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March 13, 2002

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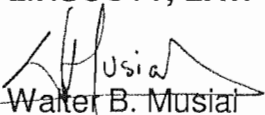
Dear Ms. Hamlin:

Linscott, Law & Greenspan, Engineers (LLG) is pleased to submit the attached traffic assessment for the 25th Street Community Center.

The study provides an impartial evaluation of the traffic implications of the 25th Street Community Center development and 25th Street road narrowing with respect to emergency vehicle operations.

We trust everything is in order.

Sincerely,
LINSCOTT, LAW & GREENSPAN



Walter B. Musial

Transportation Engineer II

Cc: T. Castineda
T. Hall
A. Holden

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**TRAFFIC ASSESSMENT
25TH STREET COMMUNITY CENTER
SAN DIEGO, CALIFORNIA**

Prepared by:



E N G I N E E R S

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JB/SK/WBM
3-01-1147

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TRAFFIC ASSESSMENT
25th STREET COMMUNITY CENTER
SAN DIEGO, CALIFORNIA

1.0 INTRODUCTION

Linscott, Law & Greenspan Engineers (LLG) has been retained by Urban-West Development to assess the traffic implications of the proposed 25th Street Community Center within the City of San Diego. The development program consists of:

- Residential - 8,000 S.F.
- Retail - 5,000 S.F.
- Office - 2,400 S.F.
- Community Center - 4,450 S.F.

The total development equates to approximately 19,850 square feet.

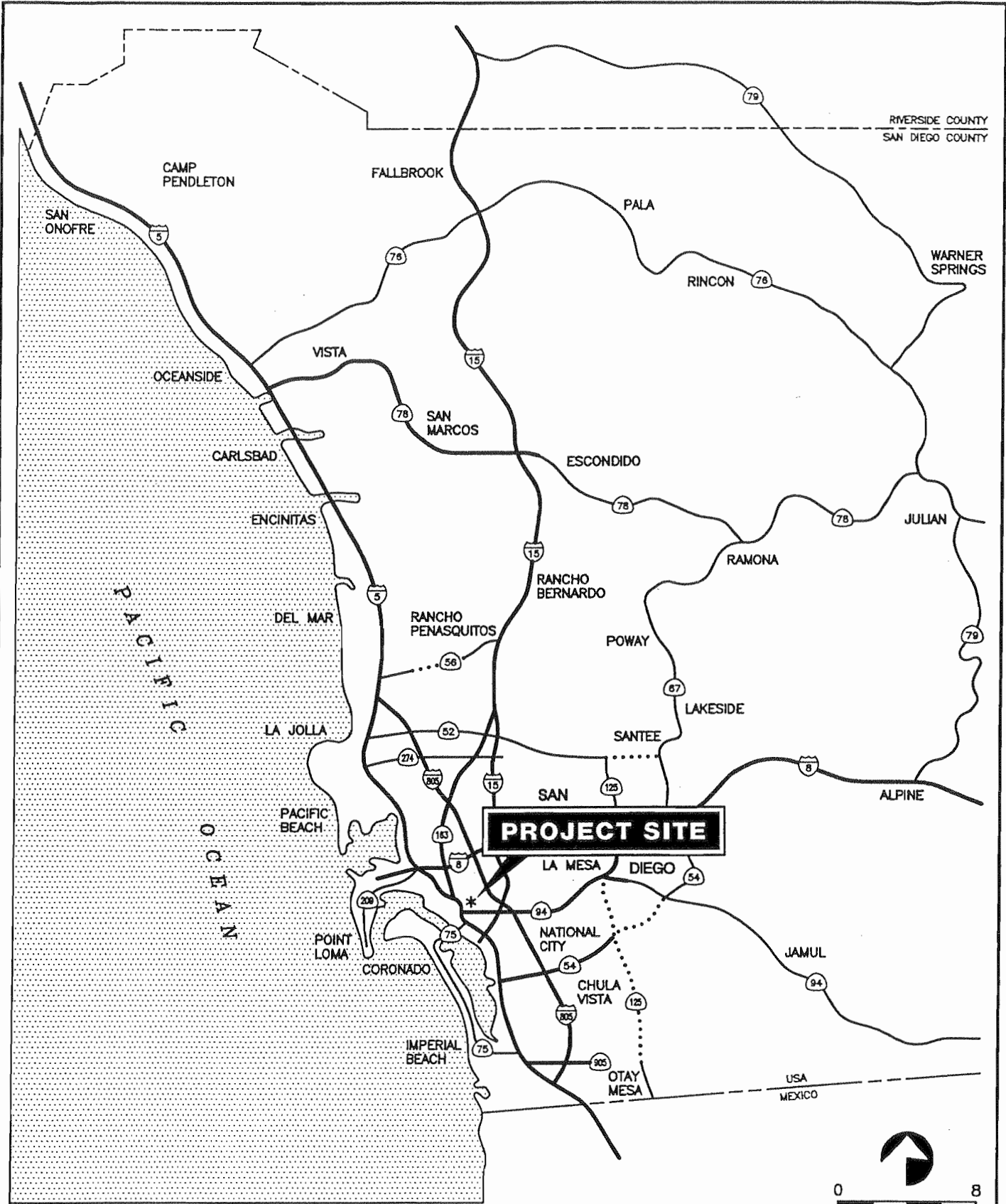
The subject site is located on the northeast corner of F Street and 25th Street in the community of Golden Hill. **Figure 1** shows the project vicinity. **Figure 2** illustrates, in more detail, the site location.

In conjunction with the construction of the Community Center, 25th Street is proposed to be converted from a four-lane to a two-lane with a center left-turn lane roadway between F Street and Broadway. Such a lane designation is consistent with the Golden Hill Community Plan's future street classification.

The purpose of this study is to evaluate the traffic implications of the 25th Street Community Center development and 25th Street road narrowing with respect to emergency vehicle operations. A fire station is currently situated at the southeast corner of Broadway / 25th Street, with access onto 25th Street.

1.1 Study Area

The study area for this project encompasses areas of anticipated impact related to the project. The scope of the study area was developed under a working knowledge of the local transportation system, and the Traffic Impact Study Manual from the City of San Diego.

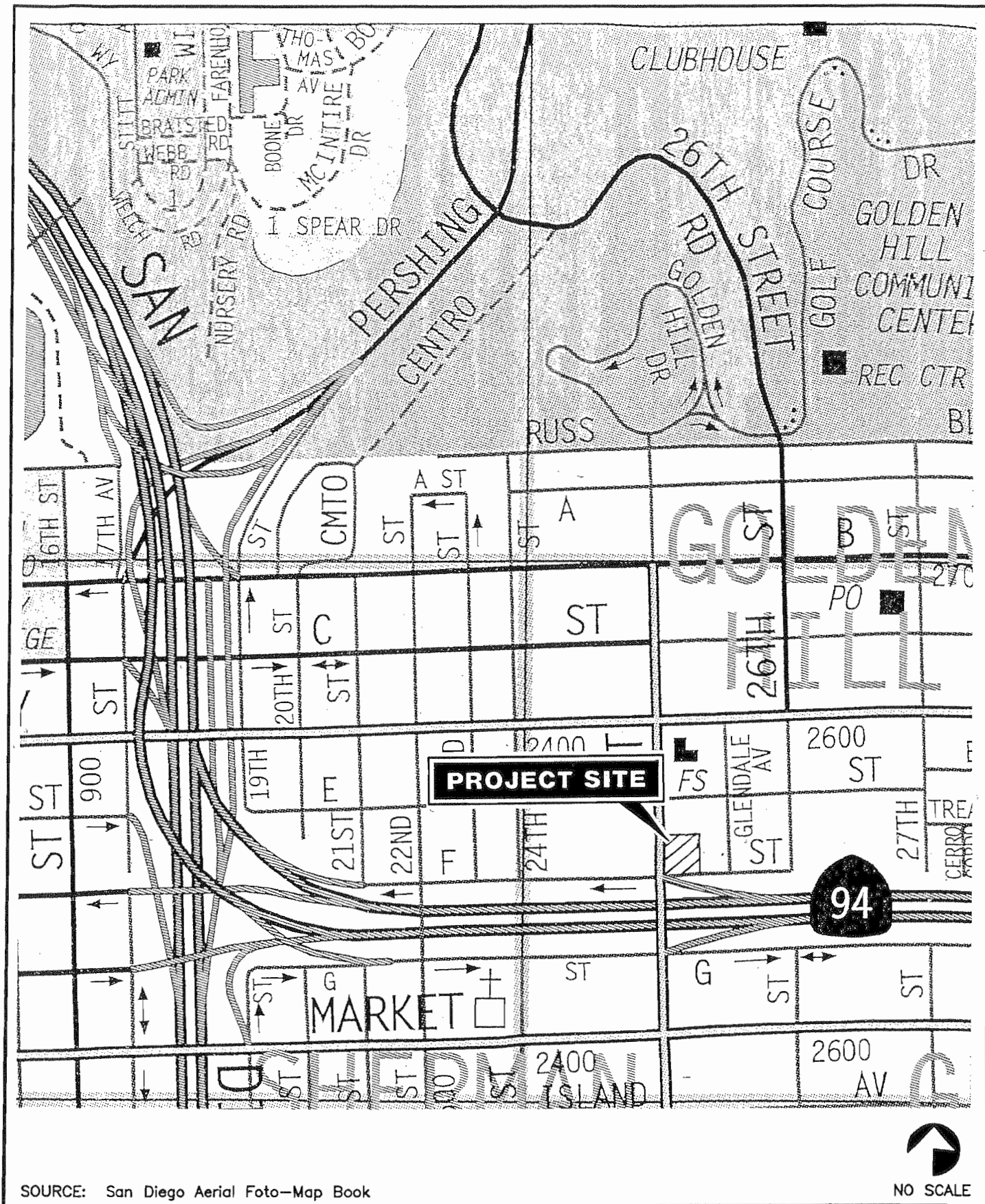


SOURCE: LLG Engineers, 2002

LLGVCITY.DWG



Figure 1
VICINITY MAP



SOURCE: San Diego Aerial Foto-Map Book

NO SCALE

Figure 2
PROJECT AREA MAP

The specific study area includes the following three intersections:

Signalized Intersections

- Broadway / 25th Street

Unsignalized Intersections

- E Street / 25th Street
- F Street / 25th Street

2.0 SITE CONTEXT

2.1 Project Description

The 25th Street Community Center project consists of a proposed mixed-use development. The development program consists of 8,000 square feet of residential (or 9 apartment units); 5,000 square feet of retail; 2,400 square feet of office space; and 4,450 square feet of Community Center space. The total development equates to approximately 19,850 square feet.

Site access is to be provided via the alleyway loading onto E Street. Full turning movements are proposed. **Figure 3** depicts the conceptual project site plan. The site is partially vacant and is occupied by a gas/service station.

2.2 Existing Street System

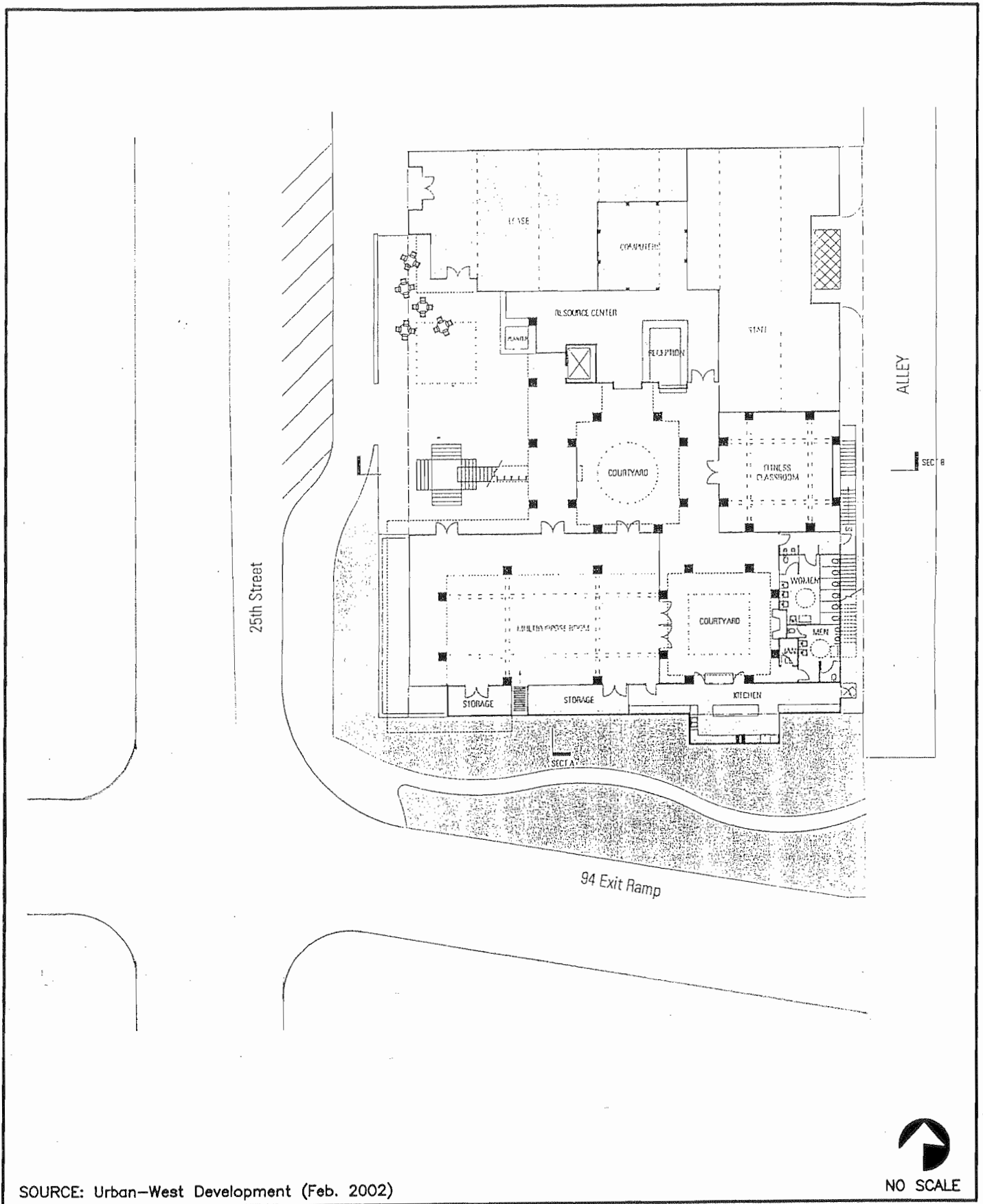
According to the *Golden Hill Community Plan*, Collector Streets vary from two to four lanes. They are intended to provide for local traffic movement and access to abutting property and to function as a feeder of traffic to the major street system. Local Streets are usually two lanes and provide direct access to abutting property.

