94th & Shea LLC

TO: Tim Curtis, COS

FROM: John Rosso

DATE: October 12, 2006

RE: 94 HUNDRED SHEA
Amendment to circulation stips of Case 11-ZN-2002

no fire code issues PCS 10/31/06

This letter is our formal request to allow reconfiguration of the partial median break approved in Case 11-ZN-2002 to accommodate left-in and left-out partial median break access at our retail/office project's single entry on Shea Boulevard.

Background

The 94 HUNDRED SHEA project is currently under construction and received City Council rezoning approval in November 2002 for the development of a 70,000 SF retail and office project. Access to Shea Boulevard was restricted to a single entry with a left-in only partial median break at the Becker Lane alignment. Meaningful access to this project was a paramount concern throughout the zoning process and events since the rezoning have now made meaningful access an even greater issue for the viability of the project.

The 7-acre retail and office project is bounded on the west by the Mercado Del Rancho shopping center (Sprout's is the anchor), on the east by the Caremark 40-acre corporate campus (formerly PCS and Sentry Insurance), on the south by a 3-acre parcel for the Phase 2 office expansion, and further south by the Ironwood Square office condominium project. As part of the original rezoning, staff supported a site access plan that allowed a "restricted driveway on Shea Boulevard (right-in, right-out, and left-in turning movements only), cross-access to the adjacent Mercado Del Rancho Center, and connections to the other office properties to the south." Access to the adjoining Mercado shopping center was seen as a way to allow our project traffic intending to proceed westbound on Shea to access the Mercado's full median break (on the 93rd Street alignment) and/or traversing though the shopping center to access the 92nd Street/Shea signalized intersection. Access through the southern office parcels was also seen as a "secondary" entryway to the project. However, both access alternatives have failed to materialize as originally envisioned.

Although we have granted access easements to the Mercado Del Rancho project to utilize our east-west driveway that intersects our single driveway onto Shea, the Mercado ownership has declined to provide reciprocal access through any portion of their site.

Furthermore, the circulation plan intended to provide secondary access through the southern office developments was modified with the development of those properties so that access is now via a less direct route through parking lots rather than directly to streets or roadways. Nonetheless, this diminished southern access might actually provide the Phase 2 office employees a reasonable alternative access but will definitely not be a viable route for customers especially those customers of the retail portion of the project which fronts on Shea Boulevard.

8300 N. Hayden Road, Suite 207 Scottsdale, Arizona 85258 tel 480.451.0248 fax 480.314.7471

The project is now dependent solely upon Shea Boulevard for meaningful access. With the unavailability of the Mercado access, we began discussing with staff almost two years ago alternatives to resolve the resultant access problem. We offered the idea of swapping intersections - converting the Mercado full-median break (which is one-eighth of a mile from the 92nd Street intersection) to a left-in only partial median break and our partial-median break (which is one-quarter mile form both 92nd and 96th Street signals) to a full-median break. Staff suggested a "porkchop" median break (similar to those at 100th Street, 104th Street, 110th Street, etc.) that would allow left-ins and left-outs. We then believed that perhaps the best option to pursue was a fully signalized intersection.

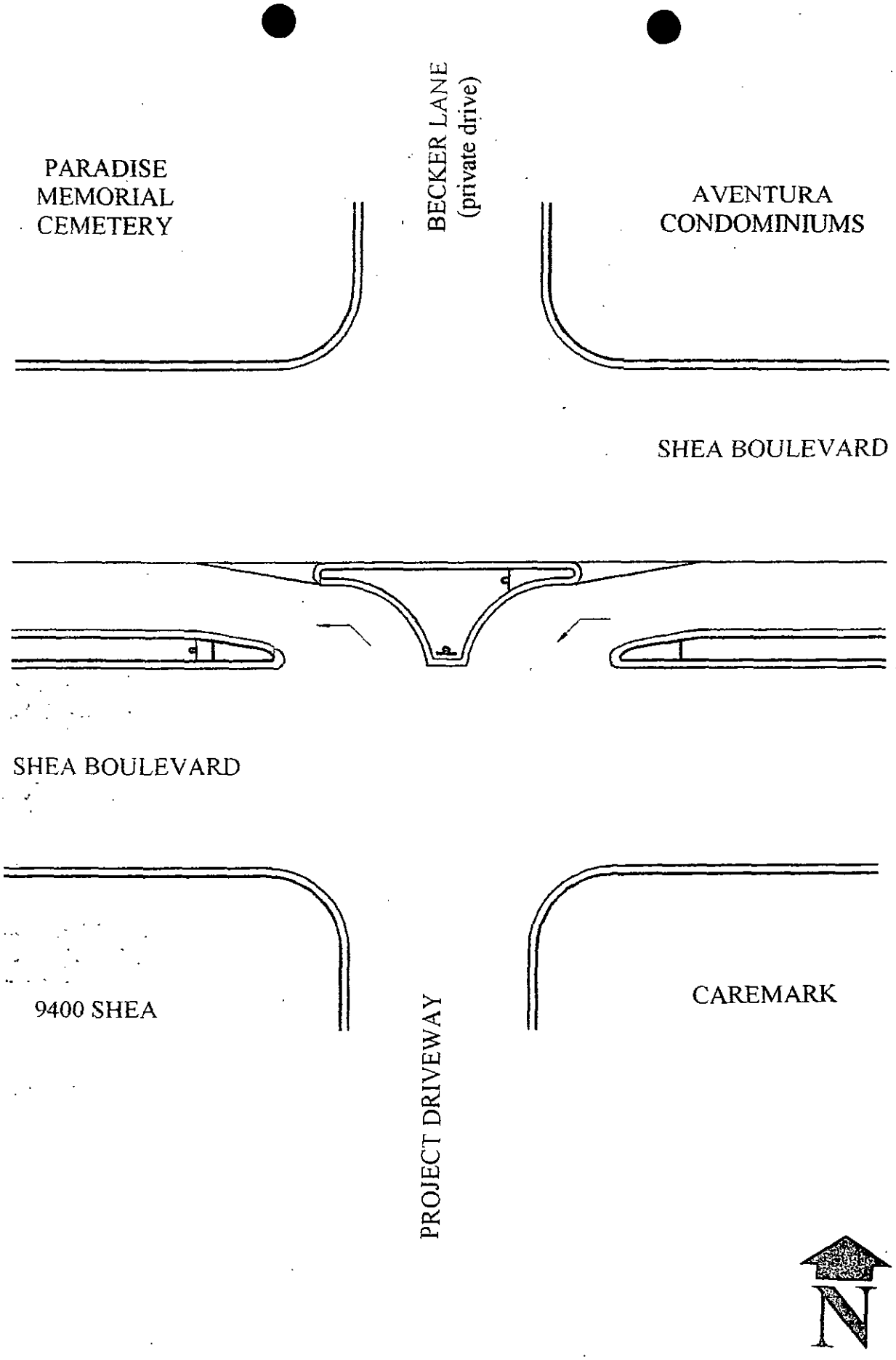
Accordingly, we met again with Transportation staff and subsequently with City Council members in the summer of 2005 about the signalized intersection alternative and then embarked on a traffic study to analyze that option. Unexpectedly, traffic counts completed by our consultant indicated that the Mercado full-median break was operating at a level beyond expectations by allowing a greater number of left-outs during the PM Peak thereby indicating that a full-median break would operate just as effectively at our entry - without signalization. We proceeded in that direction and the results supporting a full-median break are contained in a traffic study which has been previously reviewed by Transportation staff.

In follow-up discussions with City Transportation staff and our traffic consultant, we determined that the project might be better served with not a full median break but the "porkchop" left-in/left-out partial median break originally suggested by City staff. The left-in/left-out median break would eliminate competing turning movements to and from the Becker Lane on the north side of Shea as well as providing a refuge lane for vehicles turning left out of our project (as currently exists on all the other partial median breaks on east Shea). We then met with the Board of Directors of the Aventura condominiums through which Becker Lane (a private roadway) traverses and which under the current zoning stipulations would have left-in access from Shea. The HOA Board is in support of our "porkchop" partial median proposal. More importantly to them, the HOA is not in favor of the currently approved partial median break that would result in left-in traffic to Becker Lane.

Summary

The site is a "remainder" infill parcel between the Mercado del Rancho shopping center and the Caremark corporate campus and has always been planned for commercial use. However, cross-access and/or shared driveways to Shea Boulevard were not provided with the approval and the development of the adjoining properties which has impeded the development of the property for years as either office, retail or the combination proposed with this project. The necessity of full access to Shea Boulevard for this project was recognized by the zoning stipulation requiring us to provide cross-access to the Mercado project in order to provide left-out access to Shea and avoid making U-turns at 96th Street. With the inability to obtain cross-access from the Mercado center, the only viable left-out access alternative is at the project's sole driveway to Shea.

The access implications on the project's success or lack thereof are not theoretical. Three prospective retail tenants have already conditioned their lease agreements based upon left-turn access into **and out of** the project. Failure to obtain this left-out access would force exiting drivers wanting to go west on Shea to instead turn right onto Shea, proceed a quarter mile east to the 96th Street signal, make a U-turn at the signal, and then proceed back a quarter mile to the point of beginning. We do not believe that this is reasonable, safe or viable alternative. We believe that the proposed left-in/left-out "porkchop" partial median break benefits all stakeholders - our project gets the access that we need, the Aventura condominiums maintain the access they have and want, and the City gets a successful high quality retail/office project with the least potential traffic impact of any of the other access options.



11-ZN-2002#2
10-12-06

Galav, Lusia

From: AZSKYMAN@aol.com
Sent: Tuesday, November 28, 2006 7:05 AM
To: Galav, Lusia
Subject: 94 Shea Traffic Issue

Good morning,

There are all kinds of complicated commercial ingress and egress issues along Shea Blvd, especially between Via Linda and Hayden, and across the 101. Perhaps we can keep it on expedited, but I'd like a better explanation as to the issues of obtaining cross access to the existing entrance and exit on the NE corner of Shea/92nd.

Thanks. I will see you on Wednesday.

Steve

November 13, 2006

Assistant Superintendent for Support Services
Scottsdale Unified School District # 48
3811 North 44th Street
Phoenix, Arizona 85018

Re: **11-ZN-2002#2, 16-AB-2006 & 22-AB-2006**

To Whom It May Concern:

This notice calls your attention to the fact that there has been a request for City of Scottsdale Planning Commission and City Council action on property located within or near your school district's boundaries.

Please feel free to call the Project Coordinator if you have any questions or comments.

Thank you.

