SOUTHEAST URBAN CENTER SPECIFIC PLAN EIR
CITY OF CLOVIS, CALIFORNIA

TRAFFIC AND CIRCULATION STUDY

December 10, 2002

ATE Project #01058

Prepared for:

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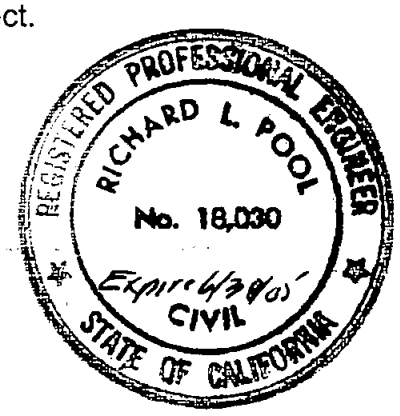
TRAFFIC AND CIRCULATION STUDY FOR THE
SOUTHEAST URBAN CENTER SPECIFIC PLAN EIR, CLOVIS

Associated Transportation Engineers (ATE) is pleased to submit the following traffic and circulation study for the Southeast Urban Center Specific Plan EIR. The project is proposing to develop a mix of land uses on approximately 3,307 acres located adjacent to and east of Locan Avenue, south of Bullard Avenue, west of Mc Call Avenue and north of the Gould Canal. The concept of the Southeast Urban Center Specific Plan consist of four planned communities. The project calls for the development of low and high density residential land uses, commercial/retail land-uses, a business park, an education campus and park/open space. It is understood that the findings of the traffic and circulation study, in conjunction with the impact findings of other resource areas, will be used by the Planning Center to implement the Southeast Urban Center Specific Plan.

We appreciate the opportunity to assist you with this project.

Associated Transportation Engineers

Richard L. Pool, P.E.
President



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1.0 INTRODUCTION

The following section contains an analysis of traffic impacts associated with the development of the proposed land uses identified in the Southeast Urban Center Specific Plan. This section also provides information relative to the existing traffic conditions, existing + specific plan traffic conditions, General Plan Buildout traffic conditions and General Plan Buildout with specific plan traffic conditions within the southeastern area of the City of Clovis and discusses potential traffic impact mitigation measures.

2.0 SOUTHEAST URBAN CENTER SPECIFIC PLAN DESCRIPTION

According to the information submitted by the Planning Center, the project is proposing to develop a mix of land uses on approximately 3,307 acres located adjacent to and east of Locan Avenue, south of Bullard Avenue, west of Mc Call Avenue and north of the Gould Canal. The concept of the Southeast Urban Center Specific Plan consist of four planned communities. The project calls for the development of low and high density residential land uses, commercial/retail land-uses, a business park, an education campus and park/open space.

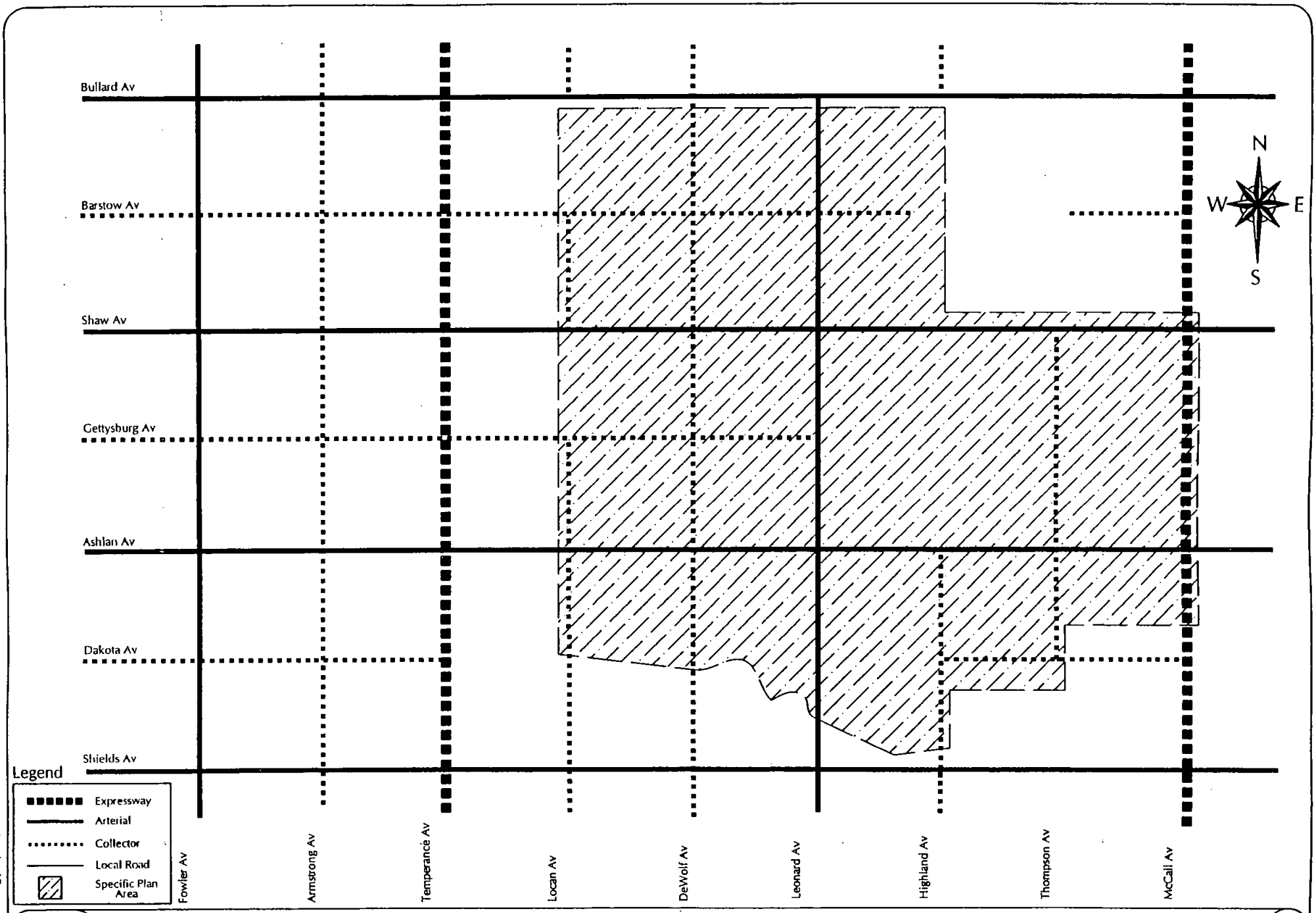
Access to the Specific Plan Area is provided by several existing arterial and collector roadways. The site plan shows future internal circulation system with connections to Bullard Avenue, Barstow Avenue, Shaw Avenue, Gettysburg Avenue, Ashlan Avenue, Locan Avenue, De Wolf Avenue, Leonard Avenue, Highland Avenue, Thompson Avenue and Mc Call Avenue which are currently classified as arterial or collector streets.

3.0 EXISTING CONDITIONS

3.1 Street Network

The circulation system adjacent to the project site is comprised of arterial and collector streets. The principal components of this street network are discussed in the following text. Figure 1 illustrates the existing street network and street classifications within the project study-area. The study-area was developed based on our understanding of the Specific Plan's sphere of influence and in consultation with City of Clovis staff.