The following provides a brief description of the street system in the project area. **Figure 4** illustrates existing conditions.

25th Street is classified as a Collector Street. It extends from Route 94 to Balboa Park within the Community of Golden Hill. It provides four undivided travel lanes. It is currently signalized at Broadway. The speed limit is posted at 35 mph and parking is provided on both sides. 25th Street's future roadway classification, as per the Golden Hill Community Plan, is a 3-lane Collector Street.

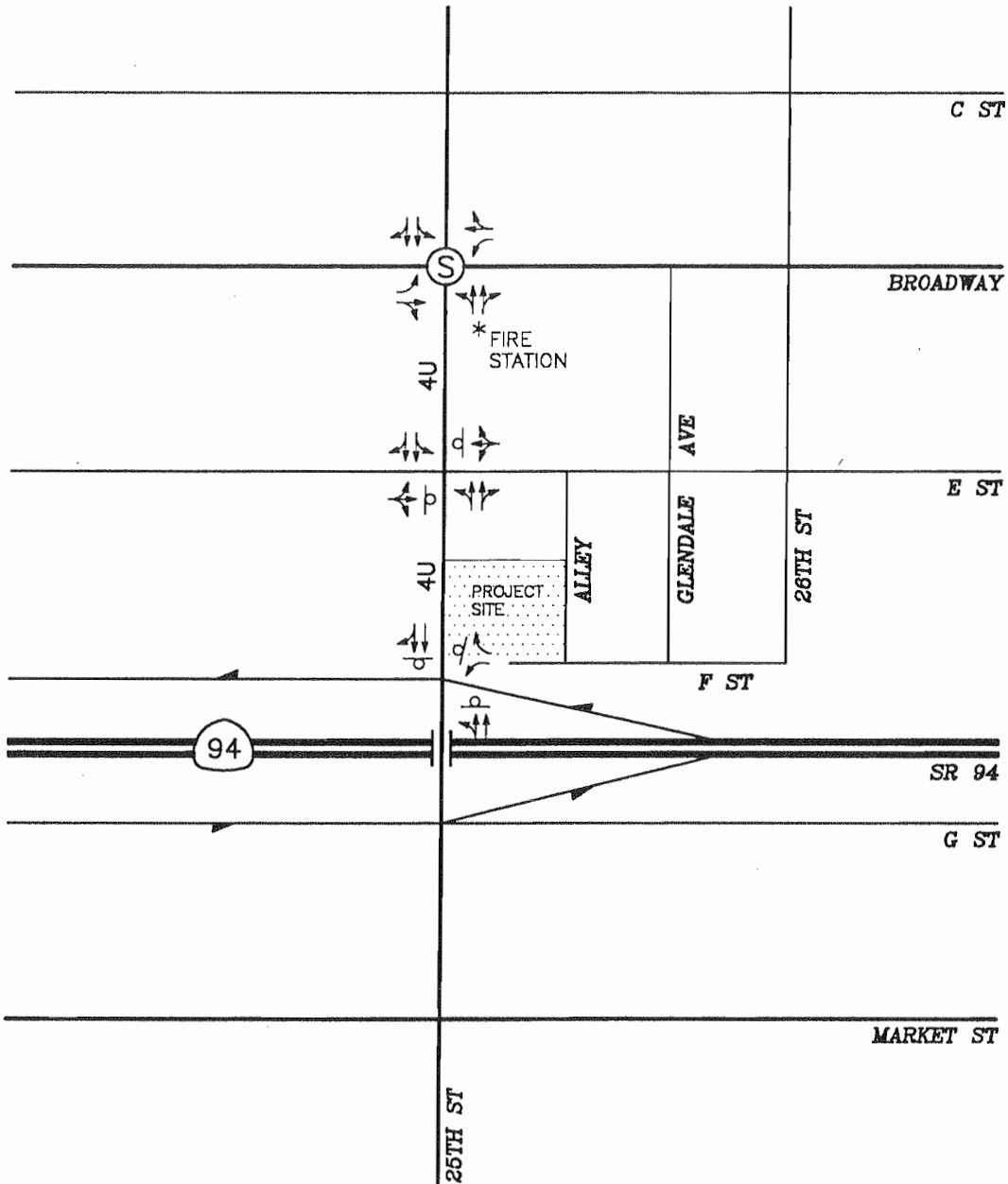
Broadway is classified as Collector Street. It extends from Interstate 5 to Route 94 within the City limits, intersecting 25th Street. It currently provides two undivided travel lanes. The speed limit is posted at 25 mph and parking is provided on both sides.

E and F Street are classifieds as Local Streets and provide two lanes of travel with parking on both sides. The only exception being F Street west of 25th Street, which provides three undivided travel lanes.



SOURCE: Urban-West Development (Feb. 2002)

Figure 3
SITE PLAN



LEGEND

- Ⓢ - Traffic Signal
- ⊖ - STOP Sign
- 2U - Two lane undivided roadway
- 4D - Four lane divided roadway

REV. 02/04/02

FIG1147.DWG



NO SCALE

2.3 Future Street System

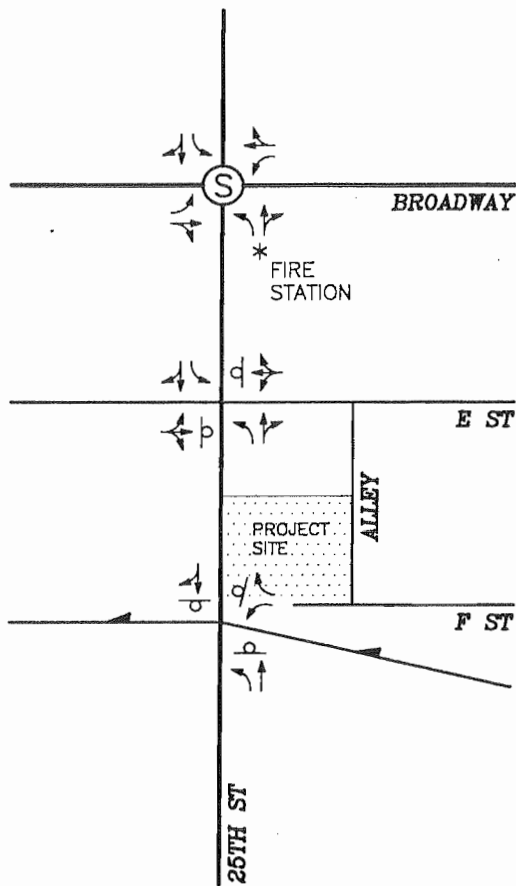
2.3.1 Scenario 1

In conjunction with the construction of the Community Center, 25th Street is proposed to be converted from a four-lane to a two-lane with a center left-turn lane roadway between F Street and Broadway. Such a lane designation is consistent with the Golden Hill Community Plan's future street classification. The existing and future street classification figures are attached in **Appendix A**.

2.3.2 Scenario 2

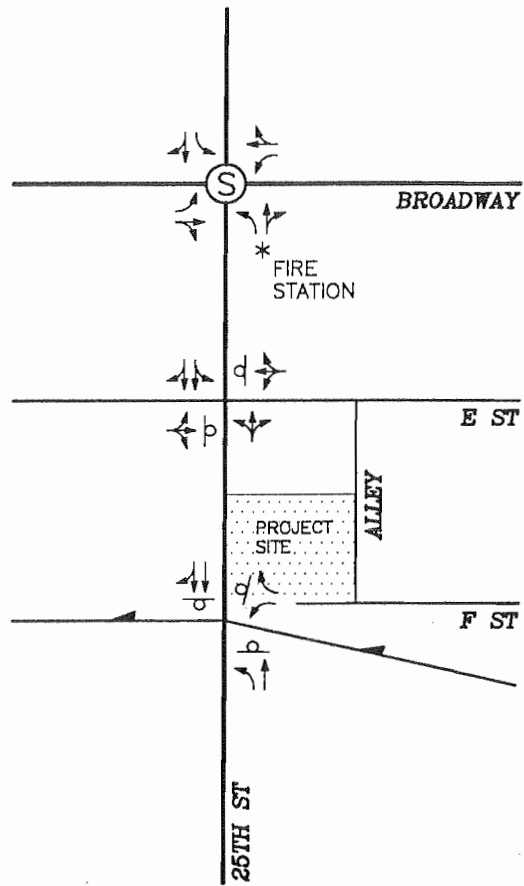
An alternate three-lane configuration was evaluated as part of a sensitivity analysis. The alternate scenario consists of one northbound and two southbound lanes, for a total three-lane cross-section. The lane assignments are based existing north and southbound traffic volumes.

Figure 5 illustrates the two scenarios.



SCENARIO 1

(3 LANES WITH CENTER LEFT-TURN LANE)



SCENARIO 2

(3 LANES - 1 LANE NORTHBOUND & TWO LANES SB)

LEGEND

- Ⓢ - Traffic Signal
- ⓪ - STOP Sign

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FIG1147.DWG



NO SCALE

3.0 TRAFFIC FORECASTS

3.1 Existing Traffic Volumes

Existing AM and PM peak hour traffic volumes were collected at key area intersections to capture peak commuter activity. The AM and PM peak hour counts were conducted in January 2002. **Table 1** tabulates existing street segment Average Daily Traffic (ADT) volumes within the project area. A review of the results indicates slightly higher southbound movement. **Figure 6** shows the existing AM / PM peak hour turning movement counts and ADT's. **Appendix B** contains copies of the intersection and segment count sheets.

**Table 1
Existing ADTs**

Street Segment	Source (Date)	Northbound ADT	Southbound ADT	Total ADT
25 th Street				
between Broadway and E Street	LLG ¹ (2002)	5,600	6,300	11,900
between E Street and F Street	LLG (2002)	6,100	7,100	13,200

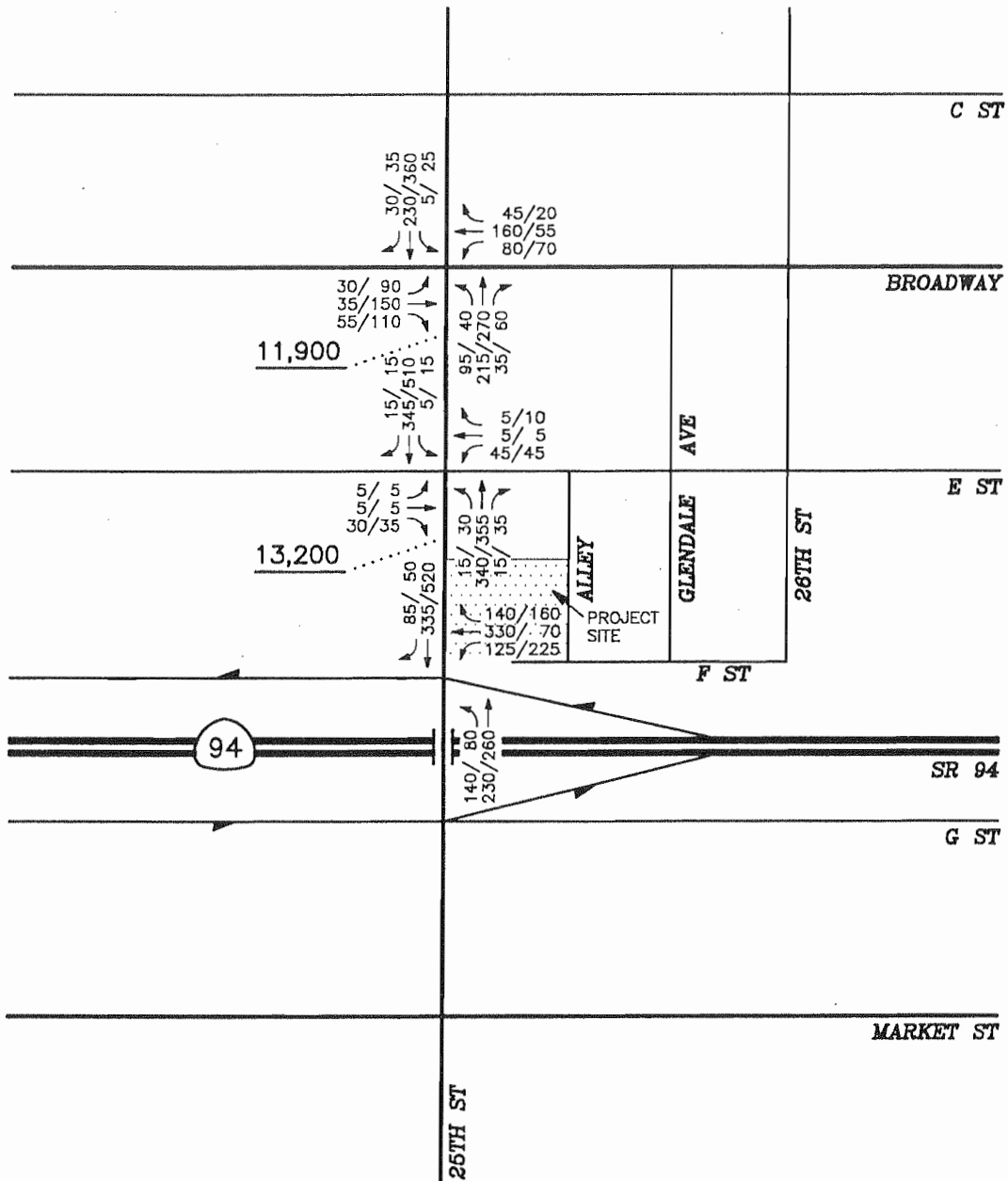
Notes:

1. Traffic counts conducted by Linscott, Law & Greenspan Engineers.

3.2 Background Traffic Growth

Background traffic growth was taken into consideration to account for potential land development, economic activity and change in demographics in the vicinity of the study area.