Sincerely,

Doris McClay
Planning Assistant
Scottsdale Planning Commission

one enclosure

NOTICE OF PLANNING COMMISSION HEARING

NOTICE IS HEREBY GIVEN that the Planning Commission of the City of Scottsdale, Arizona, will hold a public hearing on November 29, 2006, at 5:00 P.M in the City Hall Kiva, 3939 N. Drinkwater Boulevard, Scottsdale, Arizona, for the purpose of hearing all persons who wish to comment on the following:

11-ZN-2002#2 (94 Hundred Shea) request by owner to amend the existing circulation stipulations for case 11-ZN-2002 including, but not limited, to access on Shea Boulevard on a 7 +/- acre parcel located at 9325 - 9397 E. Shea Boulevard with Highway Commercial District, Planned Community District (C-3 PCD) zoning. Staff contact person is Tim Curtis, AICP, 480-312-4210. **Applicant contact person is Mike Leary, 480-991-1111.**

13-AB-2006 (Atalon) request by owner to abandon the right-of-way, roadway easements and public utility easements on Parcel 16 and Parcel 17 located at 11753 E. Pinnacle Vista Drive. Staff contact person is Greg Williams, 480-312-4205. **Applicant contact person is Brad Gruver, 480-502-4870.**

16-AB-2006 (Windmill Plaza Revitalization) request by owner to abandon a portion of the alley north of E. Gold Dust Avenue to allow redevelopment of the site located at 10207 N. Scottsdale Road. Staff contact person is Tim Curtis, AICP, 480-312-4210. **Applicant contact person is Lynne Lagarde, 602-265-0094.**

22-AB-2006 (Eckholm Residence) request by owner to abandon the General Land Office (GLO) easement on the north side of the property located at 10550 E Sunnyside Drive. Staff contact person is Henry Epstein, 480-312-7976. **Applicant contact person is Dennis G Eckholm, 480-922-0015.**

The above items may be discussed at a Study Session prior to the Planning Commission meeting including a Commission update. The public/applicant may attend the study session but may not comment. Please call 480-312-7000 the day before the meeting for the time.

The Council hearing date will be continued when the Planning Commission has not given a recommendation.

A case file on the subject properties is on file at 7447 E. Indian School Road, Suite 105, where it may be viewed by any interested person.

A COPY OF A FULL AGENDA, INCLUDING ITEMS CONTINUED FROM PREVIOUS MEETINGS IS AVAILABLE AT LEAST 24 HOURS PRIOR TO THE MEETING AT THE FOLLOWING LOCATIONS:

Police Department, 9065 East Via Linda
City Hall, 3939 N. Drinkwater Boulevard
El Dorado Park & Recreation Center, 2311 N. Miller Road

Online at: http://www.ScottsdaleAZ.gov/Boards/PC

ALL INTERESTED PARTIES ARE INVITED TO ATTEND.

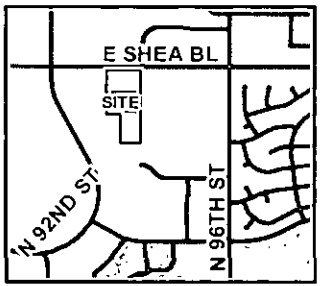
CHAIRMAN
PLANNING COMMISSION

Attest
Doris McClay
Planning Assistant

For additional information click on the link to 'Projects in the Public Hearing Process' at: http://www.ScottsdaleAZ.gov/projects.

 Persons with a disability may request a reasonable accommodation such as a sign language interpreter, by contacting the City Clerk's Office at 480-312-2412. Requests should be made as early as possible to allow time to arrange accommodation.

PROJECT UNDER CONSIDERATION



Dear Property Owner:

This is to inform you of a request for approval to amend the existing circulation stipulations for case 11-ZN-2002 including, but not limited to access to Shea Boulevard on a 7 +/- acre parcel with Highway Commercial District, Planned Community District (C-3 PCD) zoning.

Staff contact: **Tim Curtis, AICP, 480-312-4210**

Applicant contact: Mike Leary, 480-991-1111

For more information, e-mail projectinput@scottsdaleaz.gov, call 480-312-7000, or enter the case number at:

http://eservices.scottsdaleaz.gov/cases/

Site Location:
9325-9397 E Shea Blvd

Case Name:
94 Hundred Shea

Case Number:
11-ZN-2002#2

Public comment regarding this case will be heard at the City Council hearing listed below. Please call 480-312-7000 to confirm the date and time of the hearing.

Hearing Date: January 16, 2007 @ 5:00 P.M.

Location: City Hall Kiva, 3939 N. Drinkwater Blvd

The case file may be viewed at Planning and Development Services, 7447 E Indian School Road, Suite 105

1413722-2563

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Doris McClay
City of Scottsdale
7447 E Indian School Rd # 105
Scottsdale , AZ 85251-3922

Kimley-Horn
and Associates, Inc.

March 21, 2006

Suite 300
7878 N. 16th Street
Phoenix, Arizona
85020

Mr. John Rosso
94th & Shea, LLC
8300 N. Hayden Road
Suite 207
Scottsdale, AZ 85258

Re: 9400 Shea Access Study

Dear Mr. Rosso:

This letter outlines our findings regarding the full median access proposed for the retail/office development located at 9400 East Shea Boulevard in Scottsdale, Arizona. The specific objectives of this letter report are:

- To evaluate different access configurations for the proposed median opening and the existing median opening located west of the site, referred to in this analysis as the "adjacent median opening". The following scenarios will be evaluated:
  - Scenario A (base condition) - the proposed median opening limited to left-turn in only movements with the adjacent median opening remaining as a full access opening;
  - Scenario B (proposed) - the proposed median opening allowing full access with the adjacent median opening remaining as a full access opening; and
  - Scenario C (alternate) - the proposed median opening allowing full access with the adjacent median opening limited to left-turn in only movements.
- To report levels-of-service (LOS) and delay at each study area intersection / driveway.

The projected levels of service associated with each scenario were compared. From a capacity analysis standpoint, there is no significant advantage in one configuration over another. The three scenarios were found to operate at similar levels of service. From an operational standpoint, a full access median opening at the proposed driveway would be advantageous because the number of U-turns at the intersection of 96th Street and Shea Boulevard would be reduced by approximately 30 percent.

Study Area

The site is currently vacant but the surrounding land is developed. The Paradise Memorial Gardens cemetery is located north of the site, the Caremark office complex is located east of the site, and the Mercado del Rancho shopping center is located west of the site.

TEL 602 944 5500
FAX 602 944 7423

The study area intersections include 92nd Street/Shea Boulevard and 96th Street/Shea Boulevard. The study area also includes analysis of the adjacent median opening and the proposed median opening.

The adjacent median opening allows full access to the Mercado del Rancho development as well as to the cemetery and is located one-eighth of a mile (660 feet) east of the intersection of 92nd Street and Shea Boulevard.

The proposed median opening would align with Becker Lane and is located one-eight of a mile (660 feet) east of the adjacent median opening and one-fourth of a mile west of the intersection of 96th Street and Shea Boulevard.

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Existing Conditions

Turning movement counts were collected at the intersections of 92nd Street and Shea Boulevard and 96th Street and Shea Boulevard on Wednesday, December 7th, 2005, and Thursday, December 8th, 2005, respectively. These counts were performed between 7:00 AM and 9:00 AM and between 4:00 PM and 6:00 PM to obtain peak hour counts.

Turning movement counts were collected at the adjacent median opening on Wednesday, December 14th, 2005, between the hours of 3:00 PM and 7:00 PM, to obtain peak and off-peak hour counts. The results of the traffic counts are shown in **Figure 1** and a copy of the traffic counts are attached for reference.

The LOS for the existing study area intersections were evaluated using the *2000 Highway Capacity Manual* methodology for unsignalized and signalized intersections. The results of the capacity analysis for the existing intersections are shown in **Tables 1** and the calculations are attached.

The turning movement counts were evaluated to determine which time period would have the most value in this analysis. Upon review of the total vehicular volumes counted at the adjacent median opening between the hours of 3:00 PM and 7:00 PM, it was noted that the PM peak hour experienced higher volumes; therefore, all analysis in this report is presented for the PM peak hour.

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Table 1 – Full Access Turning Movement Percentages

	EXISTING	APPROACH											
		NB			SB			EB			WB		
		L	T	R	L	T	R	L	T	R	L	T	R
92nd Street & Shea Blvd	LOS	D	D		D	C		F	F		B	D	
	Approach	D			C			F			D		
	Intersection	F											
	Delay (sec/veh)	35.6	39.3		43.5	27.7		261.8	137.6		13.3	45.1	
	Approach	38.1			32.4			156.5			44.2		
	Intersection	84.0											
96th Street & Shea Blvd	LOS	C	D	A	C	D	B	D	C		B	C	A
	Approach	C			C			C			C		
	Intersection	C											
	Delay (sec/veh)	32.7	36.8	7.6	28.0	40.0	12.2	39.1	29.8		10.1	22.1	4.0
	Approach	27.5			28.4			30.5			21.2		
	Intersection	26.7											
Adjacent Site (Full Access)	LOS	F	D		F	B		C	A	A	D	A	A
	Approach	F			E			A			A		
	Intersection	A											
	Delay (sec/veh)	352.0	28.8		184.5	12.9		15.1	0.0	0.0	25.8	0.0	0.0
	Approach	74.8			41.5			0.1			1.1		
	Intersection	4.5											

Trip Generation

The trip generation and distribution for the site is referenced from the *SWC 94th Street and Shea Boulevard TIA*, prepared by Kirkham Michael (KM) in April of 2002. Copies of the referenced pages are included with this letter.

The proposed development is expected to generate 2,945 daily trips, with 182 trips occurring in the AM peak hour and 319 trips occurring in the PM peak hour.

Distribution and Assignment

The new trips were assigned to the roadway network on the basis of trip distribution percentages and the likely travel patterns to and from the site. Trip distribution percentages were obtained from the *SWC 94th Street & Shea Boulevard Traffic Impact Analysis*, prepared by Kirkham Michael Consulting Engineers in April of 2002. Daily trips were distributed based on the Maricopa Association of Governments' (MAG) estimate of total population within an 11.8-mile radius (office land uses) and a 5.64-mile radius (retail land uses) of the site and distributed over the cardinal directions. A copy of the trip distribution section is attached for reference.

For Scenarios A, B, and C, full access median opening entering and exiting turning movement percentages were assumed to remain consistent with the observed 2005 turning movement percentages. The right-in/right-out/left-in only median opening turning movement percentages were assumed to maintain the entering turning movement percentages from the observed 2005 turning movement percentages while the exiting right turns were assumed to make right-turn movements. The turning movement percentages are summarized in **Tables 2 and 3**.

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Table 2 – Full Access Turning Movement Percentages

	Left-Turn	Right-Turn
Entering	30%	70%
Exiting	15%	85%

Table 3 – Right-in/Right-out/Left-in Only Turning Movement Percentages

	Left-Turn	Right-Turn
Entering	30%	70%
Exiting	0%	100%

For Scenario A (base condition), the adjacent median opening turning movement behavior would maintain the percentages shown in **Table 2** and the proposed median opening turning movement behavior would assume the percentages shown in **Table 3**. It was assumed that 50 percent of the exiting trips from the proposed driveway will execute a U-turn movement at 96th Street to ultimately access the Loop 101 to the west, 20 percent were distributed north on 96th Street, 20 percent south on 96th Street, and 10 percent east on Shea Boulevard.