The street system in the Southeast Urban Center Specific Plan area is generally a traditional north/south/east/west grid pattern. Two limited access facilities serve the Specific Plan area. They are Shaw Avenue which runs on an east-west alignment, the other Mc Call Avenue, runs on a north-south alignment. Streets and highways grouped into categories according to the type of vehicular access they provide or their functional classification. Typical functional classification categories are as follows:



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Existing Street Classification

Figure 1

Expressway: A divided highway classified as a "limited access" highway, primarily a high-speed, high traffic volume road with at-grade cross-traffic at signalized intersections. Access to adjacent land uses are subordinate to the provision of travel service to major traffic movements.

Arterial: Streets or highways serving major urban activity center, they are the highest traffic corridors, serve the longest trips desires. Access to adjacent land uses are subordinate to the provision of travel service to major traffic movements.

Collectors: Streets penetrating, neighborhoods, collecting traffic from local streets in the neighborhoods and channeling it to arterial streets. The collector system primarily provides land access service and carries local traffic movements within residential, neighborhoods, commercial and industrial areas.

The following text is describes the major roads that will provide access to the Southeast Urban Center Specific Plan Area:

Bullard Avenue is a primary east-west arterial roadway within the Fresno-Clovis area. Within the study-area, Bullard Avenue is a 2-lane east-west roadway with three foot shoulders on both sides. The *Clovis General Plan* indicates that the road will ultimately be a 4-lane divided facility. Bullard Avenue is a designated bike route. The existing average daily traffic (ADT) is approximately 3,000 vehicles per day (vpd).

Barstow Avenue is a 2-lane undivided roadway within the study-area, which runs along an east-west alignment. The road is currently classified as a collector in the *Clovis General Plan*. Barstow Avenue will ultimately be a 4-lane undivided facility. The roadway is designated as a bike route. The existing ADT is approximately 2,800 vpd.

Shaw Avenue is a primary east-west arterial roadway within the Fresno-Clovis area. Within the study-area, Shaw Avenue is a 2-lane east-west roadway with three foot shoulders on both sides. The *Clovis General Plan* indicates that the road will ultimately be a 6-lane divided facility. Shaw Avenue is a designated bike route. The existing average daily traffic (ADT) is approximately 9,300 vehicles per day (vpd).

Gettysburg Avenue is a 2-lane undivided roadway within the study-area, which runs along an east-west alignment. The road is currently classified as a collector in the *Clovis General Plan*. Ultimately Gettysburg Avenue will be a 4-lane undivided facility. Adjacent to the Reagan Educational Complex the road is a fully improved 4-lane facility. The roadway is designated as a bike route. The existing ADT is approximately 1,000 vpd.

Ashlan Avenue, is a 2-lane east-west roadway in fair condition within the study-area. It is classified as an arterial street in the *Clovis General Plan*, which indicates it will ultimately be developed as a 4-lane, divided roadway. Currently there are no shoulders or bicycle lanes on Ashlan Avenue in the study-area. Adjacent to the Reagan Educational Complex the road is fully improved. The roadway is designated as a bike route. The existing average daily traffic (ADT) is approximately 4,400 vpd.

Fowler Avenue, is a 4-lane divided, north-south roadway in fair condition within the study-area. It is classified as an arterial street in the *Clovis General Plan*. Fowler Avenue is currently built-out to its ultimate roadway section. Currently there are bicycle lanes on Fowler Avenue in the study-area. The existing average daily traffic (ADT) is approximately 17,000 vpd.

Armstrong Avenue, is a 2-lane, north-south roadway in fair condition within the study-area. It is classified as a collector street in the *Clovis General Plan*, which indicates it will ultimately be developed as a 4-lane, undivided roadway. Currently there are no shoulders or bicycle lanes on Armstrong Avenue in the study-area. The roadway is designated as a bike route. The existing average daily traffic (ADT) is between 4,200 vpd.

Temperance Avenue is a 2-lane, north-south roadway with no shoulders or bicycle lanes within the study-area. The roadway is designated as a bike route. The road is currently classified as an expressway in the *Clovis General Plan,* which indicates it will ultimately be developed as a 4-lane, divided expressway. A portion of Temperance is currently built to expressway standards. The existing ADT is approximately 3,000 vpd.

Locan Avenue is a 2-lane, north-south road with no shoulders or bicycle lanes within the study-area. The roadway is designated as a bike route. It is currently classified as a collector in *Clovis General Plan* and will ultimately be built-out to a 4-lane undivided roadway. The existing ADT is approximately 300 vpd.

DeWolf Avenue is a 2- to 4-lane, north-south roadway with no shoulders or bicycle lanes within the study-area. The alignment is currently classified as a collector in *Clovis General Plan* and will ultimately be built-out to a 4-lane divided roadway from the southern urban boundary to Shaw Avenue. Adjacent to the Reagan Educational Complex the road is fully improved with 4-lanes. The estimated existing ADT is approximately 2,200 vpd.

Leonard Avenue alignment runs north-south. It is a 2-lane roadway with no shoulders or bicycle lanes within the study-area. The road is currently classified as an arterial in the *Clovis General Plan* and will ultimately be built-out to a 4-lane divided roadway from the southern urban boundary to Ness Avenue. Adjacent to the Reagan Educational Complex the road is fully improved. The roadway is designated as a bike route. The estimated existing ADT is 500 vpd.

Highland Avenue is a 2-lane, north-south roadway with no shoulders or bicycle lanes within the study-area. The alignment is currently classified as a collector road in the *Clovis General Plan*. Highland Avenue will ultimately be built-out to a 4-lane undivided roadway. The estimated existing ADT is approximately 500 vpd.

Thompson Avenue alignment runs north-south. It is a 2-lane roadway with no shoulders or bicycle lanes within the study-area. The roadway is designated as a bike route. The road is currently classified as a collector road in the *Clovis General Plan*. Thompson Avenue will ultimately be built-out to a 4-lane undivided roadway. The estimated existing ADT is 500 vpd.

Mc Call Avenue alignment runs north-south. It is a 2-lane roadway with no shoulders or bicycle lanes within the study-area. The roadway is designated as a bike route. The road is currently classified as an expressway in the *Clovis General Plan*. The Clovis *General Plan* indicates that Mc Call Avenue will ultimately become a 4-lane divided expressway. The estimated existing ADT is 3,800 vpd.