Based on a five-year horizon, a conservative growth factor of 2.5% was applied to the baseline traffic volumes. This represents a one-half percent growth per year. A review of historical traffic data along 25th Street, north of Route 94 in fact indicates a reduction in traffic volumes of approximately one percent from 1991 to 2000.



NOTE: - ADT's are shown midblock
 - AM/PM Peak hour volumes are shown at the intersections

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FIG1147.DWG



NO SCALE

3.3 Project Traffic Generation

Trip generation estimates for the proposed development was calculated based on the City of San Diego Trip Generation Manual (September 1998) and ITE Trip Generation Rates (6th Edition). The specific land use designation used for the trip generation was 'Multi-Family Dwelling Unit', 'Specialty Retail', 'Single Tenant Office' and 'Community Center', as it best fits the description of the project. **Table 2** tabulates the project traffic generation. The project is calculated to generate approximately 426 ADT with 15 inbound / 11 outbound trips during the AM peak hour and 19 inbound / 23 outbound trips during the PM peak hour.

**Table 2
Project Trip Generation**

Land Use	Trip Rate ¹	Weekday ADT ²	AM Peak Hour		PM Peak Hour	
			In	Out	In	Out
Residential 'Apartment' (9 units)	8 trips / dwelling unit AM - 8% of ADT {2:8} ³ PM - 10% of ADT {7:3}	72	1	5	5	2
Retail 'Specialty Retail' (5,000 S.F.)	40 trips / 1,000 S.F. AM - 3% of ADT {6:4} PM - 9% of ADT {5:5}	200	4	2	9	9
Office 'Single Tenant' (2,400 S.F.)	10 trips / 1,000 S.F. AM - 15% of ADT {9:1} PM - 15% of ADT {1:9}	24	3	1	1	3
Community Center (4,450 S.F.)	AM - 2.2 trips / 1,000 S.F. {7:3} ⁴ PM - 2.8 trips / 1,000 S.F. {3:7} ⁴	130 ⁵	7	3	4	9
Total		426	15	11	19	23

NOTES:

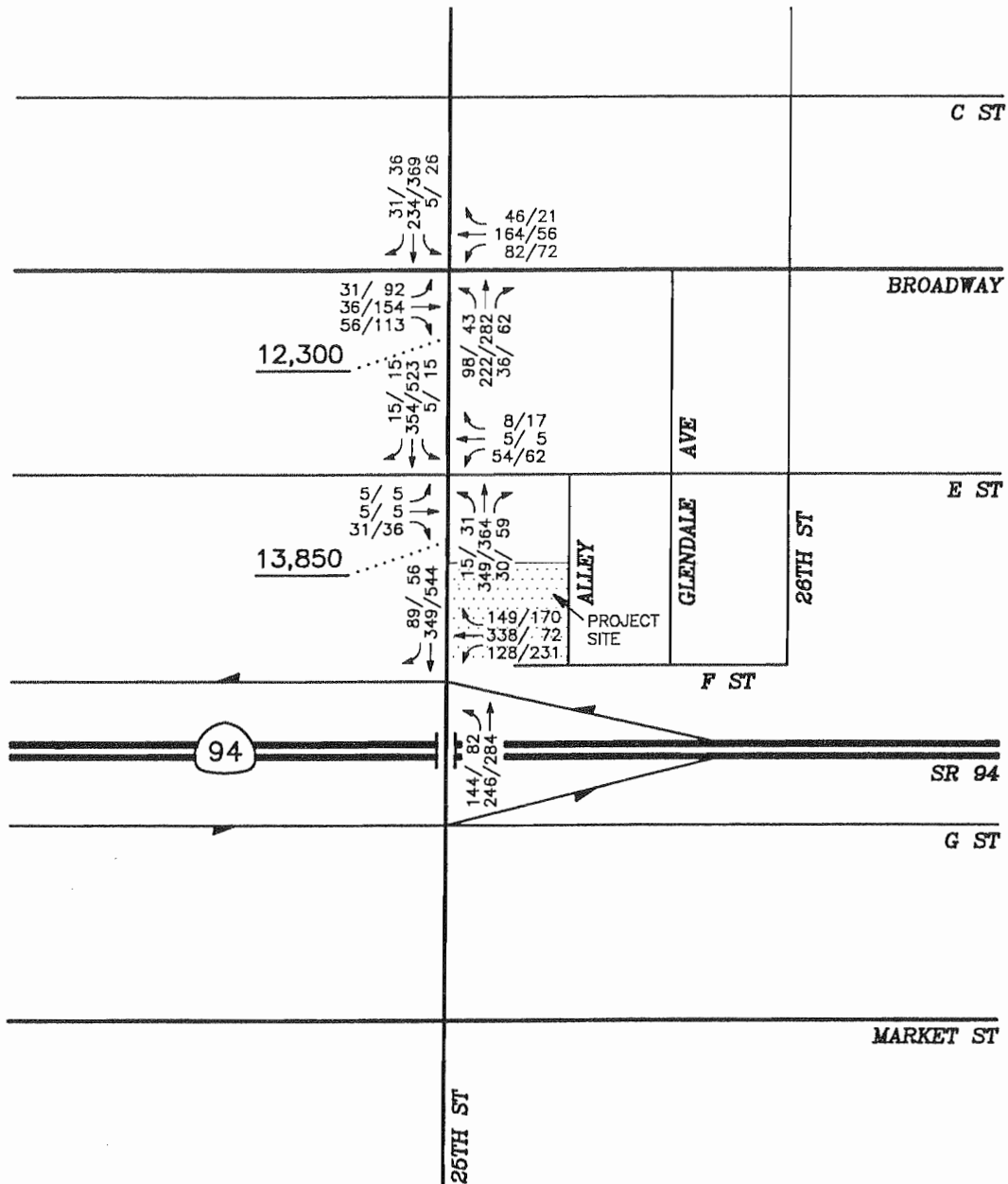
1. Based on the City of San Diego Trip Generation Manual, September 1998, unless otherwise noted.
2. Traffic volumes expressed in vehicles per day.
3. Ratio denotes in:out traffic split.
4. Based on ITE Trip Generation Rates, 6th Edition.
5. ADT derived from peak hour volumes at 8% and 10% of ADT for the AM and PM periods, respectively.

3.4 Project Traffic Distribution / Assignment

The project generated traffic was distributed and assigned to the street system based on the review of site access parameters, roadway system characteristics (i.e. project's proximity to Interstate 5 and Route 94), and existing traffic turning movement counts. The resultant existing + background traffic + project traffic volumes are shown in **Figure 7**.

3.5 Year 2020 Traffic Volumes

Future traffic volumes were forecasted to the year 2020 to represent community build-out conditions. The 2020 ADTs were obtained from SANDAG's Series 9 City/County Forecast Model. **Figure 8** shows Year 2020 AM/PM traffic volumes and ADTs.



NOTE: - ADT's are shown midblock
 - AM/PM Peak hour volumes are shown at the intersections

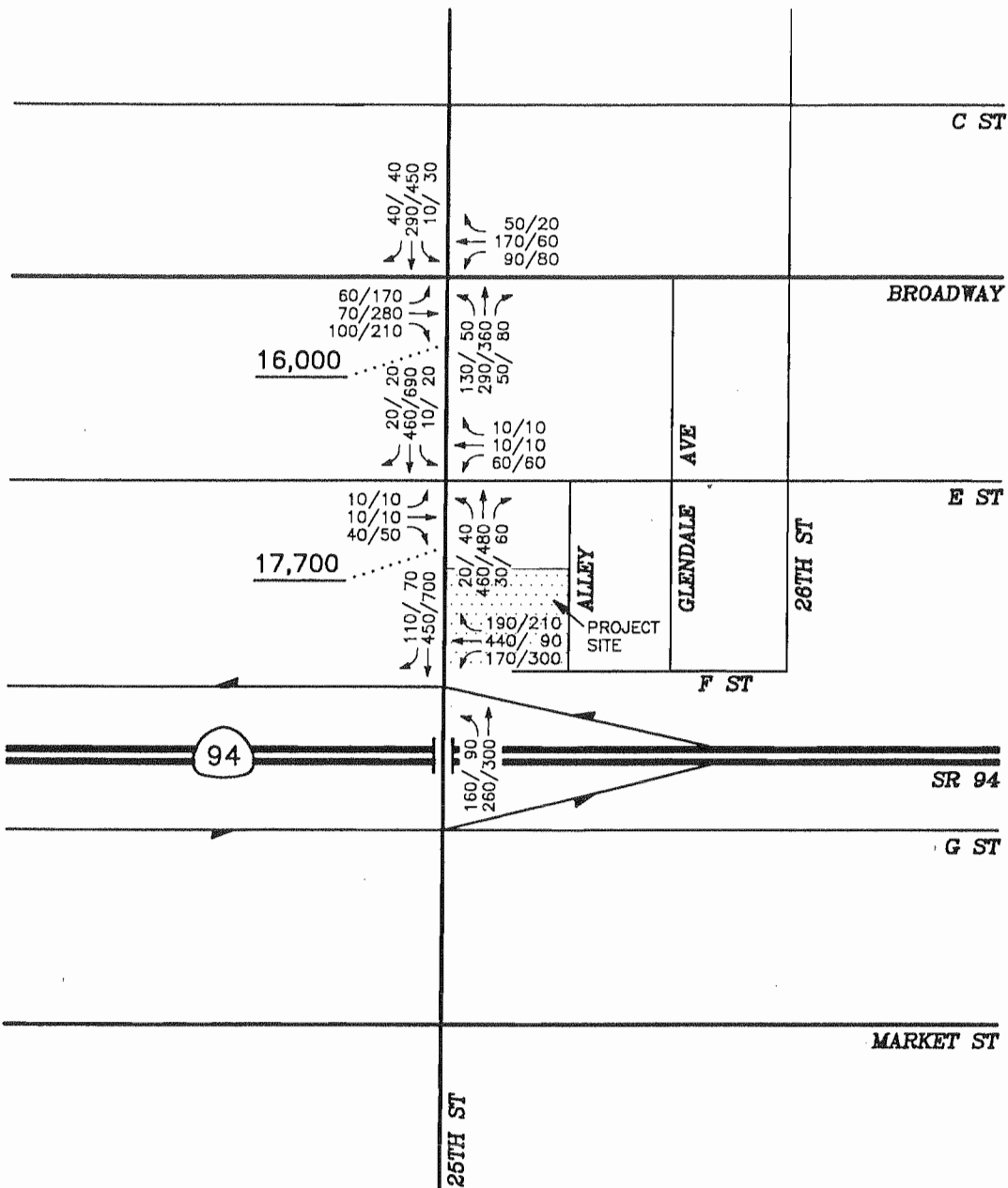
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FIG1147.DWG



Figure 7

EXISTING + BACKGROUND TRAFFIC + PROJECT TRAFFIC VOLUMES
 AM/PM PEAK HOURS & ADTs



NOTE: - ADT's are shown midblock
 - AM/PM Peak hour volumes are shown at the intersections

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FIG1147.DWG



NO SCALE

Figure 8
 YEAR 2020 TRAFFIC VOLUMES
 AM/PM PEAK HOURS & ADTs

4.0 TRAFFIC OPERATIONS ANALYSIS

4.1 Traffic Analysis Methodology

Level of service (LOS) is the term used to denote the different operating conditions which occur on a given roadway segment under various traffic volume loads. It is a qualitative measure used to describe a quantitative analysis taking into account factors such as roadway geometries, signal phasing, speed, travel delay, freedom to maneuver, and safety. Level of service provides an index to the operational qualities of a roadway segment or an intersection. Level of service designations range from A to F, with LOS A representing the best operating conditions and LOS F representing the worst operating conditions. Level of service designation is reported differently for signalized and unsignalized intersections.

Signalized intersections were analyzed under AM and PM peak hour conditions. Average vehicle delay was determined utilizing the methodology found in Chapter 9 of the *2000 Highway Capacity Manual (HCM)*, with the assistance of the *Synchro* (version 5) computer software. The delay values (represented in seconds) were qualified with a corresponding intersection Level of Service (LOS). Signalized intersection calculation worksheets and a more detailed explanation of the methodology are attached in **Appendix C**.

Unsignalized intersections were analyzed under AM and PM peak hour conditions. Average vehicle delay and Levels of Service (LOS) was determined based upon the procedures found in Chapter 10 of the *2000 Highway Capacity Manual (HCM)*, with the assistance of the *Synchro* (version 5) computer software. Unsignalized intersection calculation worksheets and a more detailed explanation of the methodology are attached in Appendix C.

Two-way and all-way stop are reported differently for unsignalized intersections. For two-way stop control, only the conflicting major street and minor street movements are reported along with the overall intersection delay. All-way stop control simply reports the overall intersection delay since all movements are controlled and assumed to proceed in an orderly fashion.

4.2 Near-Term Traffic Operations

Tables 3 and 4 report intersection near-term operations during peak hour conditions, under both signalized and unsignalized control.

Under the existing configuration of 25th Street (4 lanes) the signalized intersection of Broadway / 25th Street will operate at LOS B. The unsignalized intersections at E and F Street are calculated to operation with an overall LOS C or better, with F Street / 25th Street being to the more critical intersection.

The implementation of Scenario 1 (3 lanes with center left-turn lane) will incur delay to the study intersections. The signalized intersection of Broadway / 25th Street will continue to operate at LOS B. E Street and 25th Street is calculated to operate at LOS C or better. F Street / 25th Street is expected to operate at LOS D and F during the AM and PM peak periods respectively. Such a poor overall intersection Level of Service for this intersection in the PM period can be attributed to the high southbound demand served by only one lane. Restriping or widening at the intersection would improve intersection performance significantly.

Scenario 2 (3 lanes - 1 northbound and 2 southbound lanes) is calculated to better accommodate traffic, with results comparable to the existing 4-lane conditions. The signalized intersection of Broadway / 25th Street will continue to operate at LOS B. The unsignalized intersections along 25th Street at E and F Street are calculated to operate at LOS C or better.

Scenario 2 is calculated to better accommodate traffic than Scenario 1, with results comparable to the existing 4-lane configuration for near-term conditions.

**Table 3
Near-Term Signalized Intersection Operations¹**

Intersection	Peak Hour	Existing Configuration (4 lanes - Existing)		Scenario 1 (3 lanes - Center LT Lane)		Scenario 2 (3 lanes -1 NB + 2 SB)	
		Delay ²	LOS ³	Delay	LOS	Delay	LOS
Broadway / 25 th Street	AM	15.1	B	15.7	B	15.7	B
	PM	15.9	B	17.3	B	17.3	B

Notes:

1. Analysis based on 'Existing + Background Traffic + Project' traffic volumes.
2. Average delay expressed in seconds per vehicle.
3. Level of Service. See Appendix for delay thresholds.