For Scenario B (proposed), the adjacent median opening turning movement behavior would maintain the percentages shown in **Table 2** and the proposed median opening turning movement behavior would assume the percentages shown in **Table 2.**

For Scenario C (alternate), the adjacent median opening turning movement behavior would assumed the percentages shown in **Table 3** and the proposed median opening turning movement behavior would assume the percentages shown in **Table 2**. The exiting left-turn movements from the 2005 turning movement counts were reassigned to alternate egress points found within the Mercado del Rancho site. In regards to the exiting right-turn movements at the adjacent median opening, it was assumed that 50 percent of these trips will execute a U-turn movement at 96th Street to ultimately access the Loop 101 to the west, 20 percent were distributed north on 96th Street, 20 percent south on 96th Street, and 10 percent east on Shea Boulevard. The turning movements for Scenarios A, B, and C are shown in **Figures 2, 3, and 4**.

Left-Turn Demand

The exiting left-turn movements at the proposed median opening shown in Scenario B were compared to the exiting left-turn movements at the adjacent median opening shown in **Figure 1**. It is observed that a similar volume of left-turn movements is expected at these two median openings upon buildout of the site.

Capacity Analysis

The LOS for the study area intersections were evaluated using the *2000 Highway Capacity Manual* methodology for unsignalized and signalized intersections. The unsignalized intersections in the study area were evaluated on the basis of the respective total traffic volumes associated with each scenario.

The results of the capacity analysis for the adjacent median opening and the proposed median opening are shown in **Tables 4, 5, and 6** and the calculations are attached.

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Table 4 – PM Peak LOS: Unsignalized Intersections

	SCENARIO A	APPROACH											
		NB			SB			EB			WB		
		L	T	R	L	T	R	L	T	R	L	T	R
Adjacent Full Access	LOS	F	D		F	B		C	A	A	D	A	A
	Approach	F			E			A			A		
	Intersection	A											
	Delay (sec/veh)	438.5	31.8		230.1	13.3		16.0	0.0	0.0	28.5	0.0	0.0
	Approach	89.6			49.4			0.1			1.1		
	Intersection	5.2											
Proposed Left-In(Only)	LOS	-	D		-	A		A	A	A	C	A	A
	Approach	D			A			A			A		
	Intersection	A											
	Delay (sec/veh)	-	29.6		-	0.0		0.0	0.0	0.0	24.6	0.0	0.0
	Approach	29.6			0.0			0.0			0.5		
	Intersection	1.6											

Table 5 – PM Peak LOS: Unsignalized Intersections

	SCENARIO B	APPROACH											
		NB			SB			EB			WB		
		L	T	R	L	T	R	L	T	R	L	T	R
Adjacent Full Access	LOS	F	D		F	B		C	A	A	D	A	A
	Approach	F			E			A			A		
	Intersection	A											
	Delay (sec/veh)	438.5	31.8		230.1	13.3		16.0	0.0	0.0	28.5	0.0	0.0
	Approach	89.6			49.4			0.1			1.1		
	Intersection	5.2											
Proposed Full Access	LOS	F	D		A	A		C	A	A	C	A	A
	Approach	F			A			A			A		
	Intersection	A											
	Delay (sec/veh)	496.0	25.6		0.0	0.0		16.9	0.0	0.0	24.6	0.0	0.0
	Approach	96.3			0.0			0.1			0.5		
	Intersection	4.8											

Table 6 – PM Peak LOS: Unsignalized Intersections

	SCENARIO C	APPROACH											
		NB			SB			EB			WB		
		L	T	R	L	T	R	L	T	R	L	T	R
Adjacent Left-In(Only)	LOS	-	D		-	B		C	A	A	D	A	A
	Approach	D			B			A			A		
	Intersection	A											
	Delay (sec/veh)	-	28.0		-	13.3		16.0	0.0	0.0	28.5	0.0	0.0
	Approach	28.0			13.3			0.1			1.1		
	Intersection	1.8											
Proposed Full Access	LOS	F	C		A	A		C	A	A	C	A	A
	Approach	F			A			A			A		
	Intersection	A											
	Delay (sec/veh)	496.0	25.6		0.0	0.0		16.9	0.0	0.0	24.6	0.0	0.0
	Approach	96.3			0.0			0.1			0.5		
	Intersection	4.8											

As shown in the previous tables, the different access configurations are not expected to significantly impact the overall operation of the unsignalized intersections.

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The signalized intersections in the study area were evaluated on the basis of the respective total traffic volumes associated with each scenario. The results of this analysis are shown in **Tables 7, 8, and 9**.

Table 7 – PM Peak LOS: Signalized Intersections

	SCENARIO A	APPROACH											
		NB			SB			EB			WB		
		L	T	R	L	T	R	L	T	R	L	T	R
92nd St. & Shea Blvd.	LOS	D	D		D	C		F	F		B	E	
	Approach	D			C			F			E		
	Intersection	F											
	Delay (sec/veh)	35.6	39.3		43.5	27.7		261.8	160.0		14.6	64.8	
	Approach	38.1			32.4			174.9			63.4		
	Intersection	97.5											
96th St. & Shea Blvd.	LOS	D	D	A	C	D	B	D	C		A	C	A
	Approach	C			C			C			C		
	Intersection	C											
	Delay (sec/veh)	36.7	39.9	7.7	29.9	42.5	12.4	42.5	25.6		9.5	22.1	4.0
	Approach	30.2			30.0			27.8			21.2		
	Intersection	25.8											

Table 8 – PM Peak LOS: Signalized Intersections

	SCENARIO B	APPROACH											
		NB			SB			EB			WB		
		L	T	R	L	T	R	L	T	R	L	T	R
92nd St. & Shea Blvd.	LOS	D	D		D	C		F	F		B	E	
	Approach	D			C			F			E		
	Intersection	F											
	Delay (sec/veh)	35.6	39.3		43.5	27.7		261.8	160.0		14.6	64.8	
	Approach	38.1			32.4			174.9			63.4		
	Intersection	97.5											
96th St. & Shea Blvd.	LOS	D	D	A	C	D	B	D	C		A	C	A
	Approach	C			C			C			B		
	Intersection	C											
	Delay (sec/veh)	36.4	39.7	7.7	29.9	42.5	12.4	43.6	26.0		9.2	20.3	3.9
	Approach	30.0			30.0			28.1			19.5		
	Intersection	25.3											

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Table 9 – PM Peak LOS: Signalized Intersections

	SCENARIO C	APPROACH											
		NB			SB			EB			WB		
		L	T	R	L	T	R	L	T	R	L	T	R
92nd St. & Shea Blvd	LOS	D	D		D	C		F	F		B	F	
	Approach	D			C			F			E		
	Intersection	F											
	Delay (sec/veh)	38.8	47.1		43.5	27.7		261.8	160.3		14.3	58.3	
	Approach	44.1			32.4			175.2			57.0		
	Intersection	96.7											
96th St. & Shea Blvd	LOS	D	D	A	C	D	B	D	C		A	C	A
	Approach	C			C			C			B		
	Intersection	C											
	Delay (sec/veh)	36.4	39.7	7.7	29.9	42.5	12.4	43.6	26.0		9.2	20.3	3.9
	Approach	30.0			30.0			28.1			19.5		
	Intersection	25.3											

As shown in the previous tables, the different access configurations are not expected to significantly impact the overall operation of the signalized intersections.

Conclusions

This letter outlines our findings regarding the proposed access patterns for the retail development located at 9400 East Shea Boulevard in Scottsdale, Arizona. Three different access scenarios, Scenarios A, B, and C, were evaluated with varying access configurations at the adjacent median opening and the proposed median opening. The projected levels of service associated with each scenario were compared. From a capacity analysis standpoint, there is no significant advantage in one configuration over another. The three scenarios were found to operate at similar levels of service.

The level of service for the exiting left-turn movements at the adjacent driveway was calculated to be LOS F during the peak hour; however, it should be noted that it was observed in the count data that this movement was accomplished by 30 vehicles during the peak hour, which accounted for approximately 15 percent of the exiting vehicles. This would indicate that there are available gaps in the through traffic on Shea Boulevard during which these left-turning vehicles can make this maneuver. A full access median opening at the proposed driveway would be advantageous because the number of U-turns at the intersection of 96th Street and Shea Boulevard would be reduced by approximately 30 percent.

Please feel free to contact me if you have any additional questions.

Very truly yours,

KIMLEY-HORN AND ASSOCIATES, INC.

Susan E. Anderson, P.E.
Associate

Enclosures: *KM Trip Distribution (1), Figures 1-4 (4), LOS Calculations (23)*

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Site Traffic Distribution

There are two major factors to consider when estimating the direction from which site traffic will be arriving when entering the development and where it will be headed when it leaves the center. One factor is the distribution of potential trip origins and destinations within the development's market area. The other factor is the relative efficiencies of the various travel routes to and from the site that are available. The majority of the trips generated from this development are expected to be home based and made by persons residing within a ten-mile radius (five-mile radius for retail traffic) of the development site. Based on this assumption, population projection data published by the Maricopa Association of Governments was used to approximate the directional distribution of arriving and departing site traffic during the build-out year of this development. Table 2 summarizes the distribution of site traffic over adjacent arterial roadways.

Table 3 Site Trip Distribution - Office

ROUTE	DIRECTION (TO/FROM)	PERCENTAGE
92ND STREET NORTH	NORTH	15%
SHEA BOULVARD WEST	WEST, SOUTH, NORTH	56%
SHEA BOULEVARD EAST	EAST	7%
92ND STREET SOUTH	WEST, SOUTH	22%

Table 4 Site Trip Distribution - Retail

ROUTE	DIRECTION (TO/FROM)	PERCENTAGE
92ND STREET NORTH	NORTH	23%
SHEA BOULVARD WEST	WEST, SOUTH, NORTH	45%
SHEA BOULEVARD EAST	EAST	11%
92ND STREET SOUTH	WEST, SOUTH	21%

Site Traffic Assignment

Using the trip generation rates discussed in the previous section and the trip distribution assumptions just described, site traffic was assigned to the adjacent roadways as it could be expected to travel on its way to and from the proposed development during the A.M. and P.M. peak hours. Results of this effort are presented in Figures 10 through 13.

