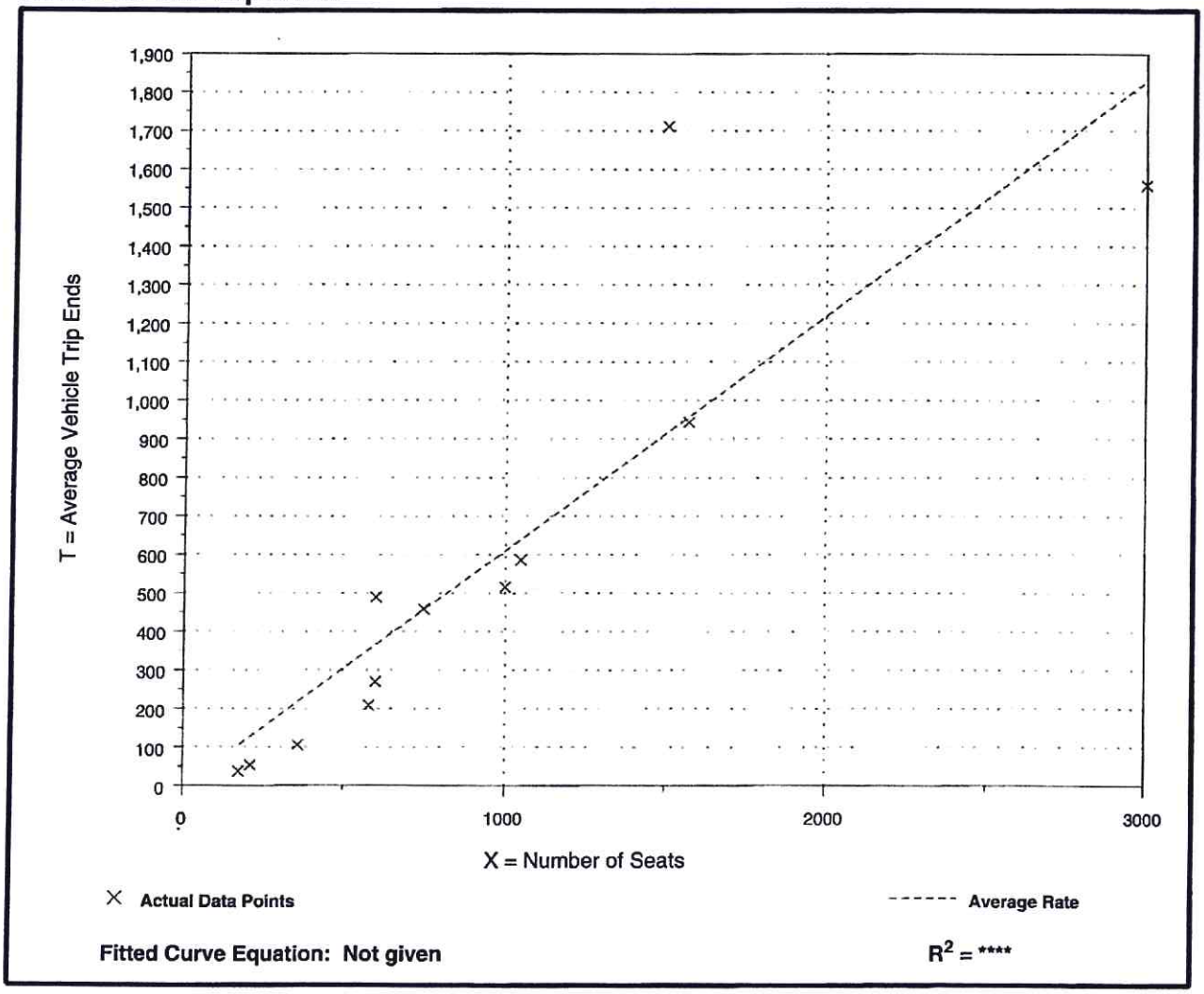
Average Vehicle Trip Ends vs: **Seats**
On a: **Sunday,**
Peak Hour of Generator

Number of Studies: 12
Average Number of Seats: 950
Directional Distribution: 51% entering, 49% exiting