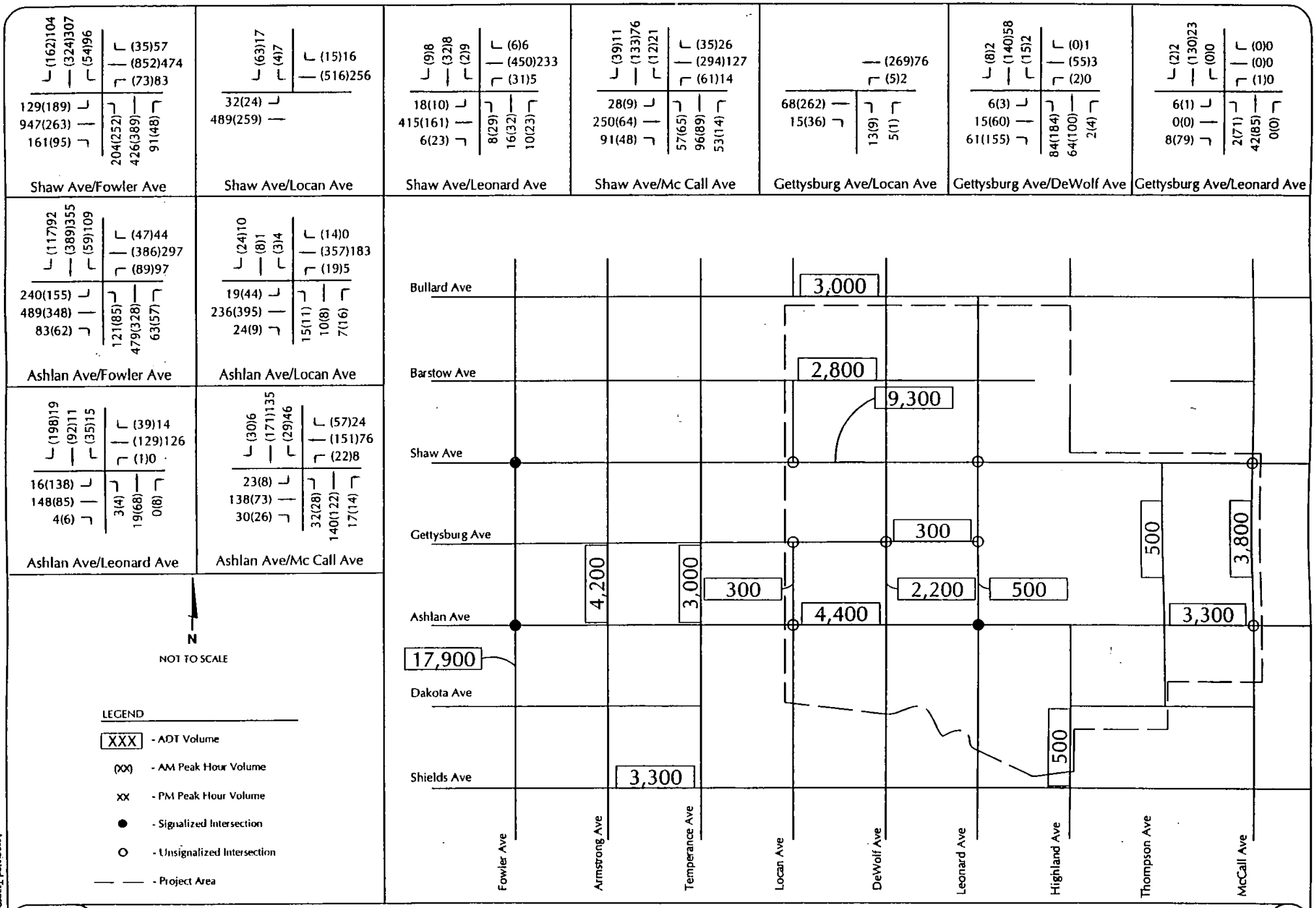
3.2 Roadway Operations

In the following analysis, average daily traffic (ADT) volumes are discussed. Existing ADT volumes for the roadway segments in the study-area evaluated by ATE, were taken from the "Fresno Regional Traffic Monitoring Report", published by the Council of Fresno County Governments. The "Regional Traffic Monitoring Report" provides ADT volumes for selected roadway segments not all segments of the roadways. The data is collected by the City of Clovis, City of Fresno, County of Fresno and Caltrans and published by the Council of Fresno County Governments.

The operational characteristics of the roadways within the study-area were analyzed based on roadway classification system and their corresponding design capacities. This analysis methodology examines average daily traffic volumes and determines volume-to-capacity ratios based on functional roadway classification and corresponding design capacity. A summary of the roadway design capacities is contained in the Technical Appendix.

In rating a roadway's operating condition with existing or future traffic volumes, "Levels of Service" (LOS) A through F are used, with LOS A indicating very good operation and LOS F indicating poor operation. The City of Clovis's current traffic impact policy considers LOS D as the desired standard.

Table 1 shows the existing average daily traffic volumes, roadway classifications, roadway capacities, and existing levels of service along major roadway sections. Figure 2 shows the existing ADT volumes on roadway sections throughout the study-area.



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Existing Traffic Volumes

Figure 2

Table 1
Existing Roadway Levels of Service

Roadway Segment	Roadway Classification	ADT Capacity	Existing ADT	Existing LOS
Bullard Avenue	2-Lane Arterial	12,500	3,000	LOS A
Barstow Avenue	2-Lane Collector	12,500	2,800	LOS A
Shaw Avenue	2-Lane Arterial	12,500	9,300	LOS C
Gettysburg Avenue	2-Lane Collector	12,500	1,000	LOS A
Ashlan Avenue	2-Lane Arterial	12,500	4,400	LOS A
Fowler Avenue	4-Lane Arterial	30,000	17,900	LOS B
Armstrong Road	2-Lane Collector	12,500	4,200	LOS A
Temperance Avenue	2-Lane Expressway	12,500	3,000	LOS A
Locan Avenue	2-Lane Collector	12,500	300	LOS A
DeWolf Avenue	2-Lane Collector	12,500	2,200	LOS A
Leonard Avenue	2-Lane Arterial	12,500	500	LOS A
Highland Avenue	2-Lane Collector	12,500	500	LOS A
Thompson Avenue	2-Lane Collector	12,500	500	LOS A
Mc Call Avenue	2-Lane Expressway	12,500	3,800	LOS A

The data presented in Table 1 shows that all of the roadways within the study-area are operating within the City of Clovis's desired level of service D range.

3.3 Intersection Operations

Because traffic flow on street networks is most restricted at intersections, a detailed traffic impact analysis must examine the existing operating conditions of eleven critical intersections during peak travel periods. The level of service grading system (LOS A-F) discussed previously for roadway operations is also used in rating intersection operations.

Existing peak hour traffic counts were collected for eleven major study-area intersections by ATE in August, 2001, for this study. Though there are many more intersections (existing and planned) throughout the Specific Plan area, these eleven were determined to be the critical intersections. The existing A.M. and P.M. peak hour volumes are shown on Figure 2 with the intersection count sheets located in the Technical Appendix. Levels of service for the unsignalized study-area intersections were calculated based on the Highway Capacity Manual methodology for unsignalized intersections. The delay ranges contained in the updated Highway Capacity Manual[1] for stop-sign controlled intersections were used to assign a level

[1] Highway Capacity Manual, Transportation Research Special Report 209, National Research Council, Sixth Edition, Updated 1997.

of service. Existing levels of service for the signalized study-area intersections were calculated using the "Synchro 5.0" traffic analysis software program. This software program implements the level of service calculation procedures based on average delay in seconds per vehicle as outlined in the updated Highway Capacity Manual. Table 2 lists the type of control and existing A.M. and P.M. peak hour levels of service for each of the study-area intersections.