LOS	Delay per Vehicle (Sec.)
A	≤ 10.0
B	10.1 to 20.0
C	20.1 to 35.0
D	35.1 to 55.0
E	55.1 to 80.0
F	> 80.0

**Table 4
Near-Term Unsignalized Intersection Operations**

Intersection	Peak Hour	Street Movement	Existing Configuration (4 lanes - Existing)		Scenario 1 (3 lanes - Center LT Lane)		Scenario 2 (3 lanes - 1 NB + 2 SB)	
			Delay ¹	LOS ²	Delay	LOS	Delay	LOS
E Street / 25 th Street (2-way stop)	AM	WB LTR	8.8	A	9.0	A	8.9	A
		SB L	9.2	A	7.3	A	9.0	A
		Overall	9.2	A	13.2	B	11.1	B
	PM	WB LTR	9.2	A	9.5	A	9.4	A
		SB L	11.7	B	7.6	A	11.5	B
		Overall	11.0	B	24.2	C	13.8	B
F Street / 25 th Street (all-way stop)	AM	Overall	17.9	C	26.7	D	18.1	C
	PM	Overall	16.9	C	59.8	F	17.8	C

Notes:

1. Analysis based on 'Existing + Background Traffic + Project' traffic volumes.
2. Average delay expressed in seconds per vehicle.
3. Level of Service. See Appendix for delay thresholds.

LOS	Delay per Vehicle (Sec.)
A	≤ 10.0
B	10.1 to 15.0
C	15.1 to 25.0
D	25.1 to 35.0
E	35.1 to 50.0
F	> 50.0

4.3 Year 2020 Operations

Tables 5 and 6 report intersection Year 2020 operations during peak hour conditions, under both signalized and unsignalized control.

Scenario 1 (3 lanes with center left-turn lane), under Year 2020 conditions is calculated to operate at LOS C or better for the signalized intersection of Broadway / 25th Street. E Street and F Street at 25th Street are capacity constrained as evidenced by the calculated LOS F or better. As is common of unsignalized intersections, particular movements may experience high delay during peak traffic periods. Such conditions can be attributed to low gap potential. Restriping or widening at the intersection would improve intersection performance significantly.

Scenario 2 (3 lanes - 1 northbound and 2 southbound lanes) is calculated to better accommodate traffic than Scenario 1. The signalized intersection of Broadway / 25th Street is calculated to operate at LOS B. The unsignalized intersections along 25th Street at E and F Street are calculated to operate at LOS E or better.

Scenario 2 is calculated to better accommodate traffic than Scenario 1 for Year 2020 conditions.

4.3 Emergency Vehicle Considerations

The foregoing analysis attempts to quantify the impact to emergency vehicle operations due to the narrowing of 25th Street. A fire station is currently situated at the southeast corner of Broadway / 25th Street, with access onto 25th Street.

The results indicate that Scenario 2 will accommodate traffic more efficiently than Scenario 1. However, Scenario 1 will provide a buffer contributing to better emergency vehicle maneuvering. In other words, the center left-turn lane may provide a direct channel or corridor for emergency vehicles during congested times of the day. Long-term planning would dictate that Scenario 2 would best accommodate Year 2020 traffic volumes under existing intersection control. However, potential signalization of 25th Street/F Street (with emergency vehicle pre-emption) would significantly improve intersection operations under either scenario and should be considered as a prospective long-term strategy.

The results are not completely indicative of emergency vehicle maneuverability along 25th Street when driver behavior is taken into account. Motorists are generally cooperative, moving their vehicles to the side of the roadway to give right-of-way to emergency vehicles. Therefore taking all variables into consideration, both scenarios will serve emergency vehicles adequately.

**Table 5
Year 2020 Signalized Intersection Operations¹**

Intersection	Peak Hour	Scenario 1 (3 lanes - Center LT Lane)		Scenario 2 (3 lanes -1 NB + 2 SB)	
		Delay	LOS	Delay	LOS
Broadway / 25 th Street	AM	16.2	B	16.2	B
	PM	20.6	C	19.8	B

Notes:

1. Analysis based on 2020 traffic volumes.
2. Average delay expressed in seconds per vehicle.
3. Level of Service. See Appendix for delay thresholds.

LOS	Delay per Vehicle (Sec.)
A	≤ 10.0
B	10.1 to 20.0
C	20.1 to 35.0
D	35.1 to 55.0
E	55.1 to 80.0
F	> 80.0

**Table 6
Year 2020 Unsignalized Intersection Operations**

Intersection	Peak Hour	Street Movement	Scenario 1 (3 lanes - Center LT Lane)		Scenario 2 (3 lanes - 1 NB + 2 SB)	
			Delay	LOS	Delay	LOS
E Street / 25 th Street	AM	WB LTR	9.8	A	9.7	A
		SB L	7.6	A	10.8	B
		Overall	23.6	C	16.1	C
	PM	WB LTR	10.1	B	10.1	B
		SB L	7.9	A	16.4	C
		Overall	79.7	F	25.2	D
F Street / 25 th Street	AM	Overall	67.7	F	35.0	E
	PM	Overall	>80.0	F	35.8	E

Notes:

1. Analysis based on 2020 traffic volumes.
2. Average delay expressed in seconds per vehicle.
3. Level of Service. See Appendix for delay thresholds.

LOS	Delay per Vehicle (Sec.)
A	≤ 10.0
B	10.1 to 15.0
C	15.1 to 25.0
D	25.1 to 35.0
E	35.1 to 50.0
F	> 50.0

5.0 CONCLUSION

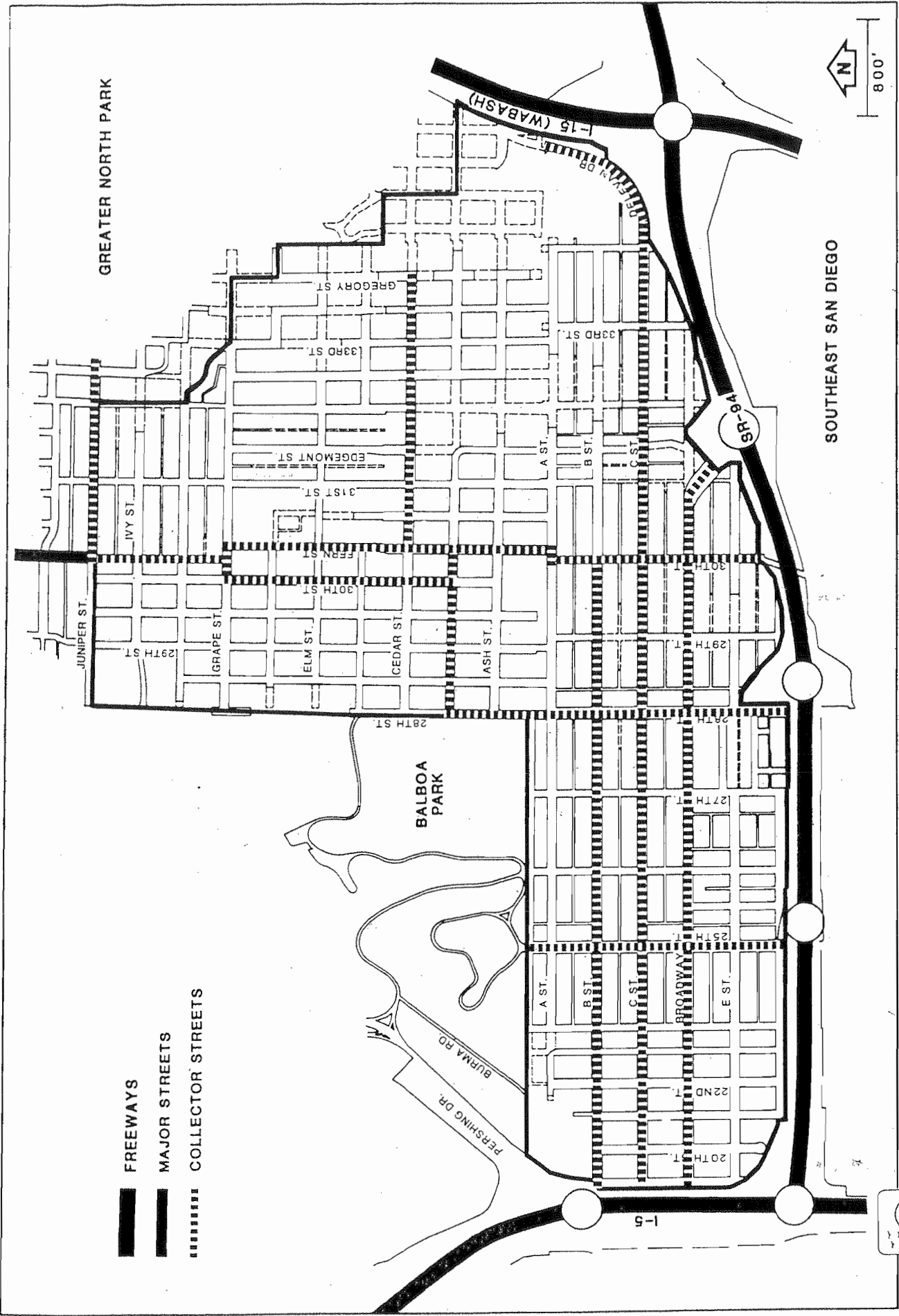
In conjunction with the construction of the Community Center, 25th Street is proposed to be converted from a four-lane to a two-lane with a center left-turn lane roadway between F Street and Broadway. Such a lane designation is consistent with the Golden Hill Community Plan's future street classification.

The purpose of this study is to evaluate the traffic implications of the 25th Street Community Center development and 25th Street road narrowing with respect to emergency vehicle operations. A fire station is currently situated at the southeast corner of Broadway / 25th Street, with access onto 25th Street.

Two scenarios were evaluated. Scenario 1 consists of a 3-lane cross-section with a center left-turn lane and Scenario 2 consists of a 3-lane cross-section with 1 northbound lane and 2 southbound lanes. The results indicate that Scenario 2 will accommodate traffic more efficiently than Scenario 1. However, Scenario 1 will provide a buffer contributing to better emergency vehicle maneuvering. In other words, the center left-turn lane may provide a direct channel or corridor for emergency vehicles during congested times of the day. Long-term planning would dictate that Scenario 2 would best accommodate Year 2020 traffic volumes under existing intersection control. However, potential signalization of 25th Street/F Street (with emergency vehicle pre-emption) would significantly improve intersection operations under either scenario and should be considered as a prospective long-term strategy.

The results are not completely indicative of emergency vehicle maneuverability along 25th Street when driver behavior is taken into account. Motorists are generally cooperative, moving their vehicles to the side of the roadway to give right-of-way to emergency vehicles. Therefore taking all variables into consideration, both scenarios will serve emergency vehicles adequately.

APPENDIX A
Golden Hill Community Plan Figures



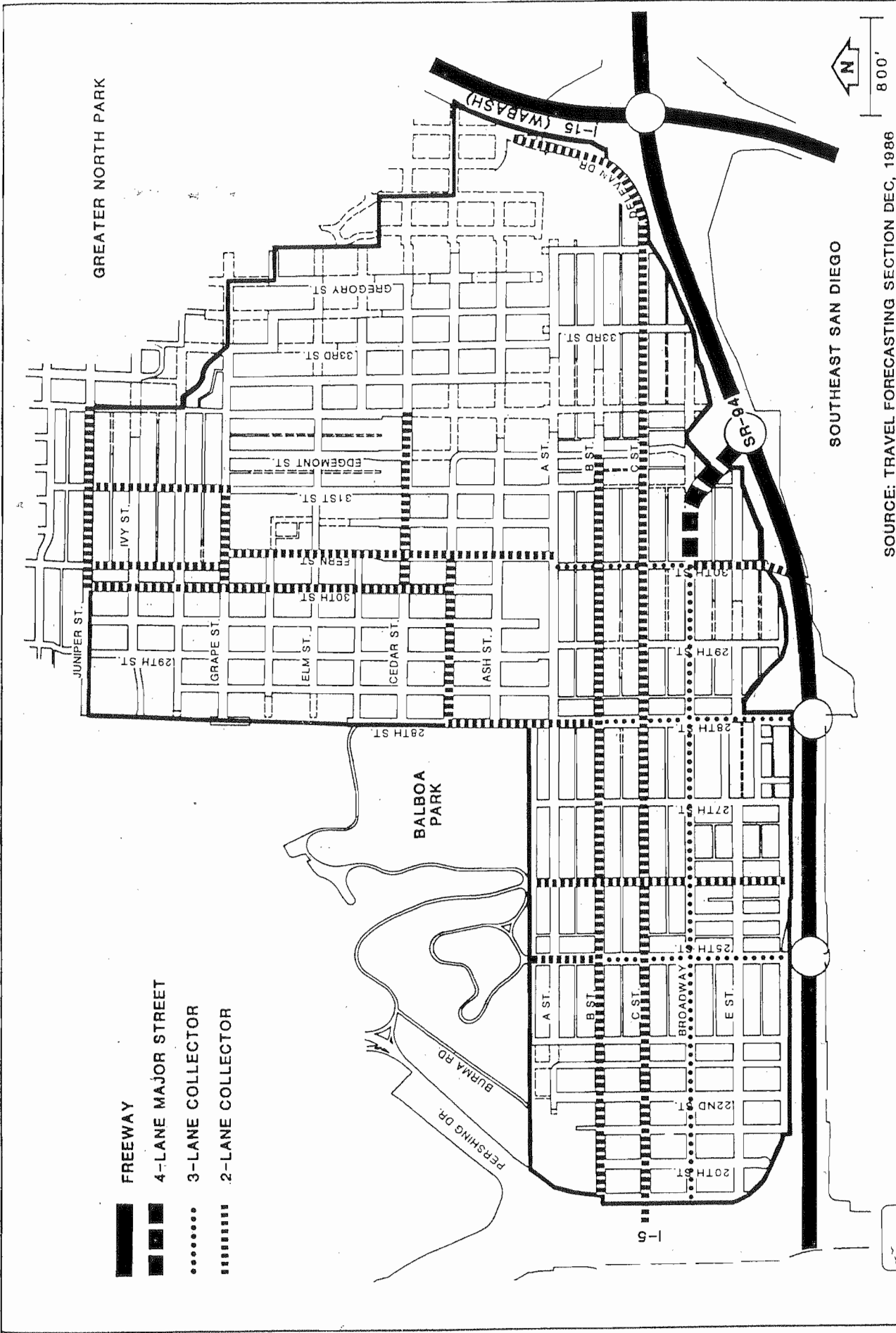
- FREEWAYS**
- MAJOR STREETS**
- COLLECTOR STREETS**

EXISTING STREET CLASSIFICATIONS
Golden Hill Community Plan

City of San Diego - Planning Department

Figure 14





SOURCE: TRAVEL FORECASTING SECTION DEC, 1986

FUTURE STREET CLASSIFICATIONS

Golden Hill Community Plan

City of San Diego - Planning Department

Figure 15



APPENDIX B
Intersection Manual Count Sheets

**2000 HIGHWAY CAPACITY MANUAL LEVEL OF SERVICE CRITERIA
FOR SIGNALIZED INTERSECTIONS**

In the 1997 Highway Capacity Manual (HCM), Level of Service for signalized intersections is defined in terms of delay. Delay is a measure of driver discomfort, frustration, fuel consumption, and lost travel time. Specifically, Level of Service criteria are stated in terms of the average control delay per vehicle for a 15-minute analysis period. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay.