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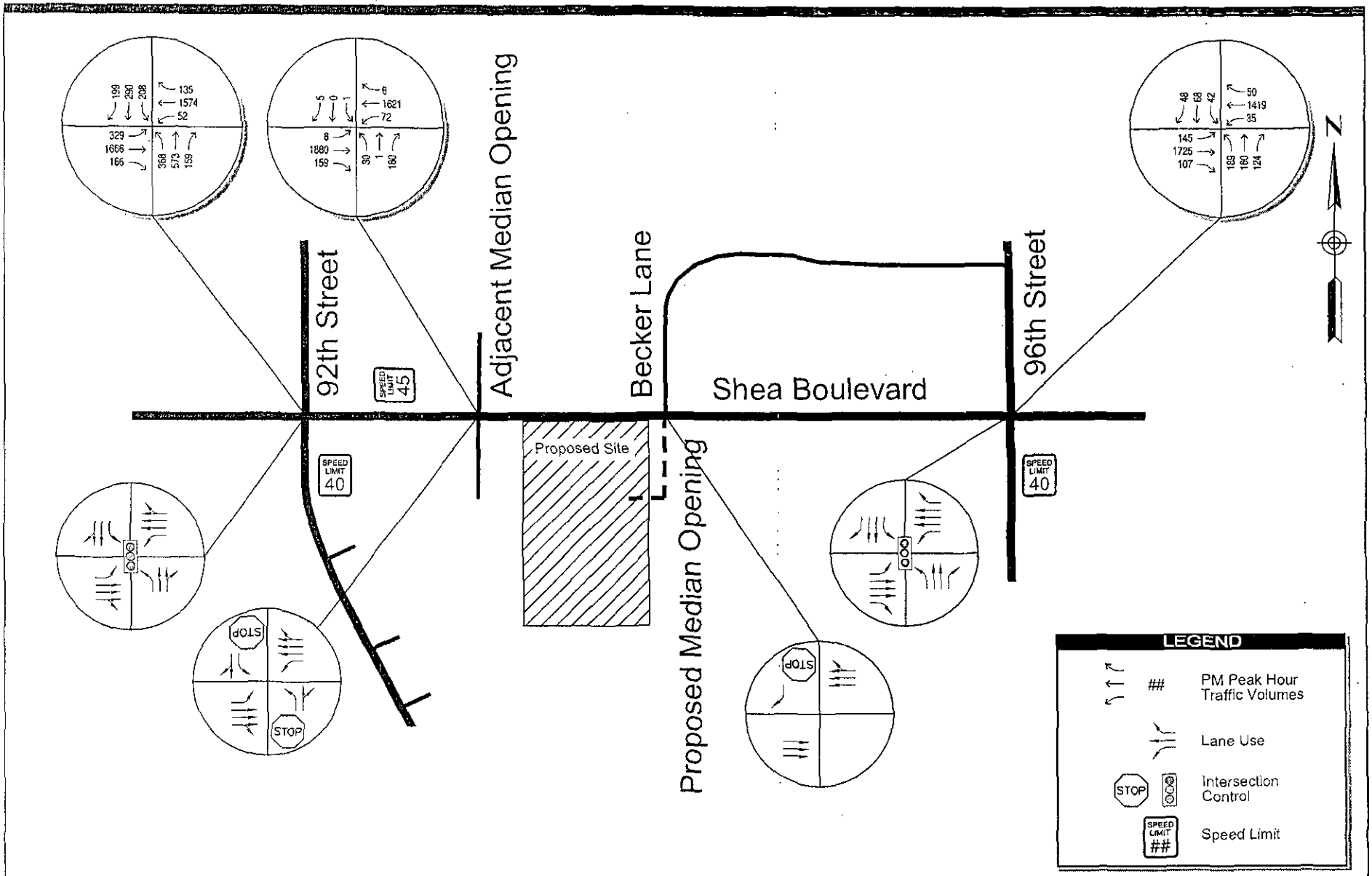

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Existing Conditions

9400 Shea Access Study

Figure 1

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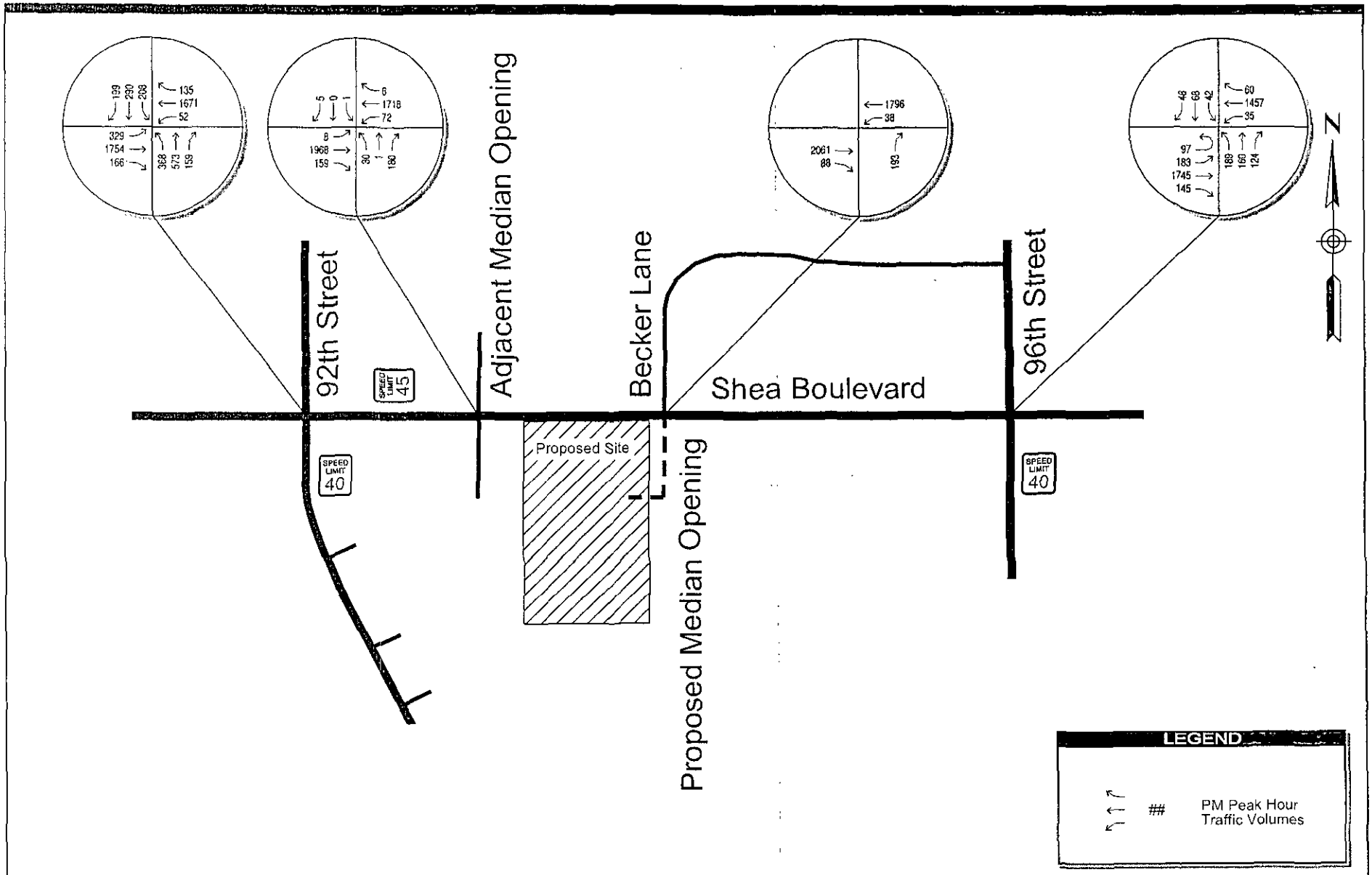

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Scenario A (Base Condition) Traffic

9400 Shea Access Study

Figure 2

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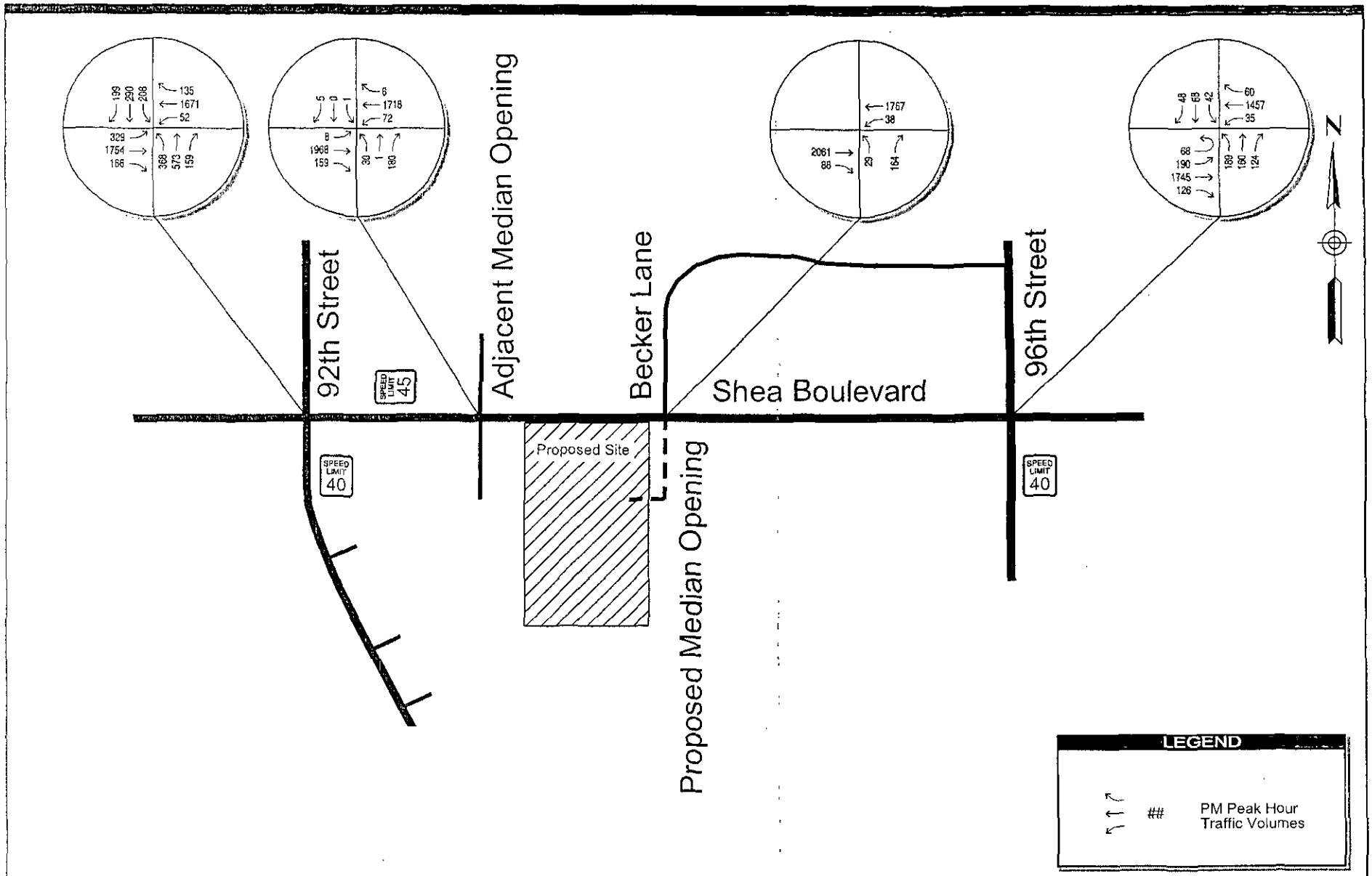