Table 2
Intersection Levels of Service

Intersection	Control Type	Delay / LOS	
		A.M. Peak Hour	P.M. Peak Hour
Shaw Avenue/Fowler Avenue	Signal	19.9 sec./LOS B	38.9 sec./LOS D
Shaw Avenue/Locan Avenue eastbound left/through: southbound approach:	STOP Sign	 8.7 sec./LOS A 13.4 sec./LOS B	 7.9 sec./LOS A 12.1 sec./LOS B
Shaw Avenue/Leonard Avenue eastbound left/through/right: westbound left/through/right: northbound approach: southbound approach:	STOP Sign	 8.4 sec./LOS A 7.7 sec./LOS A 17.8 sec./LOS C 16.6 sec./LOS C	 7.8 sec./LOS A 8.3 sec./LOS A 15.7 sec./LOS C 15.1 sec./LOS C
Shaw Avenue/Mc Call Avenue eastbound left-turn: westbound left-turn: northbound approach: southbound approach:	STOP Sign	 8.0 sec./LOS A 7.6 sec./LOS A 29.0 sec./LOS D 21.1 sec./LOS C	 7.6 sec./LOS A 8.1 sec./LOS A 21.6 sec./LOS C 18.3 sec./LOS C
Gettysburg Avenue/Locan Avenue westbound left/through: northbound approach:	STOP Sign	 7.9 sec./LOS A 12.7 sec./LOS B	 7.4 sec./LOS A 9.3 sec./LOS A
Gettysburg Avenue/De Wolf Avenue eastbound left/through/right: westbound left/through/right: northbound approach: southbound approach:	STOP Sign	 7.3 sec./LOS A 7.7 sec./LOS A 18.4 sec./LOS C 13.1 sec./LOS B	 7.2 sec./LOS A 7.4 sec./LOS A 10.4 sec./LOS B 9.9 sec./LOS A
Gettysburg Avenue/Leonard Avenue northbound left/through: eastbound approach:	STOP Sign	 7.6 sec./LOS A 9.4 sec./LOS A	 7.3 sec./LOS A 8.7 sec./LOS A
Ashlan Avenue/Fowler Avenue	Signal	15.4 sec./LOS B	LOS 18.2/LOS B
Ashlan Avenue/Locan Avenue eastbound left-turn: westbound left-turn: northbound approach: southbound approach:	STOP Sign	 8.2 sec./LOS A 8.3 sec./LOS A 17.1 sec./LOS C 14.1 sec./LOS B	 7.7 sec./LOS A 7.8 sec./LOS A 12.4 sec./LOS B 10.6 sec./LOS B
Ashlan Avenue/Leonard Avenue	Signal	12.9 sec./LOS B	13.4 sec./LOS B
Ashlan Avenue/Mc Call Avenue	STOP Sign	10.54 sec./LOS B	10.02/LOS B

The data presented in Table 2 show that all of the study-area intersections currently operate at LOS D or better during the A.M. and P.M. peak hour periods.

4.0 PLANNED ROADWAY IMPROVEMENTS

4.1 Inner Beltway - Mc Call Avenue

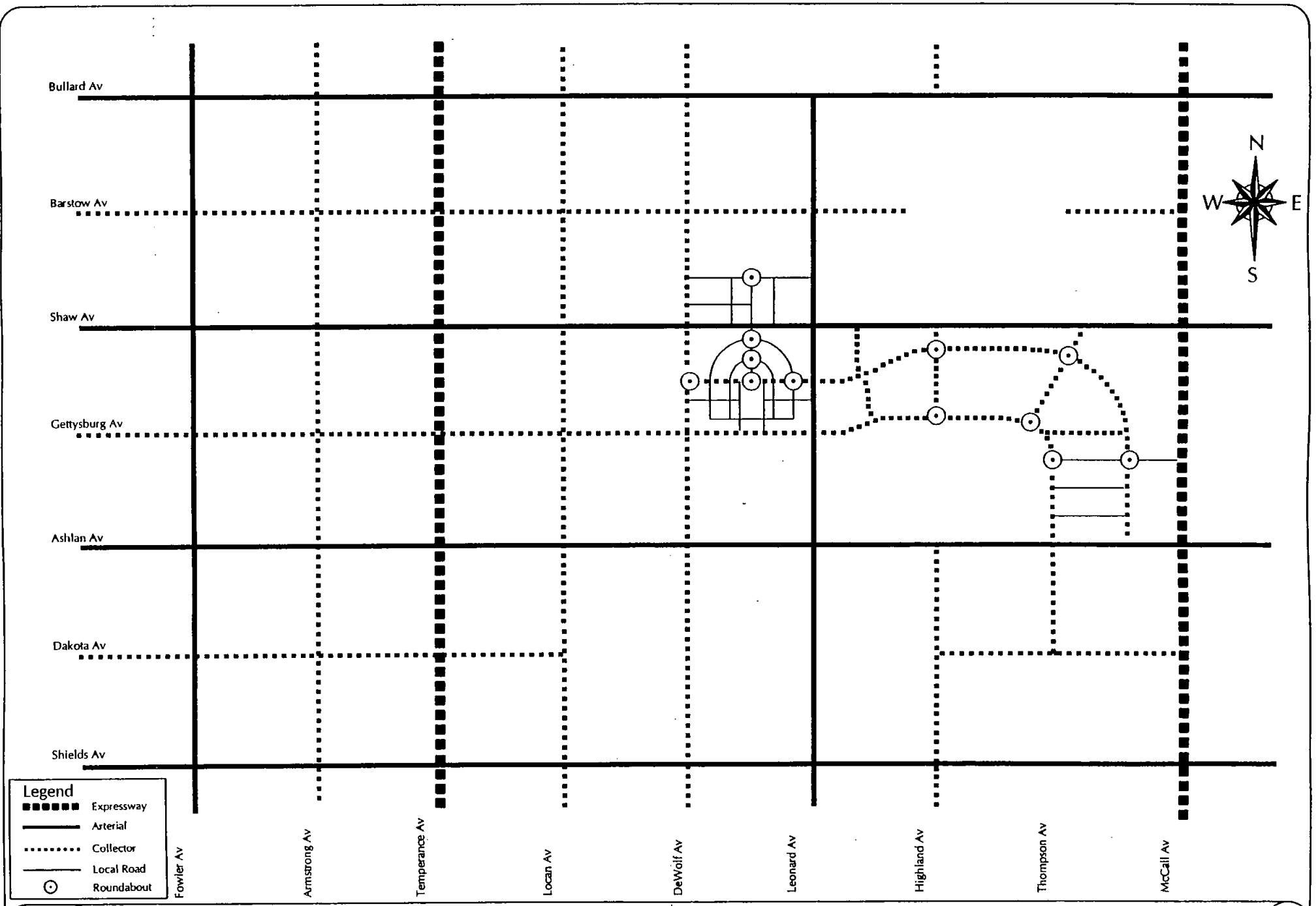
Mc Call Avenue, which is the eastern boundary of the Southeast Urban Center Specific Plan, is part of the regional transportation and circulation system. In both the *Clovis General Plan* and the *2001 Regional Transportation Plan*, Mc Call Avenue is identified as the proposed alignment of the regional inner beltway. This inner beltway will play a major role in the local and regional circulation system. The inner beltway will have connections to both State Route 180 to the south and State Route 168 to the north. In addition, the alignment and design of the inner beltway will have an impact on the development of the proposed Specific Plan. The Specific Plan will have to dedicate right-of-way to allow for the future construction.

4.2 Expressway/Arterial/Collector Streets

Throughout the Specific Plan Area, there are existing roads designated as expressways, arterials and collector roads which are not built to their ultimate street sections. As the adjacent properties are developed these roadways will be improved to their ultimate street sections as per City of Clovis design standards. In addition to improving the streets to their full street sections, major intersections should be signalized when traffic conditions warrant signalization.