Delay is a complex measure, and is dependent on a number of variables, including the quality of progression, the cycle length, the green ratio, and the v/c ratio for the lane group or approach in question.

LEVEL OF SERVICE	CONTROLLED DELAY PER VEHICLE (SEC)		
A		≤	10.0
B	10.1	to	20.0
C	20.1	to	35.0
D	35.1	to	55.0
E	55.1	to	80.0
F		>	80.0

Level of Service A describes operations with very low delay, (i.e. less than 10.0 seconds per vehicle). This occurs when progression is extremely favorable, and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.

Level of Service B describes operations with delay in the range of 10.1 to 20.0 seconds per vehicle. This generally occurs with good progression and/or short cycle lengths. More vehicles stop than for LOS A, causing higher levels of average delay.

Level of Service C describes operations with delay in the range of 20.1 to 35.0 seconds per vehicle. These higher delays may result from fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear in the level. The number of vehicles stopping is significant at this level, although many still pass through the intersections without stopping.

Level of Service D describes operations with delay in the range of 35.1 to 55.0 seconds per vehicle. At Level D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high v/c ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.

Level of Service E describes operations with delay in the range of 55.1 to 80.0 seconds per vehicle. This is considered to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are frequent occurrences.

Level of Service F describes operations with delay in excess of 80.0 seconds per vehicle. This is considered to be unacceptable to most drivers. This condition often occurs with over-saturation (i.e. when arrival flow rates exceed the capacity of the intersection). It may also occur at high v/c ratios below 1.00 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing causes to such delay levels.

**2000 HIGHWAY CAPACITY MANUAL LEVEL OF SERVICE CRITERIA
FOR UNSIGNALIZED INTERSECTIONS**

In the 2000 Highway Capacity Manual (HCM), Level of Service for unsignalized intersections is determined by the computed or measured control delay and is defined for each minor movement. Level of Service is not defined for the intersection as a whole. Delay is a measure of driver discomfort, frustration, fuel consumption, and lost travel time. The criteria are given in the following table, and are based on the average control delay for any particular minor movement.

LEVEL OF SERVICE	AVERAGE CONTROL DELAY SEC/VEH		EXPECTED DELAY TO MINOR STREET TRAFFIC
A	0.0	≤ 10.0	Little or no delay
B	10.1	to 15.0	Short traffic delays
C	15.1	to 25.0	Average traffic delays
D	25.1	to 35.0	Long traffic delays
E	35.1	to 50.0	Very long traffic delays
F		> 50.0	Severe congestion




















Level of Service F exists when there are insufficient gaps of suitable size to allow a side street demand to safely cross through a major street traffic stream. This Level of Service is generally evident from extremely long control delays experienced by side-street traffic and by queuing on the minor-street approaches. The method, however, is based on a constant critical gap size; that is, the critical gap remains constant no matter how long the side-street motorist waits. LOS F may also appear in the form on side-street vehicles selecting smaller-than-usual gaps. In such cases, safety may be a problem, and some disruption to the major traffic stream may result. It is important to note that LOS F may not always result in long queues but may result in adjustments to normal gap acceptance behavior, which are more difficult to observe in the field than queuing.

In most cases at Two-Way Stop Controlled (TWSC) intersections, the critical movement is the minor-street left-turn movement. As such, the minor-street left-turn movement can generally be considered the primary factor affecting overall intersection performance. The lower threshold for LOS F is set at 50 seconds of delay per vehicle. There are many instances, particularly in urban areas, in which the delay equations will predict delays of 50 seconds (LOS F) or more for minor-street movements under very low volume conditions on the minor street (less than 25 vehicle/hour). Since the first term of the equation is a function only of the capacity, the LOS F threshold of 50 sec/vehicle is reached with a movement capacity of approximately 85 vehicle/hour or less.

This procedure assumes random arrivals on the major street. For a typical four-lane arterial with average daily traffic volumes in the range of 15,000 to 20,000 vehicles per day (peak hour, 1,500 to 2,000 vehicle/hour), the delay equation used in the TWSC capacity analysis procedure will predict 50 seconds of delay or more (LOS F) for many urban TWSC intersections that allow minor-street left-turn movements. **The LOS F threshold will be reached regardless of the volume of minor-street left-turn traffic.** Notwithstanding this fact, most low-volume minor-street approaches would not meet any of the volume or delay warrants for signalization of the *Manual on Uniform Traffic Control Devices (MUTCD)* since the warrants define an asymptote at 100 vehicle/hour on the minor approach. As a result, many public agencies that use the HCM Level of Service thresholds to determine the design adequacy of TWSC intersections may be forced to eliminate the minor-street left-turn movement, even when the movement may not present any operational problem, such as the formation of long queues on the minor street or driveway approach.

APPENDIX C
Intersection Calculation Sheets

1/31/2002

												
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
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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	1770	1512	0	1770	1757	0	0	3344	0	0	3392	0
Flt Permitted	0.570			0.694				0.777			0.950	
Satd. Flow (perm)	981	1512	0	1121	1757	0	0	2506	0	0	3220	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		60			19			16			18	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2464			592			743			1081	
Travel Time (s)		56.0			13.5			16.9			24.6	
Volume (vph)	30	35	55	80	160	45	95	215	35	5	230	30
Confl. Peds. (#/hr)	62		88	81		55	88		81	55		62
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Lane Group Flow (vph)	33	98	0	87	223	0	0	375	0	0	288	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Total Split (s)	50.0	50.0	0.0	50.0	50.0	0.0	50.0	50.0	0.0	50.0	50.0	0.0
Act Effct Green (s)	46.0	46.0		46.0	46.0			46.0			46.0	
Actuated g/C Ratio	0.46	0.46		0.46	0.46			0.46			0.46	
v/c Ratio	0.07	0.13		0.17	0.27			0.32			0.19	
Uniform Delay, d1	15.1	5.8		15.8	15.1			16.3			14.9	
Delay	15.4	7.2		16.3	15.4			16.6			15.1	
LOS	B	A		B	B			B			B	
Approach Delay		9.3			15.7			16.6			15.1	
Approach LOS		A			B			B			B	
Queue Length 50th (ft)	11	13		31	77			70			48	
Queue Length 95th (ft)	29	42		63	128			102			74	
Internal Link Dist (ft)		2384			512			663			1001	
50th Up Block Time (%)												
95th Up Block Time (%)												
Turn Bay Length (ft)												
50th Bay Block Time %												
95th Bay Block Time %												
Queuing Penalty (veh)												

Intersection Summary

Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
 Control Type: Pretimed
 Maximum v/c Ratio: 0.32
 Intersection Signal Delay: 15.1
 Intersection LOS: B
 Intersection Capacity Utilization 50.0%
 ICU Level of Service A

1/31/2002

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
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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	1770	1514	0	1770	1757	0	0	3344	0	0	3391	0
Flt Permitted	0.565			0.692				0.773			0.950	
Satd. Flow (perm)	974	1514	0	1119	1757	0	0	2494	0	0	3220	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		61			19			16			19	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2464			592			743			1081	
Travel Time (s)		56.0			13.5			16.9			24.6	
Volume (vph)	31	36	56	82	164	46	98	222	36	5	234	31
Confl. Peds. (#/hr)	62		88	81		55	88		81	55		62
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Lane Group Flow (vph)	34	100	0	89	228	0	0	387	0	0	293	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Total Split (s)	50.0	50.0	0.0	50.0	50.0	0.0	50.0	50.0	0.0	50.0	50.0	0.0
Act Effct Green (s)	46.0	46.0		46.0	46.0			46.0			46.0	
Actuated g/C Ratio	0.46	0.46		0.46	0.46			0.46			0.46	
v/c Ratio	0.08	0.14		0.17	0.28			0.33			0.20	
Uniform Delay, d1	15.1	5.8		15.8	15.2			16.4			14.9	
Delay	15.5	7.2		16.3	15.5			16.7			15.1	
LOS	B	A		B	B			B			B	
Approach Delay		9.3			15.7			16.7			15.1	
Approach LOS		A			B			B			B	
Queue Length 50th (ft)	12	13		32	79			72			50	
Queue Length 95th (ft)	30	43		64	131			106			75	
Internal Link Dist (ft)		2384			512			663			1001	
50th Up Block Time (%)												
95th Up Block Time (%)												
Turn Bay Length (ft)												
50th Bay Block Time %												
95th Bay Block Time %												
Queuing Penalty (veh)												

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

Control Type: Pretimed





















Maximum v/c Ratio: 0.33

Intersection Signal Delay: 15.1

Intersection LOS: B

Intersection Capacity Utilization 50.0% ICU Level of Service A

1/31/2002

												
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)	100		0	100		0	100		0	100		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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	1770	1394	0	1770	1727	0	1770	1756	0	1770	784	0
Flt Permitted	0.562			0.692			0.508			0.516		
Satd. Flow (perm)	917	1394	0	1005	1727	0	805	1756	0	869	784	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		61			18			11			9	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2464			592			743			1081	
Travel Time (s)		56.0			13.5			16.9			24.6	
Volume (vph)	31	36	56	82	164	46	98	222	36	5	234	31
Confl. Peds. (#/hr)	62		88	81		55	88		81	55		62
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Lane Group Flow (vph)	34	100	0	89	228	0	107	280	0	5	288	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Total Split (s)	49.0	49.0	0.0	49.0	49.0	0.0	51.0	51.0	0.0	51.0	51.0	0.0
Act Effct Green (s)	45.0	45.0		45.0	45.0		47.0	47.0		47.0	47.0	
Actuated g/C Ratio	0.45	0.45		0.45	0.45		0.47	0.47		0.47	0.47	
v/c Ratio	0.08	0.15		0.20	0.29		0.28	0.34		0.01	0.34	
Uniform Delay, d1	15.7	6.1		16.6	15.9		16.2	15.9		14.2	16.1	
Delay	16.1	7.5		17.1	16.2		16.9	16.3		14.4	16.5	
LOS	B	A		B	B		B	B		B	B	
Approach Delay		9.7			16.5			16.5			16.5	
Approach LOS		A			B			B			B	
Queue Length 50th (ft)	12	14		33	82		40	99		2	103	
Queue Length 95th (ft)	31	44		67	135		80	156		8	160	
Internal Link Dist (ft)		2384			512			663			1001	
50th Up Block Time (%)												
95th Up Block Time (%)												
Turn Bay Length (ft)	100			100			100			100		
50th Bay Block Time %								5%			7%	
95th Bay Block Time %					18%			22%			23%	
Queuing Penalty (veh)					8			14				

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
 Control Type: Pretimed
 Maximum v/c Ratio: 0.34
 Intersection Signal Delay: 15.7
 Intersection LOS: B
 Intersection Capacity Utilization 45.2%
 ICU Level of Service A





















2/5/2002

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)	100		0	100		0	100		0	100		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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	1770	1409	0	1770	1723	0	1770	1750	0	1770	1783	0
Flt Permitted	0.550			0.608			0.441			0.430		
Satd. Flow (perm)	902	1409	0	927	1723	0	723	1750	0	743	1783	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		94			19			12			9	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2464			592			743			1081	
Travel Time (s)		56.0			13.5			16.9			24.6	
Volume (vph)	60	70	100	90	170	50	130	290	50	10	290	40
Confl. Peds. (#/hr)	62		88	81		55	88		81	55		62
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Lane Group Flow (vph)	65	185	0	98	239	0	141	369	0	11	358	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Total Split (s)	49.0	49.0	0.0	49.0	49.0	0.0	51.0	51.0	0.0	51.0	51.0	0.0
Act Effct Green (s)	45.0	45.0		45.0	45.0		47.0	47.0		47.0	47.0	
Actuated g/C Ratio	0.45	0.45		0.45	0.45		0.47	0.47		0.47	0.47	
v/c Ratio	0.16	0.27		0.24	0.30		0.41	0.45		0.03	0.42	
Uniform Delay, d1	16.3	8.0		16.9	16.0		17.4	17.1		14.3	17.0	
Delay	16.9	8.6		17.5	16.4		18.5	17.5		14.6	17.5	
LOS	B	A		B	B		B	B		B	B	
Approach Delay		10.8			16.7			17.8			17.4	
Approach LOS		B			B			B			B	
Queue Length 50th (ft)	24	33		37	86		57	139		4	134	
Queue Length 95th (ft)	52	78		74	142		112	212		14	205	
Internal Link Dist (ft)		2384			512			663			1001	
50th Up Block Time (%)												
95th Up Block Time (%)												
Turn Bay Length (ft)	100			100			100			100		
50th Bay Block Time %								18%			17%	
95th Bay Block Time %					20%		11%	29%			29%	
Queuing Penalty (veh)					10		20	33			2	

Intersection Summary:

Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
 Control Type: Pretimed
 Maximum v/c Ratio: 0.45
 Intersection Signal Delay: 16.2
 Intersection LOS: B
 Intersection Capacity Utilization 60.3%
 ICU Level of Service B