Trip Generation per Seat

Average Rate	Range of Rates	Standard Deviation
0.61	0.21 - 1.14	0.81

Data Plot and Equation



Fitted Curve Equation: Not given

R^2 = ****

FAITH BIBLE CHURCH

NYSDOT HISTORICAL TRAFFIC DATA

2011
TRAFFIC DATA REPORT FOR NEW YORK STATE

New York State
Department of Transportation

New York State Department cof Transportation
Traffic Volume Report

County Order	End Mile Point	Count LOC Reference Marker	Section Length	Section End Description	LATEST COUNT EST AADT	YR	PREVIOUS COUNTS EST AADT	YR	EST AADT	YR	EST AADT	YR	Count Station Number	YR
		Route	**US6**	**County 071 ORANGE**	**Region**	**08**								
1	07.57	6 83011023	05.25	CR 1 PINE IS TPK	3100	**	3080	08	2880	05	2560	02	0015	
1	11.54	6 83012053	03.97	CR 22 S CENTERVILLE RD	3130	11	3410	08	2750	05	2690	02	0083	
1	14.25	6 83012093	02.71	RT 284 SLATE HILL	5730	11	6150	08	4800	06	4920	05	0016	
1	17.76	6 83012121	03.51	START RT 17M OLAP	9470	**	9470	09	10580	06	9090	02	0017	
1	18.14	6 83012156	00.38	ACC RT 84I	30260	11	32970	08	27150	99			0018	
1	19.45	6 83012159	01.31	CR 12 LOWER RD	21600	**	21600	09	21070	00	23310	98	0054	
1	22.92	6 83012173	03.47	START RT 17 OLAP GOSHEN	18960	**	18960	10	22760	07	17820	03	0019	
1	23.31	6 83012206	00.39	RTS 207 & 17A	64540	**	53780	97					0009	
1	23.89	17 83101128	00.58	END RT 17M OLAP GOSHEN	55250	**	47750	00	45800	97			0010	
1	27.38	17 83101137	03.49	RTS 94 & 17M CHESTER	61610	**	54590	02	47540	99			0011	
1	29.21	17 83101167	01.83	ACC RT 17M CHESTER	51530	**	43990	99					0004	
1	32.71	17 83101186	03.50	RT 208 MONROE	57020	11	57580	10	58830	09	56700	08	0002	CC
1	35.67	17 83101222	02.96	END OLAP RT 17	44220	**	41830	07					0025	
1	36.26	6 83012335	00.59	NY32 CONNECTOR	17940	11	16880	08	13570	98			0097	
1	39.31	6 83012341	03.05	RT 293 START LMP OLAP	26610	**	26470	09	27080	05	19500	00	0027	
1	43.04	6 83012372	03.73	START SEVEN LK PKY OLP RT 987E	24120	11	25110	07	25310	04	19000	01	0905	
1	43.37	6 83012405	00.33	START RT 987C PIP OLAP	6150	**	6090	09	6170	06	5900	03	0028	
1	43.57	987C83021012	00.20	END SEVEN LK PKY OLAP RT 987E	18620	11	16580	08	18870	05	15520	99	0072	
1	45.77	987C83021013	02.20	RT 9W END 987C PIP START RT 202 OLAPS	29670	**	29090	07	20480	04	15460	01	0029	
1	46.33	987C83021032	00.56	ROCKLAND CO LINE	18290	11	19160	09	17640	06	17400	05	0067	
		Route	**US6**	**County 087 ROCKLAND**	**Region**	**08**								
2	00.25	6 83012436	00.25	WESTCHESTER CO LINE	18290	11	19160	09	17640	06	17400	05	0009	
		Route	**US6**	**County 119 WESTCHESTER**	**Region**	**08**								
3	00.24	6 85021002	00.24	RT 9D	18290	11	17640	06	17400	05	19150	04	0501	
3	03.41	6 87031002	03.17	START RT 9 OLAP	13280	**	13200	09	13390	06	12710	03	0031	
3	03.53	6 87031038	00.12	PEEKSKILL N CITY LN BMP	26770	11	25780	08	23440	00	22630	97	0099	
3	04.14	6 87031039	00.61	END RT 9 OLAP - START RT 35 OLAP	39080	**	33360	99					0032	
3	04.99	6 87032007	00.85	END RTS 35 & 202 OLAPS	7010	**	6990	10	8230	06	8660	04	0033	
3	06.41	6 87032015	01.42	PEEKSKILL E CITY LN	12130	**	12100	10	19170	09	13770	06	0034	
3	06.67	6 87032029	00.26	RT 987H BEAR MOUNTAIN PKWY	26820	**	26670	09	19910	06	20590	03	0035	
3	08.98	6 87033003	02.31	MOHEGAN AVE	22590	**	22460	09	17330	06	18380	03	0123	
3	10.91	6 87033026	01.93	RT 132 SHRUB OAK	19560	**	19450	09	17210	06	21850	99	0036	
3	11.12	6 87033046	00.21	ACC TACONIC STATE PKWY 987G	30420	11	28970	08	29560	05	32680	02	0037	
3	11.50	6 87033048	00.38	LEE BLVD	27930	11	35610	08	36670	02	34570	99	0038	
3	11.98	6 87033052	00.48	HILL BLVD	18780	11	18320	08	19520	05	17920	02	0156	
3	12.96	6 87033056	00.98	RT 6N JEFFERSON VALLEY	20280	**	20160	09	20590	03	17760	00	0157	
3	14.61	6 87033066	01.65	PUTNAM CO LINE	18340	11	19560	07	20170	04	17970	01	0102	
		Route	**US6**	**County 079 PUTNAM**	**Region**	**08**								
4	00.03	6 87033082	00.03	RT 118	18340	11	16840	07	20930	04	16020	01	0039	