Within the Specific Plan area Shaw Avenue/Mc Call Avenue have been designated as Arterial/Expressway roadways. Arterial/Expressway roadways will be divided facilities with 6 travel lanes and bicycle lanes within 133 to 164 foot right-of-ways. Arterial roadways will have 4-5 travel lanes and bicycle lanes within 105 to140 foot right-of-ways. Collector roadways will be undivided facilities with 2 to 5 travel lanes, bicycle lanes some on-street parking within 68 to116 foot right-of-ways. Local roads will be divided or undivided facilities with 2 travel lanes, bicycle lanes and on-street parking within 100 foot right-of-ways.

Detailed street cross-sections for the major arterials, collectors and local internal streets serving the Specific Plan area are included in the Technical Appendix. A review of the planned cross-sections indicated that they are appropriate for the Specific Plan area. These sections provide adequate pavement for both moving cars, parked cars and bicyclist. The on-site improvements of the internal roadways would commence as soon as possible. These roadway improvements, with related traffic controls are assumed to be in place prior to build-out of the Specific Plan area. Figure 3 illustrates the planned circulation system for Southeast Urban Center Specific Plan area.



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Southeast Urban Center Circulation Plan

Figure 3

In addition to the roadway improvements, roundabouts are proposed within the planned community areas of the Specific Plan at several locations. Studies of roundabouts have determined that they offer advantages over the more traditional forms of traffic control such as STOP-signs and traffic signals. For example, roundabouts have achieved a 50 to 90 percent reduction in collisions compared with intersections with 2- or 4-way STOP-sign control or traffic signals. The occurrence of pedestrian/vehicle and bicycle/vehicle collisions are rare at roundabouts. The construction and maintenance cost of roundabouts compared to signalized intersections are substantially less. The capacity of an intersection controlled by a roundabout is usually higher than a signalized intersection. Higher intersection capacity results in reduced vehicle delays, better levels of service which translates into improved air quality. Roundabouts have may have an impact coordinated signal systems by dispersing or rearranging platoons of traffic. The creation of a subsystem with their own cycle lengths would offset these potential effects. If not properly designed to accommodate the traffic volume, roundabouts can be impacted by vehicle queues and delays at caused by adjacent signalized intersections. The roundabout intersections shown on the site plan should be designed as modern roundabouts with design speeds of 15 -18 mph. At single-lane roundabouts, the circulatory roadway should accommodate the STAA or California design vehicle. The circulatory roadway width can be reduced with a truck apron, placed behind a mountable curb on the central island to accommodate larger vehicles. The center island can be landscaped and landscaping can be provided outside of the circulating roadway. Providing that the landscaping does not interfere with the drivers sight distance. A conceptual roundabout design is included in the Technical Appendix.

4.3 Traffic Calming

Traffic calming measures should be developed as part of the on-site circulation system. Internal roadway sections could be designed with the following features intended to promote traffic calming:

- The use of traditional narrow pavement section for neighborhood roadways; (Minimum of paved street width of 36 feet with parking on both sides or 32 feet with parking on one side.)
- The use of median islands along the main entry corridor roadways;
- The use of roundabouts at the intersections within the planned communities;
- The use of relatively short blocks and multiple parallel through streets to disburse traffic.

Should additional traffic calming measures be necessary or required in the future, the following measures could be incorporated at the tentative tract map stage or into the final improvement plans (engineered street plans):

- The use of north/south surface cross gutters where appropriate for both drainage and traffic;

- The use of additional intersection landscape features, or enhanced paving, where feasible.

5.0 SOUTHEAST URBAN CENTER SPECIFIC PLAN-GENERATED TRAFFIC

The land uses proposed for the Southeast Urban Center Specific Plan consist of 10,829 residential dwellings (both single-family dwellings and multi-family dwellings), 2,001,800 square feet of commercial/retail space, a 550,163 square-feet of office space, a 183 acre business park, 236 acres of public facilities, 64 acres of recreational open space and 46 acres of passive open space.

Southeast Urban Center Specific Plan Trip Generation. For the purpose of estimating the number of new trips which would be generated by the Specific Plan, trip rates published in the Institute of Transportation Engineers, *Trip Generation*, 6th Edition, were used. This manual is a standard reference used by jurisdictions throughout the country, and trip rates are based on actual trip generation studies performed for various land uses.

As discussed previously, the proposed Specific Plan would consist of a mixed-use development including residential, retail/commercial, office, public facilities, open space and recreational uses. The jobs/housing mix provided by the Specific Plan, would reduce vehicle miles traveled and encourage alternative modes of transportation. The mixed-uses proposed by the project will result in a considerable amount of internal trips within the project boundaries (home-work, home-shopping, and work-shopping trips). In order to estimate internal versus external trip interactions, the National Cooperative Highway Research Program Report No. 255, "Highway Traffic Data for Urbanized Area Project Planning and Design" was used. This document provides information on the types of trips which occur at various developments and how far they are likely to travel. The trip generation analysis determined that approximately 46 percent of all trips generated by the Specific Plan would be internal and the remaining 54 percent of the trips would be external to the Specific Plan area.

Table 3 presents the trip generation for Southeast Urban Center Specific Plan area. A more detailed trip generation table is contained in the Technical Appendix.

Table 3
Southeast Urban Center Trip Generation

Land Use	Size	ADT	A.M. Peak Hour Trip Ends			P.M. Peak Hour Trip Ends		
			Entering	Exiting	Total	Entering	Exiting	Total
S.F. Residential	6,074 DU	58,250	1,139	3,417	4,556	3,926	2,209	6,135
M.F. Residential	4,755 DU	31,335	447	1,788	2,235	1,820	938	2,758
Elementary School	700 Students	714	120	83	203	122	88	210
Middle School	1,400 Students	2,030	367	277	644	105	119	224
High School	2,600 Students	4,654	837	359	1,196	156	234	390
Commercial	2,001,800 SF	81,414	1,237	825	2,062	3,663	3,663	7,326
Office	550,163 SF	6,057	755	103	376	139	681	820
Business Park	183 Acres	35,705	4,318	376	4,694	776	4,399	5,175
Golf Course	46 Acres	232	7	3	10	5	9	14
Open Space	81 Acres	129	3	3	6	7	6	13
	Total	**220,520**	**9,231**	**7,233**	**16,464**	**10,720**	**12,345**	**23,065**