1/31/2002

												
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)	100		0	100		0	100		0	100		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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	1770	1394	0	1770	1727	0	1770	1756	0	1770	1784	0
Flt Permitted	0.562			0.692			0.508			0.516		
Satd. Flow (perm)	917	1394	0	1005	1727	0	805	1756	0	869	1784	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		61			18			11			9	
Link Speed (miph)		30			30			30			30	
Link Distance (ft)		2464			592			743			1081	
Travel Time (s)		56.0			13.5			16.9			24.6	
Volume (vph)	31	36	56	82	164	46	98	222	36	5	234	31
Confl. Peds. (#/hr)	62		88	81		55	88		81	55		62
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Lane Group Flow (vph)	34	100	0	89	228	0	107	280	0	5	288	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Total Split (s)	49.0	49.0	0.0	49.0	49.0	0.0	51.0	51.0	0.0	51.0	51.0	0.0
Act Effct Green (s)	45.0	45.0		45.0	45.0		47.0	47.0		47.0	47.0	
Actuated g/C Ratio	0.45	0.45		0.45	0.45		0.47	0.47		0.47	0.47	
v/c Ratio	0.08	0.15		0.20	0.29		0.28	0.34		0.01	0.34	
Uniform Delay, d1	15.7	6.1		16.6	15.9		16.2	15.9		14.2	16.1	
Delay	16.1	7.5		17.1	16.2		16.9	16.3		14.4	16.5	
LOS	B	A		B	B		B	B		B	B	
Approach Delay		9.7			16.5			16.5			16.5	
Approach LOS		A			B			B			B	
Queue Length 50th (ft)	12	14		33	82		40	99		2	103	
Queue Length 95th (ft)	31	44		67	135		80	156		8	160	
Internal Link Dist (ft)		2384			512			663			1001	
50th Up Block Time (%)												
95th Up Block Time (%)												
Turn Bay Length (ft)	100			100			100			100		
50th Bay Block Time %								5%			7%	
95th Bay Block Time %					18%			22%			23%	
Queuing Penalty (veh)					8			14				

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
 Control Type: Pretimed
 Maximum v/c Ratio: 0.34
 Intersection Signal Delay: 15.7
 Intersection LOS: B
 Intersection Capacity Utilization 45.2%
 ICU Level of Service A

2/5/2002

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)	100		0	100		0	100		0	100		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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	1770	1525	0	1770	1723	0	1770	1750	0	1770	1783	0
Flt Permitted	0.550			0.608			0.441			0.430		
Satd. Flow (perm)	902	1525	0	1009	1723	0	723	1750	0	743	1783	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		94			19			12			9	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2464			592			743			1081	
Travel Time (s)		56.0			13.5			16.9			24.6	
Volume (vph)	60	70	100	90	170	50	130	290	50	10	290	40
Confl. Peds. (#/hr)	62		88	81		55	88		81	55		62
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Lane Group Flow (vph)	65	185	0	98	239	0	141	369	0	11	358	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Total Split (s)	49.0	49.0	0.0	49.0	49.0	0.0	51.0	51.0	0.0	51.0	51.0	0.0
Act Effct Green (s)	45.0	45.0		45.0	45.0		47.0	47.0		47.0	47.0	
Actuated g/C Ratio	0.45	0.45		0.45	0.45		0.47	0.47		0.47	0.47	
v/c Ratio	0.16	0.25		0.22	0.30		0.41	0.45		0.03	0.42	
Uniform Delay, d1	16.3	7.9		16.7	16.0		17.4	17.1		14.3	17.0	
Delay	16.9	8.5		17.3	16.4		18.5	17.5		14.6	17.5	
LOS	B	A		B	B		B	B		B	B	
Approach Delay		10.7			16.6			17.8			17.4	
Approach LOS		B			B			B			B	
Queue Length 50th (ft)	24	33		37	86		57	139		4	134	
Queue Length 95th (ft)	52	76		73	142		112	212		14	205	
Internal Link Dist (ft)		2384			512			663			1001	
50th Up Block Time (%)												
95th Up Block Time (%)												
Turn Bay Length (ft)	100			100			100			100		
50th Bay Block Time %								18%			17%	
95th Bay Block Time %					20%		11%	29%			29%	
Queuing Penalty (veh)					10		20	33			2	

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
 Control Type: Pretimed
 Maximum v/c Ratio: 0.45
 Intersection Signal Delay: 16.2
 Intersection Capacity Utilization 60.3%
 Intersection LOS: B
 ICU Level of Service B

1/31/2002

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
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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	1770	1543	0	1770	1714	0	0	3204	0	0	3396	0
Flt Permitted	0.704			0.509				0.868			0.914	
Satd. Flow (perm)	1116	1543	0	822	1714	0	0	2733	0	0	3089	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		49			22			30			13	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2464			592			743			1081	
Travel Time (s)		56.0			13.5			16.9			24.6	
Volume (vph)	90	150	110	70	55	20	40	270	60	25	350	35
Confl. Peds. (#/hr)	89		141	130		78	141		130	78		89
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Lane Group Flow (vph)	98	283	0	76	82	0	0	401	0	0	445	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Total Split (s)	50.0	50.0	0.0	50.0	50.0	0.0	50.0	50.0	0.0	50.0	50.0	0.0
Act Effct Green (s)	46.0	46.0		46.0	46.0			46.0			46.0	
Actuated g/C Ratio	0.46	0.46		0.46	0.46			0.46			0.46	
v/c Ratio	0.19	0.38		0.20	0.10			0.32			0.31	
Uniform Delay, d1	16.0	14.3		16.1	11.0			15.6			16.5	
Delay	16.4	14.7		16.7	11.7			15.9			16.7	
LOS	B	B		B	B			B			B	
Approach Delay		15.2			14.1			15.9			16.7	
Approach LOS		B			B			B			B	
Queue Length 50th (ft)	36	93		28	21			71			83	
Queue Length 95th (ft)	70	158		59	48			104			117	
Internal Link Dist (ft)		2384			512			663			1001	
50th Up Block Time (%)												
95th Up Block Time (%)												
Turn Bay Length (ft)												
50th Bay Block Time %												
95th Bay Block Time %												
Queuing Penalty (veh)												

Intersection Summary

Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
 Control Type: Pretimed
 Maximum v/c Ratio: 0.38
 Intersection Signal Delay: 15.7
 Intersection LOS: B
 Intersection Capacity Utilization 50.1% ICU Level of Service A

1/31/2002

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
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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	1770	1543	0	1770	1710	0	0	3205	0	0	3401	0
Flt Permitted	0.702			0.502				0.858			0.913	
Satd. Flow (perm)	1113	1543	0	813	1710	0	0	2706	0	0	3092	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		49			23			29			13	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2464			592			743			1081	
Travel Time (s)		56.0			13.5			16.9			24.6	
Volume (vph)	92	154	113	72	56	21	43	282	62	26	369	36
Confl. Peds. (#/hr)	89		141	130		78	141		130	78		89
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Lane Group Flow (vph)	100	290	0	78	84	0	0	421	0	0	468	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Total Split (s)	50.0	50.0	0.0	50.0	50.0	0.0	50.0	50.0	0.0	50.0	50.0	0.0
Act Effct Green (s)	46.0	46.0		46.0	46.0			46.0			46.0	
Actuated g/C Ratio	0.46	0.46		0.46	0.46			0.46			0.46	
v/c Ratio	0.20	0.39		0.21	0.11			0.33			0.33	
Uniform Delay, d1	16.0	14.4		16.1	11.0			15.9			16.6	
Delay	16.5	14.9		16.8	11.5			16.1			16.8	
LOS	B	B		B	B			B			B	
Approach Delay		15.3			14.1			16.1			16.8	
Approach LOS		B			B			B			B	
Queue Length 50th (ft)	37	96		29	21			76			88	
Queue Length 95th (ft)	71	162		61	48			111			124	
Internal Link Dist (ft)		2384			512			663			1001	
50th Up Block Time (%)												
95th Up Block Time (%)												
Turn Bay Length (ft)												
50th Bay Block Time %												
95th Bay Block Time %												
Queuing Penalty (veh)												

Intersection Summary

Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
 Control Type: Pretimed
 Maximum v/c Ratio: 0.39
 Intersection Signal Delay: 15.9
 Intersection LOS: B
 Intersection Capacity Utilization 52.1%
 ICU Level of Service A

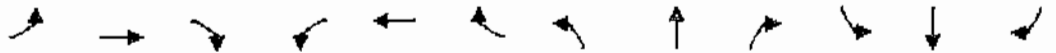
1/31/2002

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)	100		0	100		0	100		0	100		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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	1770	1543	0	1770	1660	0	1770	1677	0	1770	1791	0
Flt Permitted	0.702			0.502			0.359			0.420		
Satd. Flow (perm)	984	1543	0	813	1660	0	576	1677	0	705	1791	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		49			23			15			6	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2464			592			743			1081	
Travel Time (s)		56.0			13.5			16.9			24.6	
Volume (vph)	92	154	113	72	56	21	43	282	62	26	369	36
Conf. Peds. (#/hr)	89		141	130		78	141		130	78		89
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Lane Group Flow (vph)	100	290	0	78	84	0	47	374	0	28	440	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Total Split (s)	50.0	50.0	0.0	50.0	50.0	0.0	50.0	50.0	0.0	50.0	50.0	0.0
Act Effct Green (s)	46.0	46.0		46.0	46.0		46.0	46.0		46.0	46.0	
Actuated g/C Ratio	0.46	0.46		0.46	0.46		0.46	0.46		0.46	0.46	
v/c Ratio	0.22	0.39		0.21	0.11		0.18	0.48		0.09	0.53	
Uniform Delay, d1	16.2	14.4		16.1	11.0		15.9	17.8		15.2	19.0	
Delay	16.8	14.9		16.8	11.6		16.7	18.3		15.7	19.5	
LOS	B	B		B	B		B	B		B	B	
Approach Delay		15.4			14.1			18.2			19.3	
Approach LOS		B			B			B			B	
Queue Length 50th (ft)	37	96		29	21		17	145		10	182	
Queue Length 95th (ft)	73	162		61	49		42	223		27	270	
Internal Link Dist (ft)		2384			512			663			1001	
50th Up Block Time (%)												
95th Up Block Time (%)												
Turn Bay Length (ft)	100			100			100			100		
50th Bay Block Time %		5%						20%			26%	
95th Bay Block Time %		23%						31%			35%	
Queuing Penalty (veh)		14						12			8	

Intersection Summary

Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
 Control Type: Pretimed
 Maximum v/c Ratio: 0.53
 Intersection Signal Delay: 17.3
 Intersection LOS: B
 Intersection Capacity Utilization: 57.6%
 ICU Level of Service A

2/5/2002























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)	100		0	100		0	100		0	100		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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	1770	1406	0	1770	1675	0	1770	1675	0	1770	1797	0
Flt Permitted	0.701			0.277			0.277			0.325		
Satd. Flow (perm)	984	1406	0	516	1675	0	516	1675	0	566	1797	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		50			22			15			6	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2464			592			743			1081	
Travel Time (s)		56.0			13.5			16.9			24.6	
Volume (vph)	170	280	210	80	60	20	50	360	80	30	450	40
Confl. Peds. (#/hr)	89		141	130		78	141		130	78		89
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Lane Group Flow (vph)	185	532	0	87	87	0	54	478	0	33	532	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Total Split (s)	50.0	50.0	0.0	50.0	50.0	0.0	50.0	50.0	0.0	50.0	50.0	0.0
Act Effct Green (s)	46.0	46.0		46.0	46.0		46.0	46.0		46.0	46.0	
Actuated g/C Ratio	0.46	0.46		0.46	0.46		0.46	0.46		0.46	0.46	
v/c Ratio	0.41	0.79		0.37	0.11		0.23	0.61		0.13	0.64	
Uniform Delay, d1	18.0	20.5		17.5	11.3		16.3	19.6		15.5	20.4	
Delay	18.7	23.3		18.9	11.8		17.4	20.2		16.2	21.0	
LOS	B	C		B	B		B	C		B	C	
Approach Delay		22.1			15.4			19.9			20.8	
Approach LOS		C			B			B			C	
Queue Length 50th (ft)	76	255		35	23		20	204		12	236	
Queue Length 95th (ft)	135	422		78	51		49	307		32	345	
Internal Link Dist (ft)		2384			512			663			1001	
50th Up Block Time (%)												
95th Up Block Time (%)												
Turn Bay Length (ft)	100			100			100			100		
50th Bay Block Time %		34%						29%			32%	
95th Bay Block Time %	18%	41%						37%			38%	
Queuing Penalty (veh)	49	69						18			12	

Intersection Summary

Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
 Control Type: Pretimed
 Maximum v/c Ratio: 0.79
 Intersection Signal Delay: 20.6
 Intersection LOS: C
 Intersection Capacity Utilization 76.6%
 ICU Level of Service C

1/31/2002

												
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)	100		0	100		0	100		0	100		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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	1770	1543	0	1770	1660	0	1770	1677	0	1770	1791	0
Flt Permitted	0.702			0.502			0.359			0.420		
Satd. Flow (perm)	984	1543	0	813	1660	0	576	1677	0	705	1791	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		49			23			15			6	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2464			592			743			1081	
Travel Time (s)		56.0			13.5			16.9			24.6	
Volume (vph)	92	154	113	72	56	21	43	282	62	26	369	36
Confl. Peds. (#/hr)	89		141	130		78	141		130	78		89
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Lane Group Flow (vph)	100	290	0	78	84	0	47	374	0	28	440	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Total Split (s)	50.0	50.0	0.0	50.0	50.0	0.0	50.0	50.0	0.0	50.0	50.0	0.0
Act Effct Green (s)	46.0	46.0		46.0	46.0		46.0	46.0		46.0	46.0	
Actuated g/C Ratio	0.46	0.46		0.46	0.46		0.46	0.46		0.46	0.46	
v/c Ratio	0.22	0.39		0.21	0.11		0.18	0.48		0.09	0.53	
Uniform Delay, d1	16.2	14.4		16.1	11.0		15.9	17.8		15.2	19.0	
Delay	16.8	14.9		16.8	11.6		16.7	18.3		15.7	19.5	
LOS	B	B		B	B		B	B		B	B	
Approach Delay		15.4			14.1			18.2			19.3	
Approach LOS		B			B			B			B	
Queue Length 50th (ft)	37	96		29	21		17	145		10	182	
Queue Length 95th (ft)	73	162		61	49		42	223		27	270	
Internal Link Dist (ft)		2384			512			663			1001	
50th Up Block Time (%)												
95th Up Block Time (%)												
Turn Bay Length (ft)	100			100			100			100		
50th Bay Block Time %		5%						20%			26%	
95th Bay Block Time %		23%						31%			35%	
Queuing Penalty (veh)		14						12			8	