MASER
CONSULTING P.A.

John Tegeder
Faith Bible Church
MC Project No.: 12100087A
Appendix

FAITH BIBLE CHURCH

ALL-WAY STOP CONTROL ANALYSIS
MOHEGAN AVENUE & SAGAMORE AVENUE

HCS+: Unsignalized Intersections Release 5.6

Phone: Fax:
E-Mail:

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

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Volume	0	0	0	83	0	66	0	49	38	48	51	0
% Thrus Left Lane												

	Eastbound		Westbound		Northbound		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		2		2	
No. Lanes			1		1		1	
Opposing-Lanes			0		1		1	
Conflicting-lanes			1		1		1	
Geometry group			1		1		1	

Duration, T 0.25 hrs.

Worksheet 3 - Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	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	-0.6	-0.6
hHV-adj	1.7	1.7	1.7
hadj, computed	-0.1	-0.2	0.1

Worksheet 4 - Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	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

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rate			167		97		110	
Service Time			2.3		2.2		2.5	
Utilization, x			0.20		0.11		0.14	
Dep. headway, hd			4.25		4.19		4.52	
Capacity			417		347		360	
Delay			8.29		7.72		8.24	
LOS			A		A		A	
Approach:								
Delay			8.29		7.72		8.24	
LOS			A		A		A	

Intersection Delay 8.13 Intersection LOS A

HCS+: Unsignalized Intersections Release 5.6

Phone: Fax:
E-Mail:

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

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Volume	0	0	0	48	0	59	0	58	26	58	84	0
% Thrus Left Lane												

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration			LR		TR		LT	
PHF			0.89		0.89		0.89	
Flow Rate			119		94		159	
% Heavy Veh			2		2		2	
No. Lanes			1		1		1	
Opposing-Lanes			0		1		1	
Conflicting-lanes			1		1		1	
Geometry group			1		1		1	

Duration, T 0.25 hrs.

Worksheet 3 - Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
	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			1		1		1	
Adjustments Exhibit 17-33:								
hLT-adj			0.2		0.2		0.2	

hRT-adj	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7
hadj, computed	-0.2	-0.2	0.1

Worksheet 4 - Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	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			2.0		2.0		2.0	
Service Time			2.3		2.2		2.4	

Worksheet 5 - Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rate			119		94		159	
Service Time			2.3		2.2		2.4	
Utilization, x			0.14		0.11		0.19	
Dep. headway, hd			4.26		4.20		4.39	
Capacity			369		344		409	
Delay			7.96		7.71		8.44	
LOS			A		A		A	
Approach:								
Delay			7.96		7.71		8.44	
LOS			A		A		A	

Intersection Delay 8.10 Intersection LOS A

HCS+: Unsignalized Intersections Release 5.6

Phone: Fax:
E-Mail:

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

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Volume	0	0	0	43	0	108	0	22	29	107	41	0
% Thrus Left Lane												

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration			LR		TR		LT	
PHF			0.89		0.89		0.89	
Flow Rate			169		56		166	
% Heavy Veh			2		2		2	
No. Lanes			1		1		1	
Opposing-Lanes			0		1		1	
Conflicting-lanes			1		1		1	
Geometry group			1		1		1	

Duration, T 0.25 hrs.

Worksheet 3 - Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
	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			1		1		1	
Adjustments Exhibit 17-33:								
hLT-adj			0.2		0.2		0.2	

hRT-adj	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7
hadj, computed	-0.3	-0.3	0.2

Worksheet 4 - Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	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

	Eastbound		Westbound		Northbound		Southbound	
	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			8.04		7.44		8.70	
LOS			A		A		A	

Intersection Delay 8.23 Intersection LOS A