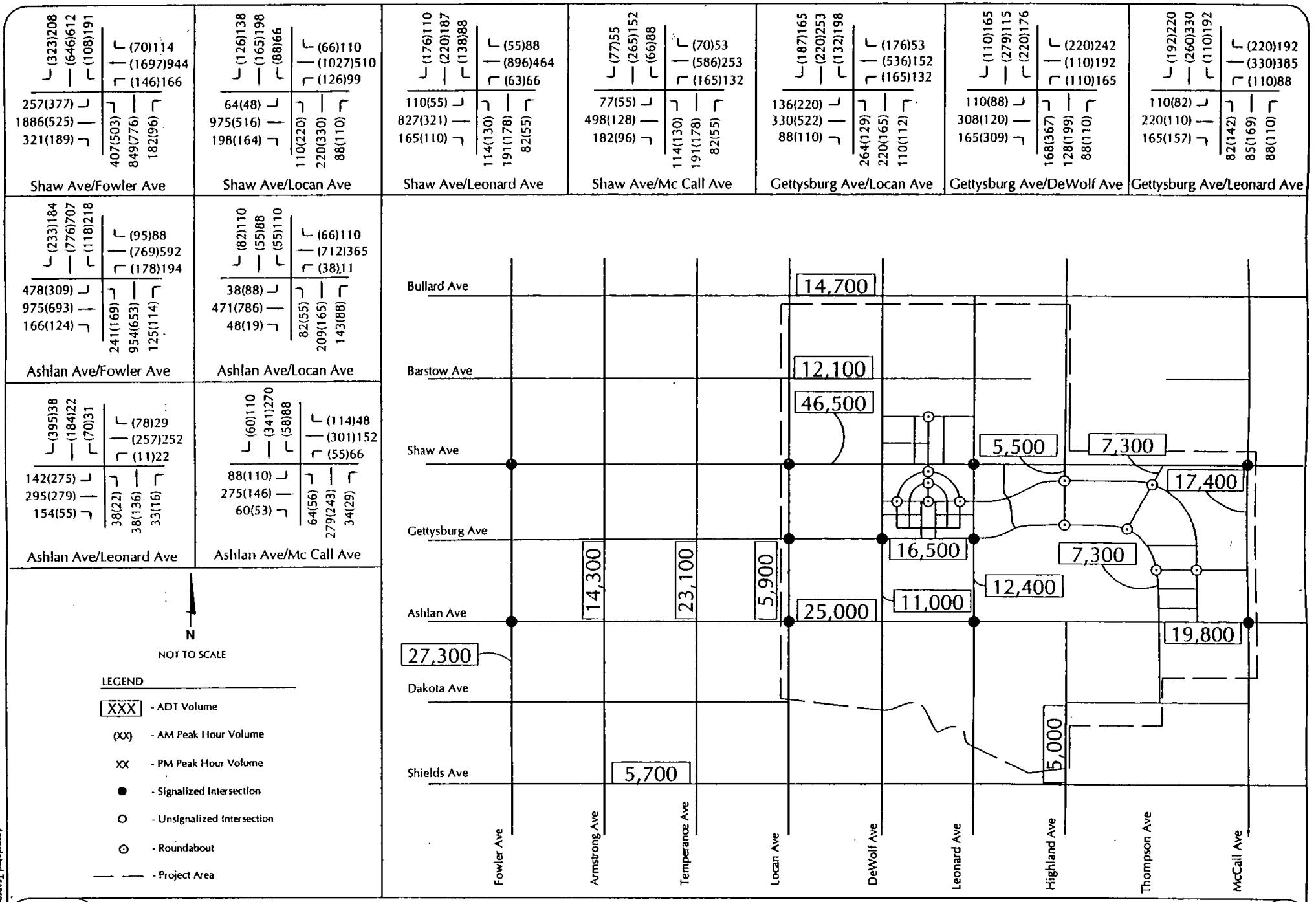
As shown in Table 3 the Southeast Urban Center Specific Plan will generate 220,520 average daily trip ends, 16,464 A.M. peak hour trips and 23,065 P.M. peak hour trip ends. For trip generation purposes, total trip ends for a land use is the sum of all trips entering and all trips exiting a site during a designated time period.

Southeast Urban Center Specific Plan Trip Distribution/Assignment. Traffic modeling conducted by the Fresno COG for the classified major street system in the Clovis area for the future was utilized in this study. The trips generated by Southeast Urban Center Specific Plan were distributed and assigned to the study-area street network by the Fresno COG Traffic Model.

6.0 SOUTHEAST URBAN CENTER SPECIFIC PLAN ANALYSIS

The Southeast Urban Center Specific Plan proposes to amend the roadway cross-sections identified in the Circulation Element of the City's adopted General Plan, those cross-sections are used to evaluate the traffic impacts associated with the Specific Plan.

6.1 *Existing + Southeast Urban Center Specific Plan Roadway Operations.* Figure 4 illustrates the Existing + Southeast Urban Center Specific Plan ADT volumes on roadway segments throughout the study-area. Table 4 shows the Existing + Southeast Urban Center Specific Plan ADT volumes, roadway classifications, roadway capacities, and levels of service along major roadway sections. As noted under the planned roadway improvements section, the study-area roadways are built to their full street sections as proposed by the Specific Plan.



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Existing + Specific Plan Traffic Volumes

Figure 4

Table 4
Existing + Specific Plan
Roadway Levels of Service

Roadway Segment	Specific Plan Roadway Classification	ADT Capacity	Existing + Specific Plan	
			ADT	LOS
Bullard Avenue	4-Lane Arterial	32,200	14,700	LOS A
Barstow Avenue	2-Lane Collector	11,700	12,100	LOS F
Shaw Avenue	6-Lane Arterial	51,200	46,500	LOS D
Gettysburg Avenue	4-Lane Collector	25,300	16,500	LOS B
Ashlan Avenue	4-Lane Arterial	32,200	25,000	LOS C
Fowler Avenue	4-Lane Arterial	32,200	27,300	LOS D
Armstrong Road	4-Lane Collector	25,300	14,300	LOS A
Temperance Avenue	4-Lane Expressway	34,200	23,100	LOS B
Locan Avenue	2-Lane Collector	11,700	5,900	LOS A
DeWolf Avenue	4-Lane Collector	25,300	11,000	LOS A
Leonard Avenue	4-Lane Arterial	32,200	12,400	LOS A
Highland Avenue	2-Lane Collector	11,700	5,000	LOS A
Thompson Avenue	2-Lane Collector	11,700	7,300	LOS B
Mc Call Avenue	4-Lane Expressway	34,200	17,400	LOS A

The data presented in Table 4 shows that generally, all of the roadways within the study-area are expected to operate at LOS D or better with existing + specific plan volumes. Again this assumes that the roads are built-out to their proposed full street sections. The 2-lane with continuous left-turn lane section of Barstow Avenue is forecasted to operate at LOS F.

It should be noted that traffic generated from the buildout of the Southeast Urban Center Specific Plan area effectively represents the General Plan Buildout traffic volumes for the area. Currently, the area is generally under developed. The existing land-uses of the developed areas are consistent with the proposed Specific Plan. It is not expected that this area will see a significant growth in cut-through or background traffic. The future traffic growth will be directly related to the development of the land-uses identified in the Specific Plan. As those land-uses are developed, the area will then experience growth in traffic. The growth in traffic will be the result of trips attracted from external sources and trips generated by internal sources.

6.2 *Potential Local Roadway Impacts.* According to the Specific Plan, the internal streets would be improved as the adjacent land is developed. It is expected by buildout of the Specific Plan all the streets would be improved to the full street sections, thus reducing any potentially significant impacts. Based on the roadway analysis, the proposed 2-lane section for Barstow Avenue should be widened to provide 4-lanes. The remaining street sections as proposed were determined to be appropriate for the forecast traffic volumes. Based on future forecast traffic volumes, 6-lanes would be appropriate for the segment of Shaw Avenue east of Highland Avenue. This segment of Shaw Avenue is adjacent to both the City of Clovis and Fresno County and is expected carry regional traffic destined for the proposed McCall Avenue expressway. As indicated by the roadway analyses the planned street sections would generally provide better LOS than the City's minimum LOS D standard.

6.3 *Existing + Southeast Urban Center Specific Plan Intersection Operations.* Figure 4 shows the Existing + Southeast Urban Center Specific Plan A.M. and P.M. peak hour volumes and Table 5 list the type of control and Existing + Southeast Urban Center Specific Plan A.M. and P.M. peak hour LOS for each of the study-area intersections. LOS worksheet are contained in the Technical Appendix.