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Scenario B (Proposed) Traffic

9400 Shea Access Study

Figure 3

Kimley-Horn
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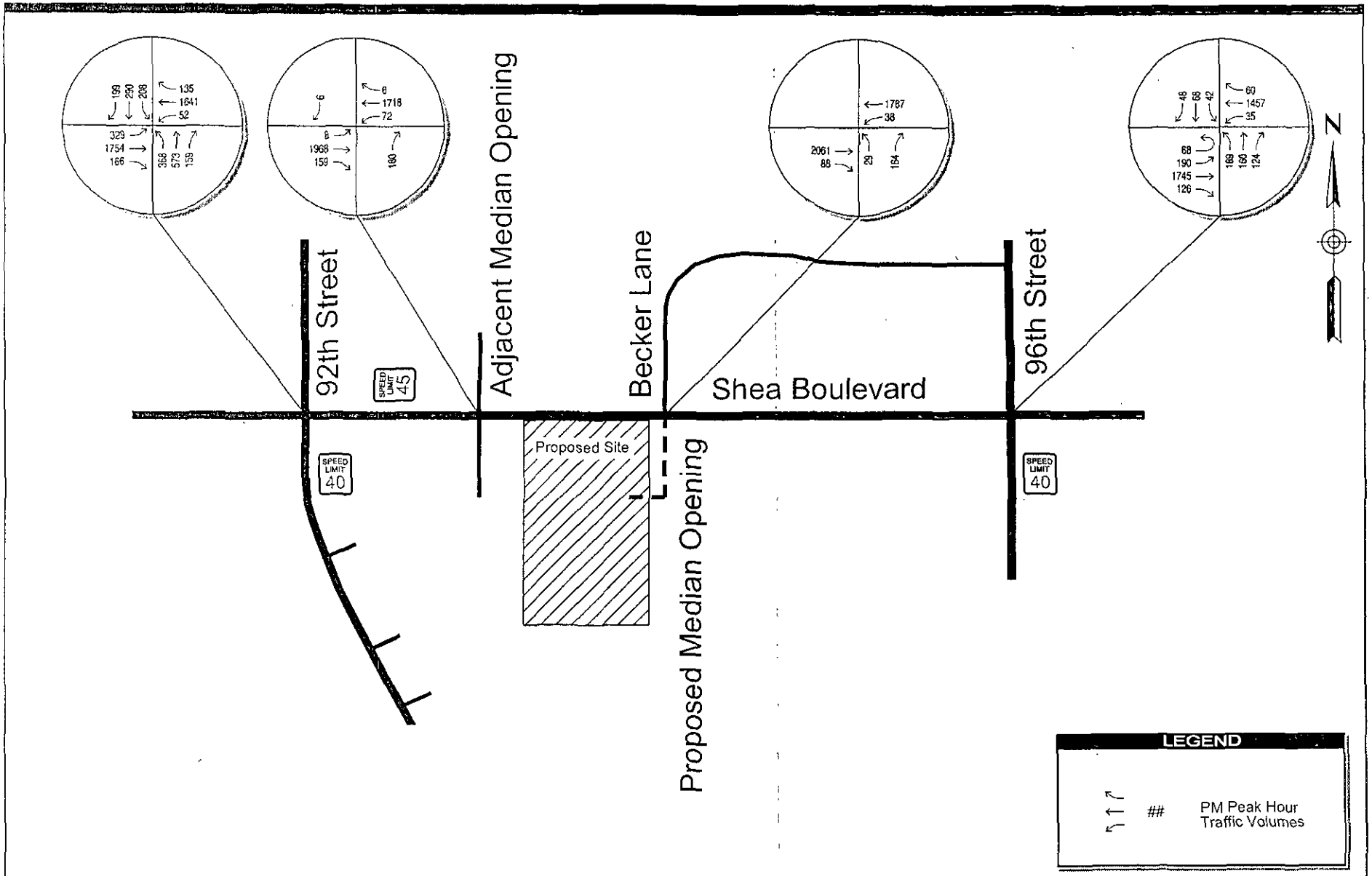


March 2006

Scenario C (Alternate) Traffic

9400 Shea Access Study

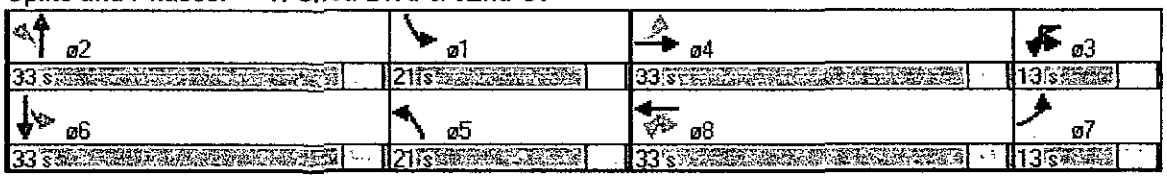
Figure 4

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	225		0	160		0	200		0	170		0
Storage Lanes	1		0	1		0	1		0	1		0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50		50	50		50	50	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Turning Speed (mph)	15		9	15		9	15		9	15		9
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		1223			1306			2297			1220	
Travel Time (s)		18.5			19.8			39.2			20.8	
Volume (vph)	329	1666	166	52	1574	135	368	573	159	208	290	199
Turn Type	pm+pt			pm+pt			pm+pt			pm+pt		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phases	7	4		3	8		5	2		1	6	
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	8.0	20.0		8.0	20.0		8.0	20.0		8.0	20.0	
Total Split (s)	13.0	33.0	0.0	13.0	33.0	0.0	21.0	33.0	0.0	21.0	33.0	0.0
Total Split (%)	13.0%	33.0%	0.0%	13.0%	33.0%	0.0%	21.0%	33.0%	0.0%	21.0%	33.0%	0.0%
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5	
Lead/Lag	Lag	Lead		Lag	Lead		Lag	Lead		Lag	Lead	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None		None	C-Min		None	C-Min	
Act Effct Green (s)	44.9	37.7		43.4	35.1		43.9	25.8		29.7	15.6	
Actuated g/C Ratio	0.45	0.38		0.43	0.35		0.44	0.26		0.30	0.16	
v/c Ratio	1.37	1.01		0.23	1.01		0.70	0.85		0.74	0.78	
Uniform Delay, d1	36.0	30.9		16.8	32.2		28.9	34.2		35.9	27.2	
Control Delay	223.2	58.0		13.3	45.1		35.6	38.5		43.5	27.7	
Queue Delay	38.6	79.6		0.0	0.0		0.0	0.8		0.0	0.0	
Total Delay	261.8	137.6		13.3	45.1		35.6	39.3		43.5	27.7	
LOS	F	F		B	D		D	D		D	C	
Approach Delay		156.5			44.2			38.1			32.4	
Approach LOS		F			D			D			C	

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.37
Intersection Signal Delay: 84.0 Intersection LOS: F
Intersection Capacity Utilization 99.8% ICU Level of Service F
Analysis Period (min) 15

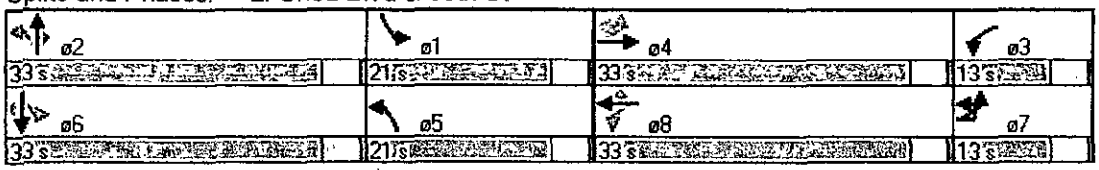
Splits and Phases: 1: Shea Blvd & 92nd St



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	230		0	190		0	190		0	125		0
Storage Lanes	1		0	1		1	1		1	1		1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50		50	50	50	50	50	50	50	50	50
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		45			45			40			40	
Link Distance (ft)		3948			1027			1660			928	
Travel Time (s)		59.8			15.6			28.3			15.8	
Volume (vph)	145	1725	107	35	1419	50	189	160	124	42	68	48
Turn Type	*pm+pt*			*pm+pt*		*Perm*	*pm+pt*		*Perm*	*pm+pt*		*Perm*
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8		8	2		2	6		6
Detector Phases	7	4		3	8	8	5	2	2	1	6	6
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	20.0		8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0
Total Split (s)	13.0	33.0	0.0	13.0	33.0	33.0	21.0	33.0	33.0	21.0	33.0	33.0
Total Split (%)	13.0%	33.0%	0.0%	13.0%	33.0%	33.0%	21.0%	33.0%	33.0%	21.0%	33.0%	33.0%
Yellow Time (s)	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lead/Lag	Lag	Lead		Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None		None	None	None	None	C-Min	C-Min	None	C-Min	C-Min
Act Effct Green (s)	62.8	57.1		52.0	45.6	45.6	28.4	22.5	22.5	21.1	15.3	15.3
Actuated g/C Ratio	0.63	0.57		0.52	0.46	0.46	0.28	0.23	0.23	0.21	0.15	0.15
v/c Ratio	0.41	0.67		0.16	0.64	0.07	0.48	0.40	0.29	0.17	0.25	0.18
Uniform Delay, d1	15.0	14.8		8.3	20.9	0.0	31.5	35.8	0.0	28.6	40.2	0.0
Control Delay	39.1	29.8		10.1	22.1	4.0	32.7	36.8	7.6	28.0	40.0	12.2
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.1	29.8		10.1	22.1	4.0	32.7	36.8	7.6	28.0	40.0	12.2
LOS	D	C		B	C	A	C	D	A	C	D	B
Approach Delay		30.5			21.2			27.5			28.4	
Approach LOS		C			C			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 40 (40%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.67			
Intersection Signal Delay: 26.7		Intersection LOS: C	
Intersection Capacity Utilization 66.4%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 2: Shea Blvd & 96th St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	8	1880	159	72	1621	6	30	1	180	1	0	5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	8	1979	167	76	1706	6	32	1	189	1	0	5
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								Raised			Raised	
Median storage veh)								0			0	
Upstream signal (ft)		1306										
pX, platoon unblocked												
vC, conflicting volume	1713			2146			2805	3944	743	2728	4024	572
vC1, stage 1 conf vol							2079	2079		1861	1861	
vC2, stage 2 conf vol							726	1864		866	2163	
vCu, unblocked vol	1713			2146			2805	3944	743	2728	4024	572
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			69			0	96	47	95	100	99
cM capacity (veh/h)	366			248			31	29	357	21	5	463