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
 Control Type: Pretimed
 Maximum v/c Ratio: 0.53
 Intersection Signal Delay: 17.3
 Intersection Capacity Utilization 57.6%
 Intersection LOS: B
 ICU Level of Service A

2/5/2002

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)	100		0	100		0	100		0	100		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
Turning Speed (mph)	15		9	15		9	15		9	15		9
Satd. Flow (prot)	1770	1541	0	1770	1675	0	1770	1675	0	1770	1797	0
Flt Permitted	0.701			0.277			0.277			0.325		
Satd. Flow (perm)	984	1541	0	516	1675	0	516	1675	0	566	1797	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		50			22			15			6	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2464			592			743			1081	
Travel Time (s)		56.0			13.5			16.9			24.6	
Volume (vph)	170	280	210	80	60	20	50	360	80	30	450	40
Confl. Peds. (#/hr)	89		141	130		78	141		130	78		89
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Lane Group Flow (vph)	185	532	0	87	87	0	54	478	0	33	532	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Total Split (s)	50.0	50.0	0.0	50.0	50.0	0.0	50.0	50.0	0.0	50.0	50.0	0.0
Act Effct Green (s)	46.0	46.0		46.0	46.0		46.0	46.0		46.0	46.0	
Actuated g/C Ratio	0.46	0.46		0.46	0.46		0.46	0.46		0.46	0.46	
v/c Ratio	0.41	0.72		0.37	0.11		0.23	0.61		0.13	0.64	
Uniform Delay, d1	18.0	19.5		17.5	11.3		16.3	19.6		15.5	20.4	
Delay	18.7	20.4		18.9	11.8		17.4	20.2		16.2	21.0	
LOS	B	C		B	B		B	C		B	C	
Approach Delay		20.0			15.4			19.9			20.8	
Approach LOS		B			B			B			C	
Queue Length 50th (ft)	76	242		35	23		20	204		12	236	
Queue Length 95th (ft)	135	377		78	51		49	307		32	345	
Internal Link Dist (ft)		2384			512			663			1001	
50th Up Block Time (%)												
95th Up Block Time (%)												
Turn Bay Length (ft)	100			100			100			100		
50th Bay Block Time %		33%						29%			32%	
95th Bay Block Time %	18%	40%						37%			38%	
Queuing Penalty (veh)	49	67						18			12	

Intersection Summary

Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
 Control Type: Pretimed
 Maximum v/c Ratio: 0.72
 Intersection Signal Delay: 19.8
 Intersection Capacity Utilization 76.6%

Intersection LOS: B
 ICU Level of Service C

1/31/2002













Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Stop			Stop			Stop			Stop	
Volume (veh/h)	5	5	30	45	5	5	15	340	15	5	345	15
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (veh/h)	5	5	33	49	5	5	16	370	16	5	375	16

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total (vph)	43	60	201	201	193	204
Volume Left (vph)	5	49	16	0	5	0
Volume Right (vph)	33	5	0	16	0	16
Hadj (s)	-0.4	0.1	0.1	0.0	0.0	0.0
Departure Headway (s)	5.2	5.1	5.2	5.1	5.2	5.1
Degree Utilization, x	0.06	0.09	0.29	0.29	0.28	0.29
Capacity (veh/h)	622	533	675	683	677	686
Control Delay (s)	8.6	8.6	9.1	9.0	9.0	9.0
Approach Delay (s)	8.6	8.6	9.0		9.0	
Approach LOS	A	A	A		A	



















Intersection Summary

Delay	9.0
HCM Level of Service	A
Intersection Capacity Utilization	31.2%
ICU Level of Service	A

1/31/2002

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Stop			Stop			Stop			Stop	
Volume (veh/h)	5	5	31	54	5	8	15	349	30	5	354	15
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (veh/h)	5	5	34	59	5	9	16	379	33	5	385	16
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total (vph)	45	73	206	222	198	209						
Volume Left (vph)	5	59	16	0	5	0						
Volume Right (vph)	34	9	0	33	0	16						
Hadj (s)	-0.4	0.1	0.0	-0.1	0.0	0.0						
Departure Headway (s)	5.3	5.2	5.2	5.1	5.3	5.2						
Degree Utilization, x	0.07	0.11	0.30	0.32	0.29	0.30						
Capacity (veh/h)	611	531	667	680	667	676						
Control Delay (s)	8.7	8.8	9.3	9.3	9.2	9.2						
Approach Delay (s)	8.7	8.8	9.3		9.2							
Approach LOS	A	A	A		A							
Intersection Summary												
Delay			9.2									
HCM Level of Service			A									
Intersection Capacity Utilization			32.2%				ICU Level of Service		A			

1/31/2002

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (veh/h)	5	5	31	54	5	8	15	349	30	5	354	15
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (veh/h)	5	5	34	59	5	9	16	379	33	5	385	16
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total (voh)	45	73	16	412	5	401						
Volume Left (vph)	5	59	16	0	5	0						
Volume Right (vph)	34	9	0	33	0	16						
Hadj (s)	-0.4	0.1	0.2	0.0	0.2	0.0						
Departure Headway (s)	5.6	5.3	5.4	5.2	5.4	5.2						
Degree Utilization, x	0.07	0.11	0.02	0.59	0.01	0.58						
Capacity (veh/h)	565	515	644	685	642	682						
Control Delay (s)	9.0	9.0	7.3	14.1	7.3	13.9						
Approach Delay (s)	9.0	9.0	13.8		13.8							
Approach LOS	A	A	B		B							

Intersection Summary

Delay		13.2	
HCM Level of Service		B	
Intersection Capacity Utilization	40.8%		ICU Level of Service A

2/5/2002

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↗	↖		↗	↖	
Sign Control		Stop			Stop			Stop			Stop	
Volume (veh/h)	10	10	40	60	10	10	20	460	30	10	460	20
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (veh/h)	11	11	43	65	11	11	22	500	33	11	500	22
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total (vph)	65	87	22	533	11	522						
Volume Left (vph)	11	65	22	0	11	0						
Volume Right (vph)	43	11	0	33	0	22						
Hadj (s)	-0.3	0.1	0.2	0.0	0.2	0.0						
Departure Headway (s)	6.3	5.8	5.7	5.5	5.7	5.5						
Degree Utilization, x	0.11	0.14	0.03	0.81	0.02	0.80						
Capacity (veh/h)	515	484	608	643	606	640						
Control Delay (s)	10.1	9.8	7.7	26.5	7.6	25.6						
Approach Delay (s)	10.1	9.8	25.8		25.3							
Approach LOS	B	A	D		D							

Intersection Summary

Delay	23.6
HCM Level of Service	C
Intersection Capacity Utilization	47.5%
ICU Level of Service	A

















2/13/2002

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Stop			Stop			Stop			Stop	
Volume (veh/h)	5	5	31	54	5	8	15	349	30	5	354	15
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (veh/h)	5	5	34	59	5	9	16	379	33	5	385	16
Direction, Lane #	EB 1	WB 1	NB 1	SB 1	SB 2							
Volume Total (vph)	45	73	428	198	209							
Volume Left (vph)	5	59	16	5	0							
Volume Right (vph)	34	9	33	0	16							
Hadj (s)	-0.4	0.1	0.0	0.0	0.0							
Departure Headway (s)	5.4	5.3	4.7	5.2	5.1							
Degree Utilization, x	0.07	0.11	0.56	0.29	0.30							
Capacity (veh/h)	592	520	746	678	686							
Control Delay (s)	8.8	8.9	13.6	9.0	9.1							
Approach Delay (s)	8.8	8.9	13.6	9.1								
Approach LOS	A	A	B	A								

Intersection Summary

Delay	11.1
HCM Level of Service	B
Intersection Capacity Utilization	49.0%
ICU Level of Service	A













2/13/2002

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (veh/h)	10	10	40	60	10	10	20	460	30	10	460	20
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (veh/h)	11	11	43	65	11	11	22	500	33	11	500	22
Direction, Lane #	EB 1	WB 1	NB 1	SB 1	SB 2							
Volume Total (vph)	65	87	554	261	272							
Volume Left (vph)	11	65	22	11	0							
Volume Right (vph)	43	11	33	0	22							
Hadj (s)	-0.3	0.1	0.0	0.0	0.0							
Departure Headway (s)	6.0	5.7	5.0	5.5	5.4							
Degree Utilization, x	0.11	0.14	0.77	0.40	0.41							
Capacity (veh/h)	534	487	703	644	651							
Control Delay (s)	9.8	9.7	22.9	10.8	10.9							
Approach Delay (s)	9.8	9.7	22.9	10.9								
Approach LOS	A	A	C	B								

Intersection Summary

Delay	16.1
HCM Level of Service	C
Intersection Capacity Utilization	63.6%
ICU Level of Service	B

1/31/2002

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Stop			Stop			Stop			Stop	
Volume (veh/h)	5	5	35	45	5	10	30	355	35	15	510	15
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (veh/h)	5	5	38	49	5	11	33	386	38	16	554	16
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total (vph)	49	65	226	231	293	293						
Volume Left (vph)	5	49	33	0	16	0						
Volume Right (vph)	38	11	0	38	0	16						
Hadj (s)	-0.4	0.1	0.1	-0.1	0.0	0.0						
Departure Headway (s)	5.6	5.2	5.5	5.3	5.3	5.3						
Degree Utilization, x	0.08	0.09	0.34	0.34	0.43	0.43						
Capacity (veh/h)	582	527	640	654	662	670						
Control Delay (s)	9.1	8.8	10.1	9.9	11.1	10.9						
Approach Delay (s)	9.1	8.8	10.0		11.0							
Approach LOS	A	A	A		B							
Intersection Summary												
Delay			10.4									
HCM Level of Service			B									
Intersection Capacity Utilization			37.8%		ICU Level of Service		A					

1/31/2002

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Stop			Stop			Stop			Stop	
Volume (veh/h)	5	5	36	62	5	17	31	364	59	15	523	15
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (veh/h)	5	5	39	67	5	18	34	396	64	16	568	16
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total (vph)	50	91	232	262	301	301						
Volume Left (vph)	5	67	34	0	16	0						
Volume Right (vph)	39	18	0	64	0	16						
Hadj (s)	-0.4	0.1	0.1	-0.1	0.0	0.0						
Departure Headway (s)	5.8	5.4	5.6	5.4	5.5	5.4						
Degree Utilization, x	0.08	0.14	0.36	0.39	0.46	0.45						
Capacity (veh/h)	565	524	625	645	646	653						
Control Delay (s)	9.3	9.2	10.5	10.7	11.7	11.6						
Approach Delay (s)	9.3	9.2	10.6		11.7							
Approach LOS	A	A	B		B							
Intersection Summary												
Delay			11.0									
HCM Level of Service			B									
Intersection Capacity Utilization			38.5%				ICU Level of Service		A			

1/31/2002

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↗	↖		↗	↖	
Sign Control		Stop			Stop			Stop			Stop	
Volume (veh/h)	5	5	36	62	5	17	3	364	59	15	523	15
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (veh/h)	5	5	39	67	5	18	34	396	64	16	568	16
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total (vph)	50	91	34	460	16	585						
Volume Left (vph)	5	67	34	0	16	0						
Volume Right (vph)	39	18	0	64	0	16						
Hadj (s)	-0.4	0.1	0.2	0.0	0.2	0.0						
Departure Headway (s)	6.2	5.6	5.7	5.4	5.6	5.4						
Degree Utilization, x	0.09	0.14	0.05	0.69	0.03	0.88						
Capacity (veh/h)	524	504	608	643	620	658						
Control Delay (s)	9.8	9.5	7.8	18.6	7.6	33.5						
Approach Delay (s)	9.8	9.5	17.9		32.8							
Approach LOS	A	A	C		D							

Intersection Summary

Delay	24.2											
HCM Level of Service	C											
Intersection Capacity Utilization	50.6%	ICU Level of Service	A									













2/5/2002

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↗	↘		↗	↘	
Sign Control		Stop			Stop			Stop			Stop	
Volume (veh/h)	10	10	40	60	10	10	40	480	60	20	690	20
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (veh/h)	11	11	43	65	11	11	43	522	65	22	750	22
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total (vph)	65	87	43	587	22	772						
Volume Left (vph)	11	65	43	0	22	0						
Volume Right (vph)	43	11	0	65	0	22						
Hadj (s)	-0.3	0.1	0.2	0.0	0.2	0.0						
Departure Headway (s)	6.7	6.0	5.9	5.6	5.9	5.7						
Degree Utilization, x	0.12	0.15	0.07	0.92	0.04	1.21						
Capacity (veh/h)	514	485	599	635	595	643						
Control Delay (s)	10.7	10.1	8.2	40.7	7.9	129.0						
Approach Delay (s)	10.7	10.1	38.5		125.7							
Approach LOS	B	B	E		F							

Intersection Summary

Delay	79.7
HCM Level of Service	F
Intersection Capacity Utilization	60.3%
ICU Level of Service	B

2/13/2002

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	↕
Sign Control		Stop			Stop			Stop			Stop	Stop
Volume (veh/h)	5	5	36	62	5	17	31	364	59	15	523	15
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (veh/h)	5	5	39	67	5	18	34	396	64	16	568	16
Direction, Lane #	EB 1	WB 1	NB 1	SB 1	SB 2							
Volume Total (vph)	50	91	493	301	301							
Volume Left (vph)	5	67	34	16	0							
Volume Right (vph)	39	18	64	0	16							
Hadj (s)	-0.4	0.1	0.0	0.0	0.0							
Departure Headway (s)	5.9	5.5	5.0	5.4	5.3							
Degree Utilization, x	0.08	0.14	0.68	0.45	0.44							
Capacity (veh/h)	540	507	705	659	665							
Control Delay (s)	9.4	9.4	17.9	11.5	11.3							
Approach Delay (s)	9.4	9.4	17.9	11.4								
Approach LOS	A	A	C	B								
Intersection Summary												
Delay			13.8									
HCM Level of Service			B									
Intersection Capacity Utilization			66.9%	ICU Level of Service	B							