Table 5
Existing + Specific Plan
Intersection Levels of Service

Intersection	Control Type	Delay / LOS	
		A.M. Peak Hour	P.M. Peak Hour
Shaw Avenue/Fowler Avenue	Signal	47.0 sec./LOS D	29.8 sec./LOS C
Shaw Avenue/Locan Avenue	Signal	32.4 sec./LOS C	24.4 sec./LOS C
Shaw Avenue/Leonard Avenue	Signal	25.9 sec./LOS C	25.8 sec./LOS C
Shaw Avenue/Mc Call Avenue	Signal	26.5 sec./LOS C	27.1 sec./LOS C
Gettysburg Avenue/Locan Avenue	Signal	24.8 sec./LOS C	26.6 sec./LOS C
Gettysburg Avenue/De Wolf Avenue	Signal	25.7 sec./LOS C	21.2 sec./LOS C
Gettysburg Avenue/Leonard Avenue	Signal	23.0 sec./LOS C	21.5 sec./LOS C
Ashlan Avenue/Fowler Avenue	Signal	31.2 sec./LOS C	50.0 sec./LOS D
Ashlan Avenue/Locan Avenue	Signal	25.4 sec./LOS C	23.2 sec./LOS C
Ashlan Avenue/Leonard Avenue	Signal	20.4 sec./LOS C	25.6 sec./LOS C
Ashlan Avenue/Mc Call Avenue	Signal	25.6 sec./LOS C	27.0 sec./LOS C

The data presented in Table 5 show that all of the study-area intersections will operate at LOS D or better during the A.M. and P.M. peak hour period with Existing + Southeast Urban Center Specific Plan volumes.

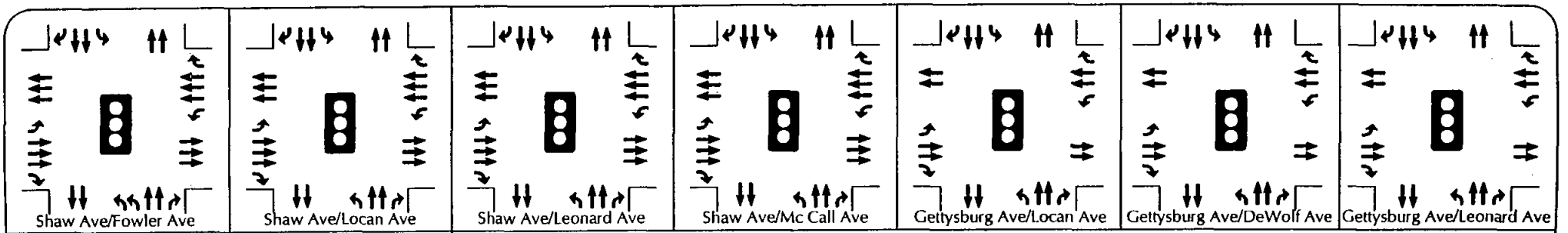
6.4 *Potential Intersection Impacts.* According to the Specific Plan, the study-area intersections would be improved as part of the roadway improvements. Intersection improvements should include, the provision of exclusive left-turn and right-turn lanes at the major signalized intersections through out the Specific Plan area. Figure 5 illustrates the future intersection geometry for the study-area intersections.

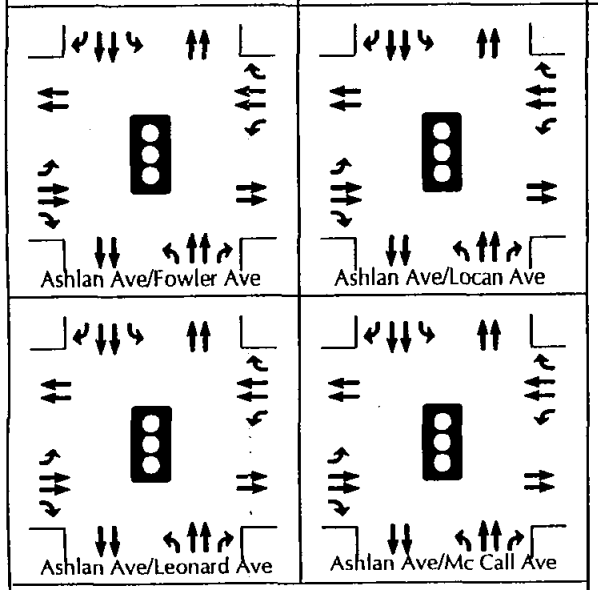
6.5 *Mitigations.* The Existing + Southeast Urban Center Specific Plan analysis found that the project has the potential to impact several of the study-area roadways and intersections. Implementing the planned roadway improvements as shown on the street sections located in the Technical Appendix would mitigate potential project impacts. Though there are many more roadways, intersections and roundabouts throughout the Specific Plan area, it is assumed that since the major facilities will operate at acceptable levels of service, the minor facilities would also. The impacts to facilities outside the study-area are mitigated due to the increased employment opportunities and job/housing mix within the Specific Plan area. As discussed in the trip generation section only 54 percent of the project traffic would be external to the Specific Plan area.

7.0 GENERAL PLAN BUILDOUT ANALYSIS

General Plan Buildout traffic volumes forecasts for the study-area roads and intersections were developed using the Fresno COG Traffic Model assuming development in accordance with the *City of Clovis General Plan* adopted in April of 1993. The traffic from the future development was assigned to the study-area street network. The ADT volumes developed by the Fresno COG Traffic Model were reduced to A.M. and P.M. peak hour turning movements by applying a reduction (8 and 10 percent respectively) factor, then assigned to the future circulation system. It was assumed for the General Plan Buildout Analysis that all the study-area roadways and intersections would be fully improved as identified in the Circulation Element of the City's adopted General Plan. The Southeast Urban Center Specific Plan, however, proposes to amend the roadway cross-sections identified in the Circulation Element, those cross-sections are used to evaluate the traffic impacts associated with the Specific Plan.

7.1 *General Plan Buildout Roadway Operations.* Figure 6 shows the General Plan Buildout ADT volumes on roadway segments throughout the study-area. Table 6 shows the General Plan Buildout volumes, roadway classifications, roadway capacities and levels of service for the major roadway sections.