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	NB 2	SB 1	SB 2
Volume Total	8	792	792	563	76	683	683	348	32	191	1	5
Volume Left	8	0	0	0	76	0	0	0	32	0	1	0
Volume Right	0	0	0	167	0	0	0	6	0	189	0	5
cSH	366	1700	1700	1700	248	1700	1700	1700	31	336	21	463
Volume to Capacity	0.02	0.47	0.47	0.33	0.31	0.40	0.40	0.20	1.01	0.57	0.05	0.01
Queue Length (ft)	2	0	0	0	31	0	0	0	87	83	4	1
Control Delay (s)	15.1	0.0	0.0	0.0	25.8	0.0	0.0	0.0	352.0	28.8	184.5	12.9
Lane LOS	C				D				F	D	F	B
Approach Delay (s)	0.1				1.1				74.8		41.5	
Approach LOS									F		E	

Intersection Summary			
Average Delay	4.5		
Intersection Capacity Utilization	65.0%	ICU Level of Service	C
Analysis Period (min)	15		

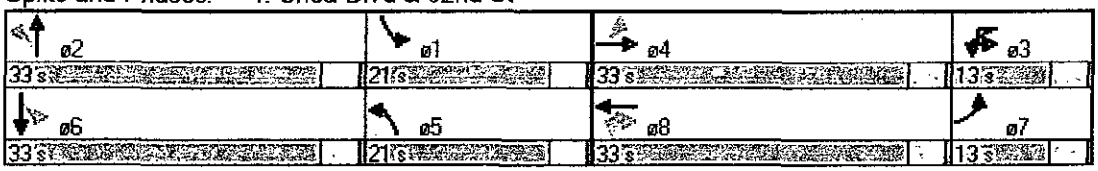
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	1770	5019	0	1770	5029	0	1770	3422	0	1770	3323	0
Flt Permitted	0.138			0.138			0.326			0.153		
Satd. Flow (perm)	257	5019	0	257	5029	0	607	3422	0	285	3323	0
Satd. Flow (RTOR)		16			13			36			171	
Volume (vph)	329	1754	166	52	1671	135	368	573	159	208	290	199
Lane Group Flow (vph)	346	2021	0	55	1901	0	387	770	0	219	514	0
Turn Type	pm+pt			pm+pt			pm+pt			pm+pt		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Total Split (s)	13.0	33.0	0.0	13.0	33.0	0.0	21.0	33.0	0.0	21.0	33.0	0.0
Act Effct Green (s)	44.9	37.7		43.4	35.1		43.9	25.8		29.7	15.6	
Actuated g/C Ratio	0.45	0.38		0.43	0.35		0.44	0.26		0.30	0.16	
v/c Ratio	1.37	1.06		0.23	1.07		0.70	0.85		0.74	0.78	
Uniform Delay, d1	36.0	30.9		16.8	32.2		28.9	34.2		35.9	27.2	
Control Delay	223.2	72.3		14.4	65.1		35.6	38.5		43.5	27.7	
Queue Delay	38.6	87.7		0.0	0.0		0.0	0.8		0.0	0.0	
Total Delay	261.8	160.0		14.4	65.1		35.6	39.3		43.5	27.7	
LOS	F	F		B	E		D	D		D	C	
Approach Delay		174.9			63.6			38.1			32.4	
Approach LOS		F			E			D			C	
Queue Length 50th (ft)	~241	~574		7	~516		167	231		84	112	
Queue Length 95th (ft)	#435	#730		m16	#663		227	295		163	158	
Internal Link Dist (ft)		1143			1226			2217			1140	
Turn Bay Length (ft)	225			160			200			170		
Base Capacity (vph)	252	1902		250	1774		549	1018		346	1085	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	15	302		0	0		0	71		0	0	
Reduced v/c Ratio	1.46	1.26		0.22	1.07		0.70	0.81		0.63	0.47	

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.37
Intersection Signal Delay: 97.6 Intersection LOS: F
Intersection Capacity Utilization 101.6% ICU Level of Service G
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

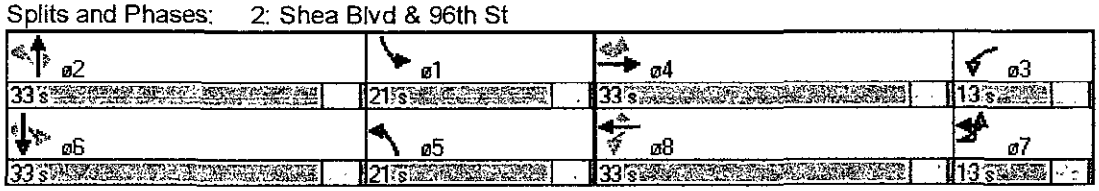
Splits and Phases: 1: Shea Blvd & 92nd St



Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)		230		0	190		0	190		0	125	
Storage Lanes		1		0	1		1	1		1	1	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50		50	50	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0		0	0	0	0	0	0	0	0
Turning Speed (mph)	9	15		9	15		9	15		9	15	
Right Turn on Red				Yes			Yes			Yes		
Link Speed (mph)			45			45			40			40
Link Distance (ft)			2553			1027			1660			928
Travel Time (s)			38.7			15.6			28.3			15.8
Volume (vph)	97	183	1745	145	35	1457	50	189	160	124	42	68
Turn Type	pm+pt	pm+pt			pm+pt		Perm	pm+pt		Perm	pm+pt	
Protected Phases	7	7	4		3	8		5	2		1	6
Permitted Phases	4	4			8		8	2		2	6	
Detector Phases	7	7	4		3	8	8	5	2	2	1	6
Minimum Initial (s)	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	8.0	20.0		8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0
Total Split (s)	13.0	13.0	33.0	0.0	13.0	33.0	33.0	21.0	33.0	33.0	21.0	33.0
Total Split (%)	13.0%	13.0%	33.0%	0.0%	13.0%	33.0%	33.0%	21.0%	33.0%	33.0%	21.0%	33.0%
Yellow Time (s)	3.5	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lead/Lag	Lag	Lag	Lead		Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None		None	None	None	None	C-Min	C-Min	None	C-Min
Act Effct Green (s)		69.0	62.2		56.0	48.4	48.4	22.0	16.1	16.1	14.7	8.9
Actuated g/C Ratio		0.69	0.62		0.56	0.48	0.48	0.22	0.16	0.16	0.15	0.09
v/c Ratio		0.67	0.64		0.14	0.62	0.07	0.60	0.56	0.36	0.22	0.43
Uniform Delay, d1		21.9	11.7		6.3	19.0	0.0	37.1	41.7	0.0	33.6	46.2
Control Delay		42.3	24.7		9.2	20.3	3.9	37.7	40.5	7.7	30.3	43.1
Queue Delay		0.4	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		42.6	24.7		9.2	20.3	3.9	37.7	40.6	7.7	30.3	43.1
LOS		D	C		A	C	A	D	D	A	C	D
Approach Delay			27.0			19.5			30.8			30.3
Approach LOS			C			B			C			C

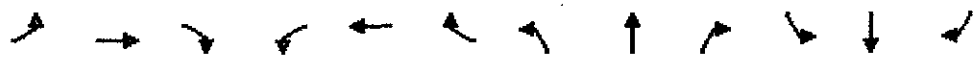
Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 40 (40%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.67			
Intersection Signal Delay: 24.9		Intersection LOS: C	
Intersection Capacity Utilization 71.0%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 2: Shea Blvd & 96th St



Lane Group	SBR
Lane Configurations	
Ideal Flow (vphpl)	1900
Storage Length (ft)	0
Storage Lanes	1
Total Lost Time (s)	4.0
Leading Detector (ft)	150
Trailing Detector (ft)	0
Turning Speed (mph)	9
Right Turn on Red	Yes
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Volume (vph)	48
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Detector Phases	6
Minimum Initial (s)	4.0
Minimum Split (s)	20.0
Total Split (s)	33.0
Total Split (%)	33.0%
Yellow Time (s)	3.5
All-Red Time (s)	0.5
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Recall Mode	C-Min
Act Effct Green (s)	8.9
Actuated g/C Ratio	0.09
v/c Ratio	0.27
Uniform Delay, d1	0.0
Control Delay	12.4
Queue Delay	0.0
Total Delay	12.4
LOS	B
Approach Delay	
Approach LOS	

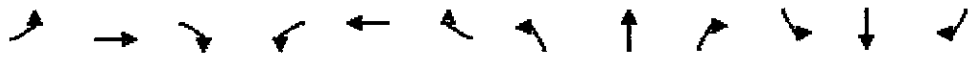
Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	8	1968	159	72	1718	6	30	1	180	1	0	5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	8	2072	167	76	1808	6	32	1	189	1	0	5
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								Raised			Raised	
Median storage veh)								0			0	
Upstream signal (ft)		1306										
pX, platoon unblocked												
vC, conflicting volume	1815			2239			2932	4138	774	2861	4219	606
vC1, stage 1 conf vol							2172	2172		1963	1963	
vC2, stage 2 conf vol							760	1966		897	2256	
vCu, unblocked vol	1815			2239			2932	4138	774	2861	4219	606
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			67			0	96	44	94	100	99
cM capacity (veh/h)	334			228			27	25	341	17	1	440

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	NB 2	SB 1	SB 2
Volume Total	8	829	829	582	76	723	723	368	32	191	1	5
Volume Left	8	0	0	0	76	0	0	0	32	0	1	0
Volume Right	0	0	0	167	0	0	0	6	0	189	0	5
cSH	334	1700	1700	1700	228	1700	1700	1700	27	319	17	440
Volume to Capacity	0.03	0.49	0.49	0.34	0.33	0.43	0.43	0.22	1.16	0.60	0.06	0.01
Queue Length (ft)	2	0	0	0	35	0	0	0	93	91	5	1
Control Delay (s)	16.0	0.0	0.0	0.0	28.5	0.0	0.0	0.0	438.5	31.8	230.1	13.3
Lane LOS	C				D				F	D	F	B
Approach Delay (s)	0.1				1.1				89.6		49.4	
Approach LOS									F		E	

Intersection Summary			
Average Delay	5.2		
Intersection Capacity Utilization	66.7%	ICU Level of Service	C
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↑	↑↑↑				↱			↱
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	2061	88	38	1796	0	0	0	193	0	0	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	2169	93	40	1891	0	0	0	203	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								Raised			Raised	
Median storage veh)								0			0	
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1891			2262			2926	4186	769	2897	4233	630
vC1, stage 1 conf vol							2216	2216		1971	1971	
vC2, stage 2 conf vol							710	1971		926	2262	
vCu, unblocked vol	1891			2262			2926	4186	769	2897	4233	630
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			82			100	100	41	100	100	100
cM capacity (veh/h)	312			223			27	29	344	22	18	424