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












Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Stop			Stop			Stop			Stop	
Volume (veh/h)	10	10	50	60	10	10	40	480	60	20	690	20
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (veh/h)	11	11	54	65	11	11	43	522	65	22	750	22
Direction, Lane #	EB 1	WB 1	NB 1	SB 1	SB 2							
Volume Total (vph)	76	87	630	397	397							
Volume Left (vph)	11	65	43	22	0							
Volume Right (vph)	54	11	65	0	22							
Hadj (s)	-0.4	0.1	0.0	0.0	0.0							
Departure Headway (s)	6.5	6.0	5.3	5.7	5.6							
Degree Utilization, x	0.14	0.15	0.92	0.62	0.62							
Capacity (veh/h)	519	481	671	629	634							
Control Delay (s)	10.6	10.1	40.4	16.4	16.1							
Approach Delay (s)	10.6	10.1	40.4	16.2								
Approach LOS	B	B	E	C								

Intersection Summary

Delay	25.2
HCM Level of Service	D
Intersection Capacity Utilization	79.3%
ICU Level of Service	C

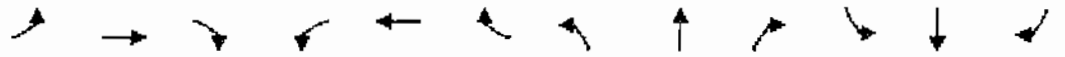
1/31/2002

Movement												
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					4T			4T			4T	
Sign Control		Stop			Stop			Stop			Stop	
Volume (veh/h)	0	0	0	125	330	140	140	230	0	0	335	85
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (veh/h)	0	0	0	136	359	152	152	250	0	0	364	92
Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2						
Volume Total (vph)	315	332	236	167	243	214						
Volume Left (vph)	136	0	152	0	0	0						
Volume Right (vph)	0	152	0	0	0	92						
Hadj (s)	0.1	-0.2	0.2	0.0	0.0	-0.2						
Departure Headway (s)	7.2	6.9	7.2	7.1	7.0	6.8						
Degree Utilization, X	0.63	0.63	0.47	0.33	0.48	0.40						
Capacity (veh/h)	470	492	476	489	502	522						
Control Delay (s)	20.8	19.9	15.4	12.3	15.1	13.1						
Approach Delay (s)	20.3		14.1		14.1							
Approach LOS	C		B		B							

Intersection Summary

Delay	16.8
HCM Level of Service	C
Intersection Capacity Utilization	53.9%
ICU Level of Service	A

1/31/2002



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕↕			↕↕			↕↕	
Sign Control		Stop			Stop			Stop			Stop	
Volume (veh/h)	0	0	0	128	338	149	144	246	0	0	349	89
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (veh/h)	0	0	0	139	367	162	157	267	0	0	379	97

Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total (vph)	323	346	246	178	253	223
Volume Left (vph)	139	0	157	0	0	0
Volume Right (vph)	0	162	0	0	0	97
Hadj (s)	0.1	-0.2	0.2	0.0	0.0	-0.2
Departure Headway (s)	7.3	7.0	7.3	7.2	7.2	6.9
Degree Utilization, x	0.66	0.67	0.50	0.36	0.50	0.43
Capacity (veh/h)	466	489	470	482	495	513
Control Delay (s)	22.2	21.8	16.3	13.0	16.0	13.7
Approach Delay (s)	21.9		14.9		14.9	
Approach LOS	C		B		B	

Intersection Summary

Delay	17.9
HCM Level of Service	C
Intersection Capacity Utilization	55.7%
ICU Level of Service	A

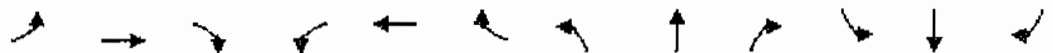
2/5/2002

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕↕		↗	↑			↖	
Sign Control		Stop			Stop			Stop			Stop	
Volume (veh/h)	0	0	0	170	440	190	160	260	0	0	450	110
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (veh/h)	0	0	0	185	478	207	174	283	0	0	489	120
Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1							
Volume Total (vph)	424	446	174	283	609							
Volume Left (vph)	185	0	174	0	0							
Volume Right (vph)	0	207	0	0	120							
Hadj (s)	0.1	-0.2	0.2	0.0	-0.1							
Departure Headway (s)	7.8	7.4	7.8	7.6	7.1							
Degree Utilization, x	0.92	0.92	0.38	0.60	1.20							
Capacity (veh/h)	452	472	453	459	520							
Control Delay (s)	50.9	49.6	14.3	20.1	129.9							
Approach Delay (s)	50.2		17.9		129.9							
Approach LOS	F		C		F							

Intersection Summary

Delay	67.7	
HCM Level of Service	F	
Intersection Capacity Utilization	78.6%	ICU Level of Service C

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









Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					4T		T	T			T	
Sign Control		Stop			Stop			Stop			Stop	
Volume (veh/h)	0	0	0	128	338	149	144	246	0	0	349	89
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (veh/h)	0	0	0	139	367	162	157	267	0	0	379	97
Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1							
Volume Total (vph)	323	346	157	267	476							
Volume Left (vph)	139	0	157	0	0							
Volume Right (vph)	0	162	0	0	97							
Hadj (s)	0.1	-0.2	0.2	0.0	-0.1							
Departure Headway (s)	7.3	7.0	7.4	7.2	6.8							
Degree Utilization, x	0.66	0.67	0.32	0.53	0.89							
Capacity (veh/h)	467	489	474	490	523							
Control Delay (s)	22.2	21.8	12.6	16.9	43.4							
Approach Delay (s)	22.0		15.3		43.4							
Approach LOS	C		C		E							

Intersection Summary

Delay	26.7	
HCM Level of Service	D	
Intersection Capacity Utilization	64.7%	ICU Level of Service B

2/5/2002

												
Movement	EBC	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕↕		↕	↕			↕↕	
Sign Control		Stop			Stop			Stop			Stop	
Volume (veh/h)	0	0	0	170	440	190	160	260	0	0	450	110
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (veh/h)	0	0	0	185	478	207	174	283	0	0	489	120
Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2						
Volume Total (vph)	424	446	174	283	326	283						
Volume Left (vph)	185	0	174	0	0	0						
Volume Right (vph)	0	207	0	0	0	120						
Hadj (s)	0.1	-0.2	0.2	0.0	0.0	-0.2						
Departure Headway (s)	7.8	7.5	8.2	8.0	7.8	7.5						
Degree Utilization, x	0.92	0.93	0.40	0.63	0.70	0.59						
Capacity (veh/h)	448	470	416	434	451	466						
Control Delay (s)	52.3	51.0	15.3	22.3	25.9	19.5						
Approach Delay (s)	51.6		19.6		22.9							
Approach LOS	F		C		C							

Intersection Summary

Delay	35.0
HCM Level of Service	E
Intersection Capacity Utilization	63.0%
ICU Level of Service	B

2/13/2002

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↓		↑	↑			↑↓	
Sign Control		Stop			Stop			Stop			Stop	
Volume (veh/h)	0	0	0	128	338	149	144	246	0	0	349	89
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (veh/h)	0	0	0	139	367	162	157	267	0	0	379	97
Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2						
Volume Total (vph)	323	346	157	267	253	223						
Volume Left (vph)	139	0	157	0	0	0						
Volume Right (vph)	0	162	0	0	0	97						
Hadj (s)	0.1	-0.2	0.2	0.0	0.0	-0.2						
Departure Headway (s)	7.3	7.0	7.4	7.2	7.2	6.9						
Degree Utilization, x	0.66	0.67	0.32	0.54	0.50	0.43						
Capacity (veh/h)	466	489	469	488	496	513						
Control Delay (s)	22.2	21.8	12.7	17.0	16.0	13.7						
Approach Delay (s)	22.0		15.4		14.9							
Approach LOS	C		C		B							

Intersection Summary

Delay	18.1
HCM Level of Service	C
Intersection Capacity Utilization	52.4%
ICU Level of Service	A

1/31/2002

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕↕			↕↕			↕↕	
Sign Control		Stop			Stop			Stop			Stop	
Volume (veh/h)	0	0	0	225	70	160	80	260	0	0	520	50
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (veh/h)	0	0	0	245	76	174	87	283	0	0	565	54
Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2						
Volume Total (vph)	283	212	181	188	377	243						
Volume Left (vph)	245	0	87	0	0	0						
Volume Right (vph)	0	174	0	0	0	54						
Hadj (s)	0.2	-0.5	0.1	0.0	0.0	-0.1						
Departure Headway (s)	6.9	6.3	6.9	6.9	6.5	6.4						
Degree Utilization, x	0.54	0.37	0.35	0.36	0.69	0.43						
Capacity (veh/h)	478	510	500	507	544	554						
Control Delay (s)	16.7	11.7	12.4	12.4	21.4	13.0						
Approach Delay (s)	14.6		12.4		18.1							
Approach LOS	B		B		C							

Intersection Summary

Delay	15.5	
HCM Level of Service	C	
Intersection Capacity Utilization	53.6%	ICU Level of Service A













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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕↕			↕↕			↕↕	
Sign Control		Stop			Stop			Stop			Stop	
Volume (veh/h)	0	0	0	231	72	170	82	284	0	0	544	56
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (veh/h)	0	0	0	251	78	185	89	309	0	0	591	61
Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2						
Volume Total (vph)	290	224	192	206	394	258						
Volume Left (vph)	251	0	89	0	0	0						
Volume Right (vph)	0	185	0	0	0	61						
Hadj (s)	0.2	-0.5	0.1	0.0	0.0	-0.1						
Departure Headway (s)	7.0	6.4	7.1	7.0	6.7	6.5						
Degree Utilization, x	0.57	0.40	0.38	0.40	0.73	0.47						
Capacity (veh/h)	473	504	493	499	535	544						
Control Delay (s)	17.7	12.3	13.1	13.3	24.4	13.9						
Approach Delay (s)	15.4		13.2		20.2							
Approach LOS	C		B		C							

Intersection Summary

Delay		16.9	
HCM Level of Service		C	
Intersection Capacity Utilization	55.9%		ICU Level of Service A













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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑		↑	↑			↑	
Sign Control		Stop			Stop			Stop			Stop	
Volume (veh/h)	0	0	0	231	72	170	82	284	0	0	544	56
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (veh/h)	0	0	0	251	78	185	89	309	0	0	591	61
Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1							
Volume Total (vph)	290	224	89	309	652							
Volume Left (vph)	251	0	89	0	0							
Volume Right (vph)	0	185	0	0	61							
Hadj (s)	0.2	-0.5	0.2	0.0	0.0							
Departure Headway (s)	7.1	6.4	7.1	6.9	6.5							
Degree Utilization, x	0.57	0.40	0.18	0.59	1.18							
Capacity (veh/h)	474	506	494	504	554							
Control Delay (s)	17.8	12.4	10.4	18.1	121.3							
Approach Delay (s)	15.4		16.3		121.3							
Approach LOS	C		C		F							
Intersection Summary												
Delay			59.8									
HCM Level of Service			F									
Intersection Capacity Utilization			66.2%			ICU Level of Service		B				

2/5/2002

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕↕		↕	↑			↕	
Sign Control		Stop			Stop			Stop			Stop	
Volume (veh/h)	0	0	0	300	90	210	90	300	0	0	700	70
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (veh/h)	0	0	0	326	98	228	98	326	0	0	761	76
Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1							
Volume Total (vph)	375	277	98	326	837							
Volume Left (vph)	326	0	98	0	0							
Volume Right (vph)	0	228	0	0	76							
Hadj (s)	0.2	-0.5	0.2	0.0	0.0							
Departure Headway (s)	7.4	6.8	7.5	7.3	6.9							
Degree Utilization, x	0.77	0.52	0.20	0.66	1.60							
Capacity (veh/h)	468	497	469	480	526							
Control Delay (s)	30.3	15.7	11.2	22.1	298.4							
Approach Delay (s)	24.1		19.5		298.4							
Approach LOS	C		C		F							
Intersection Summary												
Delay			143.1									
HCM Level of Service			F									
Intersection Capacity Utilization			80.7%	ICU Level of Service	D							













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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕↕		↕	↑			↕↕	
Sign Control		Stop			Stop			Stop			Stop	
Volume (veh/h)	0	0	0	300	90	210	90	300	0	0	700	70
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (veh/h)	0	0	0	326	98	228	98	326	0	0	761	76
Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2						
Volume Total (vph)	375	277	98	326	507	330						
Volume Left (vph)	326	0	98	0	0	0						
Volume Right (vph)	0	228	0	0	0	76						
Hadj (s)	0.2	-0.5	0.2	0.0	0.0	-0.1						
Departure Headway (s)	7.5	6.8	8.0	7.8	7.2	7.1						
Degree Utilization, x	0.78	0.53	0.22	0.70	1.02	0.65						
Capacity (veh/h)	466	493	438	451	487	496						
Control Delay (s)	31.2	15.9	11.9	25.9	70.5	21.0						
Approach Delay (s)	24.7		22.7		51.0							
Approach LOS	C		C		F							

Intersection Summary

Delay	35.8
HCM Level of Service	E
Intersection Capacity Utilization	59.5%
ICU Level of Service	A

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↓		↑	↑			↑↓	
Sign Control		Stop			Stop			Stop			Stop	
Volume (veh/h)	0	0	0	231	72	170	82	284	0	0	544	56
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (veh/h)	0	0	0	251	78	185	89	309	0	0	591	61
Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2						
Volume Total (vph)	290	224	89	309	394	258						
Volume Left (vph)	251	0	89	0	0	0						
Volume Right (vph)	0	185	0	0	0	61						
Hadj (s)	0.2	-0.5	0.2	0.0	0.0	-0.1						
Departure Headway (s)	7.1	6.4	7.2	7.0	6.7	6.5						
Degree Utilization, x	0.57	0.40	0.18	0.60	0.73	0.47						
Capacity (veh/h)	472	505	480	494	534	543						
Control Delay (s)	17.8	12.4	10.5	18.7	24.5	14.0						
Approach Delay (s)	15.5		16.9		20.3							
Approach LOS	C		C		C							
Intersection Summary												
Delay			17.8									
HCM Level of Service			C									
Intersection Capacity Utilization			49.7%	ICU Level of Service	A							