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1
Volume Total	868	868	527	40	756	756	378	203	0
Volume Left	0	0	0	40	0	0	0	0	0
Volume Right	0	0	93	0	0	0	0	203	0
cSH	1700	1700	1700	223	1700	1700	1700	344	1700
Volume to Capacity	0.51	0.51	0.31	0.18	0.44	0.44	0.22	0.59	0.00
Queue Length (ft)	0	0	0	16	0	0	0	90	0
Control Delay (s)	0.0	0.0	0.0	24.6	0.0	0.0	0.0	29.6	0.0
Lane LOS				C				D	A
Approach Delay (s)	0.0			0.5				29.6	0.0
Approach LOS								D	A

Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	60.4%	ICU Level of Service	B
Analysis Period (min)	15		

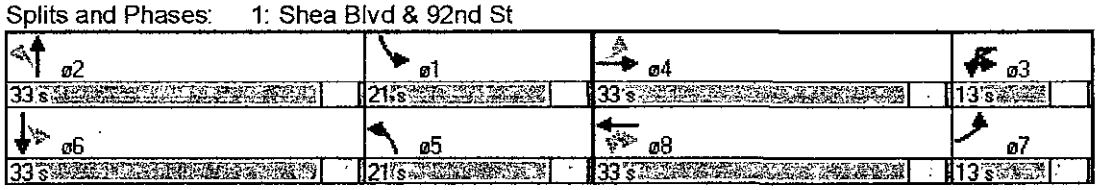
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	1770	5019	0	1770	5029	0	1770	3422	0	1770	3323	0
Flt Permitted	0.138			0.138			0.326			0.153		
Satd. Flow (perm)	257	5019	0	257	5029	0	607	3422	0	285	3323	0
Satd. Flow (RTOR)		16			13			36			171	
Volume (vph)	329	1754	166	52	1671	135	368	573	159	208	290	199
Lane Group Flow (vph)	346	2021	0	55	1901	0	387	770	0	219	514	0
Turn Type	pm+pt			pm+pt			pm+pt			pm+pt		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Total Split (s)	13.0	33.0	0.0	13.0	33.0	0.0	21.0	33.0	0.0	21.0	33.0	0.0
Act Effct Green (s)	44.9	37.7		43.4	35.1		43.9	25.8		29.7	15.6	
Actuated g/C Ratio	0.45	0.38		0.43	0.35		0.44	0.26		0.30	0.16	
v/c Ratio	1.37	1.06		0.23	1.07		0.70	0.85		0.74	0.78	
Uniform Delay, d1	36.0	30.9		16.8	32.2		28.9	34.2		35.9	27.2	
Control Delay	223.2	72.3		14.3	65.1		35.6	38.5		43.5	27.7	
Queue Delay	38.6	87.7		0.0	0.0		0.0	0.8		0.0	0.0	
Total Delay	261.8	160.0		14.3	65.1		35.6	39.3		43.5	27.7	
LOS	F	F		B	E		D	D		D	C	
Approach Delay		174.9			63.7			38.1			32.4	
Approach LOS		F			E			D			C	
Queue Length 50th (ft)	~241	~574		7	~516		167	231		84	112	
Queue Length 95th (ft)	#435	#730		m16	#663		227	295		163	158	
Internal Link Dist (ft)		1143			1226			2121			1140	
Turn Bay Length (ft)	225			160			200			170		
Base Capacity (vph)	252	1902		250	1774		549	1018		346	1085	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	15	302		0	0		0	71		0	0	
Reduced v/c Ratio	1.46	1.26		0.22	1.07		0.70	0.81		0.63	0.47	

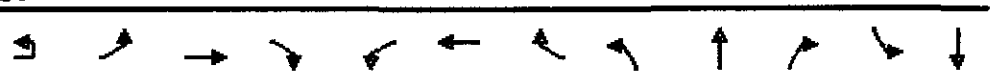
Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.37
Intersection Signal Delay: 97.6 Intersection LOS: F
Intersection Capacity Utilization 101.6% ICU Level of Service G
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Shea Blvd & 92nd St

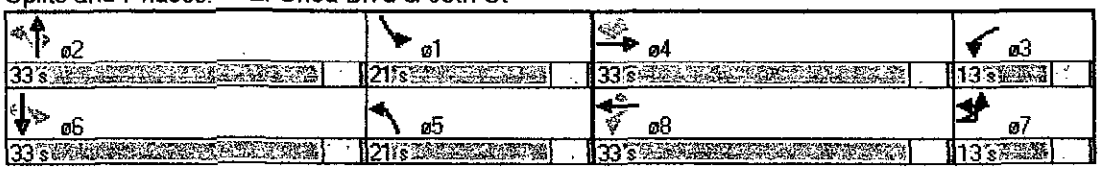




Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)		230		0	190		0	190		0	125	
Storage Lanes		1		0	1		1	1		1	1	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50		50	50	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0		0	0	0	0	0	0	0	0
Turning Speed (mph)	9	15		9	15		9	15		9	15	
Right Turn on Red				Yes			Yes			Yes		
Link Speed (mph)			45			45			40			40
Link Distance (ft)			2553			1027			1588			928
Travel Time (s)			38.7			15.6			27.1			15.8
Volume (vph)	68	190	1745	126	35	1457	50	189	160	124	42	68
Turn Type	pm+pt	pm+pt			pm+pt		Perm	pm+pt		Perm	pm+pt	
Protected Phases	7	7	4		3	8		5	2		1	6
Permitted Phases	4	4			8		8	2		2	6	
Detector Phases	7	7	4		3	8	8	5	2	2	1	6
Minimum Initial (s)	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	8.0	20.0		8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0
Total Split (s)	13.0	13.0	33.0	0.0	13.0	33.0	33.0	21.0	33.0	33.0	21.0	33.0
Total Split (%)	13.0%	13.0%	33.0%	0.0%	13.0%	33.0%	33.0%	21.0%	33.0%	33.0%	21.0%	33.0%
Yellow Time (s)	3.5	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lead/Lag	Lag	Lag	Lead		Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None		None	None	None	None	C-Min	C-Min	None	C-Min
Act Effct Green (s)		67.3	60.5		56.0	48.4	48.4	23.7	17.7	17.7	16.3	10.6
Actuated g/C Ratio		0.67	0.61		0.56	0.48	0.48	0.24	0.18	0.18	0.16	0.11
v/c Ratio		0.66	0.65		0.14	0.62	0.07	0.56	0.51	0.34	0.20	0.37
Uniform Delay, d1		22.0	12.7		6.6	19.0	0.0	35.7	40.1	0.0	32.2	44.5
Control Delay		43.2	26.0		9.2	20.3	3.9	36.4	39.7	7.7	29.9	42.5
Queue Delay		0.4	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		43.6	26.0		9.2	20.3	3.9	36.4	39.7	7.7	29.9	42.5
LOS		D	C		A	C	A	D	D	A	C	D
Approach Delay			28.1			19.5			30.0			30.0
Approach LOS			C			B			C			C

Intersection Summary			
Area Type:	Other		
Cycle Length: 100			
Actuated Cycle Length: 100			
Offset: 40 (40%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.66			
Intersection Signal Delay: 25.3		Intersection LOS: C	
Intersection Capacity Utilization 69.8%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 2: Shea Blvd & 96th St



Lane Group	SBR
Lane Configurations	
Ideal Flow (vphpl)	1900
Storage Length (ft)	0
Storage Lanes	1
Total Lost Time (s)	4.0
Leading Detector (ft)	50
Trailing Detector (ft)	0
Turning Speed (mph)	9
Right Turn on Red	Yes
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Volume (vph)	48
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Detector Phases	6
Minimum Initial (s)	4.0
Minimum Split (s)	20.0
Total Split (s)	33.0
Total Split (%)	33.0%
Yellow Time (s)	3.5
All-Red Time (s)	0.5
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Recall Mode	C-Min
Act Effct Green (s)	10.6
Actuated g/C Ratio	0.11
v/c Ratio	0.24
Uniform Delay, d1	0.0
Control Delay	12.4
Queue Delay	0.0
Total Delay	12.4
LOS	B
Approach Delay	
Approach LOS	

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	8	1968	159	72	1718	6	30	1	180	1	0	5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	8	2072	167	76	1808	6	32	1	189	1	0	5
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								Raised			Raised	
Median storage veh)								0			0	
Upstream signal (ft)		1306										
pX, platoon unblocked												
vC, conflicting volume	1815			2239			2932	4138	774	2861	4219	606
vC1, stage 1 conf vol							2172	2172		1963	1963	
vC2, stage 2 conf vol							760	1966		897	2256	
vCu, unblocked vol	1815			2239			2932	4138	774	2861	4219	606
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			67			0	96	44	94	100	99
cM capacity (veh/h)	334			228			27	25	341	17	1	440

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	NB 2	SB 1	SB 2
Volume Total	8	829	829	582	76	723	723	368	32	191	1	5
Volume Left	8	0	0	0	76	0	0	0	32	0	1	0
Volume Right	0	0	0	167	0	0	0	6	0	189	0	5
cSH	334	1700	1700	1700	228	1700	1700	1700	27	319	17	440
Volume to Capacity	0.03	0.49	0.49	0.34	0.33	0.43	0.43	0.22	1.16	0.60	0.06	0.01
Queue Length (ft)	2	0	0	0	35	0	0	0	93	91	5	1
Control Delay (s)	16.0	0.0	0.0	0.0	28.5	0.0	0.0	0.0	438.5	31.8	230.1	13.3
Lane LOS	C				D				F	D	F	B
Approach Delay (s)	0.1				1.1				89.6		49.4	
Approach LOS									F		E	

Intersection Summary			
Average Delay	5.2		
Intersection Capacity Utilization	66.7%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	18	2061	88	38	1767	0	29	0	164	0	0	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	19	2169	93	40	1860	0	31	0	173	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								Raised			Raised	
Median storage veh)								0			0	
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1860			2262			2954	4194	769	2874	4240	620
vC1, stage 1 conf vol							2254	2254		1940	1940	
vC2, stage 2 conf vol							700	1940		934	2300	
vCu, unblocked vol	1860			2262			2954	4194	769	2874	4240	620
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	94			82			0	100	50	100	100	100
cM capacity (veh/h)	321			223			25	25	344	25	15	431

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	NB 2	SB 1	SB 2
Volume Total	19	868	868	527	40	744	744	372	31	173	0	0
Volume Left	19	0	0	0	40	0	0	0	31	0	0	0
Volume Right	0	0	0	93	0	0	0	0	0	173	0	0
cSH	321	1700	1700	1700	223	1700	1700	1700	25	344	1700	1700
Volume to Capacity	0.06	0.51	0.51	0.31	0.18	0.44	0.44	0.22	1.24	0.50	0.00	0.00
Queue Length (ft)	5	0	0	0	16	0	0	0	94	67	0	0
Control Delay (s)	16.9	0.0	0.0	0.0	24.6	0.0	0.0	0.0	496.0	25.6	0.0	0.0
Lane LOS	C				C				F	D	A	A
Approach Delay (s)	0.1				0.5				96.3		0.0	
Approach LOS									F		A	

Intersection Summary			
Average Delay	4.8		
Intersection Capacity Utilization	58.6%	ICU Level of Service	B
Analysis Period (min)	15		

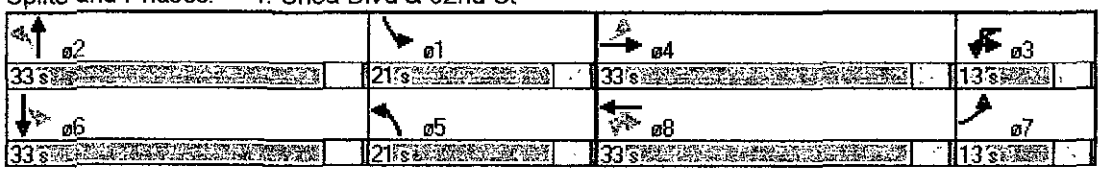
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Satd. Flow (prot)	1770	5019	0	1770	5029	0	1770	3422	0	1770	3323	0
Flt Permitted	0.138			0.138			0.326			0.153		
Satd. Flow (perm)	257	5019	0	257	5029	0	607	3422	0	285	3323	0
Satd. Flow (RTOR)		16			13			36			171	
Volume (vph)	329	1754	166	52	1641	135	398	573	159	208	290	199
Lane Group Flow (vph)	346	2021	0	55	1869	0	419	770	0	219	514	0
Turn Type	pm+pt			pm+pt			pm+pt			pm+pt		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Total Split (s)	13.0	33.0	0.0	13.0	33.0	0.0	21.0	33.0	0.0	21.0	33.0	0.0
Act Effct Green (s)	44.9	37.7		43.4	35.1		43.9	25.8		29.7	15.6	
Actuated g/C Ratio	0.45	0.38		0.43	0.35		0.44	0.26		0.30	0.16	
v/c Ratio	1.37	1.06		0.23	1.05		0.76	0.85		0.74	0.78	
Uniform Delay, d1	36.0	30.9		16.8	32.2		29.7	34.2		35.9	27.2	
Control Delay	223.2	72.3		14.0	58.4		38.8	38.5		43.5	27.7	
Queue Delay	38.6	87.7		0.0	0.0		0.0	8.4		0.0	0.0	
Total Delay	261.8	160.0		14.0	58.4		38.8	46.9		43.5	27.7	
LOS	F	F		B	E		D	D		D	C	
Approach Delay		174.9			57.1			44.0			32.4	
Approach LOS		F			E			D			C	
Queue Length 50th (ft)	~241	~574		6	~500		185	231		84	112	
Queue Length 95th (ft)	#435	#730		m15	#647		250	295		163	158	
Internal Link Dist (ft)		1143			1226			2268			1140	
Turn Bay Length (ft)	225			160			200			170		
Base Capacity (vph)	252	1902		250	1774		549	1018		346	1085	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	15	302		0	0		0	214		0	0	
Reduced v/c Ratio	1.46	1.26		0.22	1.05		0.76	0.96		0.63	0.47	

Intersection Summary

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.37
Intersection Signal Delay: 96.6 Intersection LOS: F
Intersection Capacity Utilization 102.7% ICU Level of Service G
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

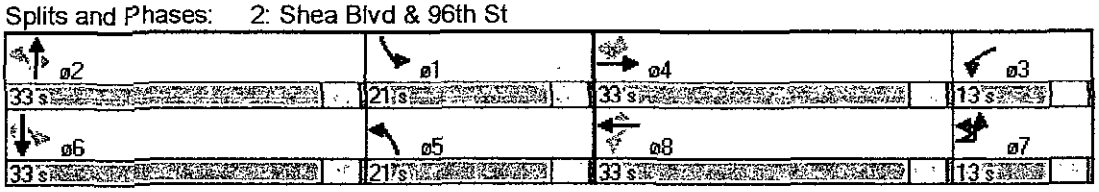
Splits and Phases: 1: Shea Blvd & 92nd St



Lane Group	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)		230		0	190		0	190		0	125	
Storage Lanes		1		0	1		1	1		1	1	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50		50	50	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0		0	0	0	0	0	0	0	0
Turning Speed (mph)	9	15		9	15		9	15		9	15	
Right Turn on Red				Yes			Yes			Yes		
Link Speed (mph)			45			45			40			40
Link Distance (ft)			2553			1027			1650			928
Travel Time (s)			38.7			15.6			28.1			15.8
Volume (vph)	68	190	1745	126	35	1457	60	189	160	124	42	68
Turn Type	pm+pt	pm+pt			pm+pt		Perm	pm+pt		Perm	pm+pt	
Protected Phases	7	7	4		3	8		5	2		1	6
Permitted Phases	4	4			8		8	2		2	6	
Detector Phases	7	7	4		3	8	8	5	2	2	1	6
Minimum Initial (s)	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	8.0	20.0		8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0
Total Split (s)	13.0	13.0	33.0	0.0	13.0	33.0	33.0	21.0	33.0	33.0	21.0	33.0
Total Split (%)	13.0%	13.0%	33.0%	0.0%	13.0%	33.0%	33.0%	21.0%	33.0%	33.0%	21.0%	33.0%
Yellow Time (s)	3.5	3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lead/Lag	Lag	Lag	Lead		Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None		None	None	None	None	C-Min	C-Min	None	C-Min
Act Effct Green (s)		67.3	60.5		56.0	48.4	48.4	23.7	17.7	17.7	16.3	10.6
Actuated g/C Ratio		0.67	0.61		0.56	0.48	0.48	0.24	0.18	0.18	0.16	0.11
v/c Ratio		0.66	0.65		0.14	0.62	0.08	0.56	0.51	0.34	0.20	0.37
Uniform Delay, d1		22.0	12.7		6.6	19.0	0.0	35.7	40.1	0.0	32.2	44.5
Control Delay		43.2	26.0		9.2	20.3	3.7	36.4	39.7	7.7	29.9	42.5
Queue Delay		0.4	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		43.6	26.0		9.2	20.3	3.7	36.4	39.7	7.7	29.9	42.5
LOS		D	C		A	C	A	D	D	A	C	D
Approach Delay			28.1			19.4			30.0			30.0
Approach LOS			C			B			C			C

Intersection Summary	
Area Type:	Other
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 40 (40%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 70	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.66	
Intersection Signal Delay: 25.3	Intersection LOS: C
Intersection Capacity Utilization 69.8%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 2: Shea Blvd & 96th St



Lane Group	SBR
Lane Configurations	
Ideal Flow (vphpl)	1900
Storage Length (ft)	0
Storage Lanes	1
Total Lost Time (s)	4.0
Leading Detector (ft)	50
Trailing Detector (ft)	0
Turning Speed (mph)	9
Right Turn on Red	Yes
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Volume (vph)	48
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Detector Phases	6
Minimum Initial (s)	4.0
Minimum Split (s)	20.0
Total Split (s)	33.0
Total Split (%)	33.0%
Yellow Time (s)	3.5
All-Red Time (s)	0.5
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Recall Mode	C-Min
Act Effct Green (s)	10.6
Actuated g/C Ratio	0.11
v/c Ratio	0.24
Uniform Delay, d1	0.0
Control Delay	12.4
Queue Delay	0.0
Total Delay	12.4
LOS	B
Approach Delay	
Approach LOS	

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	8	1968	159	72	1718	6	0	0	180	0	0	6
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	8	2072	167	76	1808	6	0	0	189	0	0	6
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								Raised			Raised	
Median storage veh)								0			0	
Upstream signal (ft)		1306										
pX, platoon unblocked												
vC, conflicting volume	1815			2239			2933	4138	774	2860	4219	606
vC1, stage 1 conf vol							2172	2172		1963	1963	
vC2, stage 2 conf vol							761	1966		897	2256	
vCu, unblocked vol	1815			2239			2933	4138	774	2860	4219	606
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			67			100	100	44	100	100	99
cM capacity (veh/h)	334			228			27	25	341	17	1	440

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	SB 1
Volume Total	8	829	829	582	76	723	723	368	189	6
Volume Left	8	0	0	0	76	0	0	0	0	0
Volume Right	0	0	0	167	0	0	0	6	189	6
cSH	334	1700	1700	1700	228	1700	1700	1700	341	440
Volume to Capacity	0.03	0.49	0.49	0.34	0.33	0.43	0.43	0.22	0.56	0.01
Queue Length (ft)	2	0	0	0	35	0	0	0	80	1
Control Delay (s)	16.0	0.0	0.0	0.0	28.5	0.0	0.0	0.0	28.0	13.3
Lane LOS	C				D				D	B
Approach Delay (s)	0.1				1.1				28.0	13.3
Approach LOS									D	B

Intersection Summary			
Average Delay	1.8		
Intersection Capacity Utilization	59.4%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	18	2061	88	38	1767	0	29	0	164	0	0	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	19	2169	93	40	1860	0	31	0	173	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								Raised			Raised	
Median storage veh)								0			0	
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1860			2262			2954	4194	769	2874	4240	620
vC1, stage 1 conf vol							2254	2254		1940	1940	
vC2, stage 2 conf vol							700	1940		934	2300	
vCu, unblocked vol	1860			2262			2954	4194	769	2874	4240	620
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	94			82			0	100	50	100	100	100
cM capacity (veh/h)	321			223			25	25	344	25	15	431

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	NB 1	NB 2	SB 1	SB 2
Volume Total	19	868	868	527	40	744	744	372	31	173	0	0
Volume Left	19	0	0	0	40	0	0	0	31	0	0	0
Volume Right	0	0	0	93	0	0	0	0	0	173	0	0
cSH	321	1700	1700	1700	223	1700	1700	1700	25	344	1700	1700
Volume to Capacity	0.06	0.51	0.51	0.31	0.18	0.44	0.44	0.22	1.24	0.50	0.00	0.00
Queue Length (ft)	5	0	0	0	16	0	0	0	94	67	0	0
Control Delay (s)	16.9	0.0	0.0	0.0	24.6	0.0	0.0	0.0	496.0	25.6	0.0	0.0
Lane LOS	C				C				F	D	A	A
Approach Delay (s)	0.1				0.5				96.3		0.0	
Approach LOS									F		A	

Intersection Summary			
Average Delay	4.8		
Intersection Capacity Utilization	58.6%	ICU Level of Service	B
Analysis Period (min)	15		