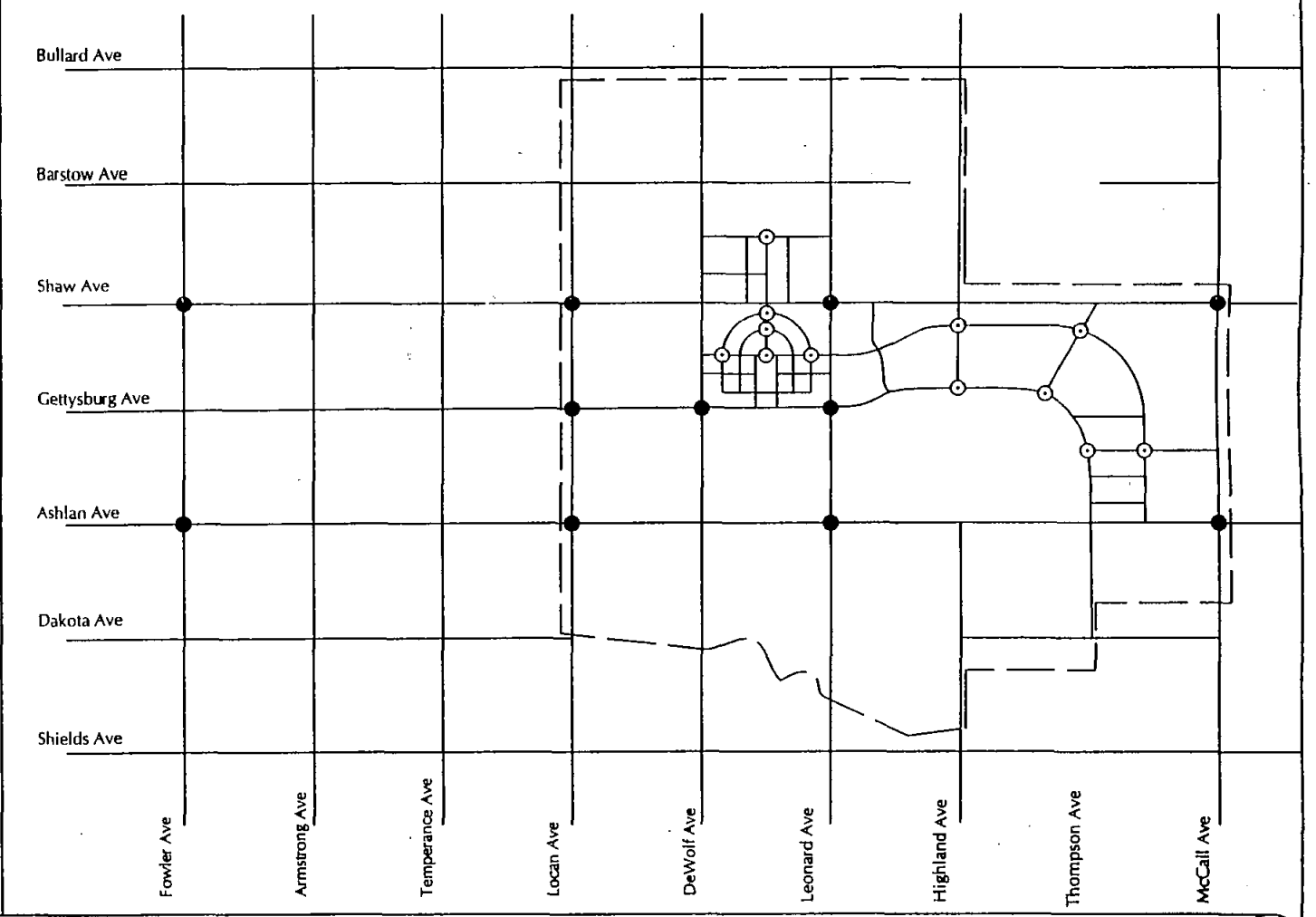


N

NOT TO SCALE

LEGEND

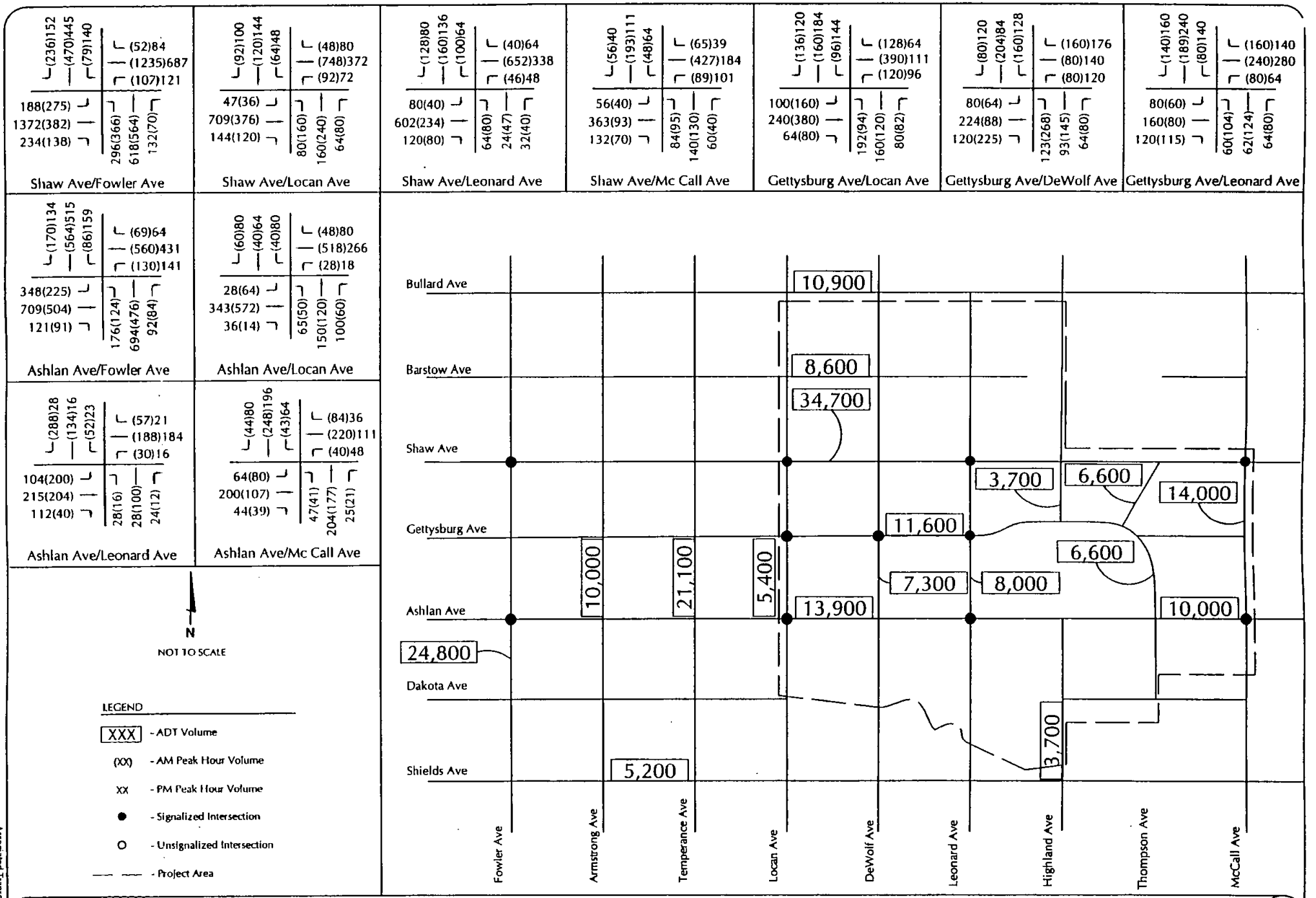
- Future Lane Geometry
- Signalized Intersection
- Unsignalized Intersection
- Roundabout
- Project Area



ASSOCIATED TRANSPORTATION ENGINEERS

Future Intersection Geometry

Figure 5



ASSOCIATED TRANSPORTATION ENGINEERS

General Plan Buildout Traffic Volumes (With Current Plan Land Uses)

Figure 6

Table 6
General Plan Buildout Roadway Levels of Service

Roadway Segment	General Plan Roadway Classification	ADT Capacity	Year 2020	
			ADT	LOS
Bullard Avenue	4-Lane Arterial	32,200	10,900	LOS A
Barstow Avenue	4-Lane Collector	25,300	8,600	LOS A
Shaw Avenue	6-Lane Arterial	51,200	34,700	LOS B
Gettysburg Avenue	4-Lane Collector	25,300	11,600	LOS A
Ashlan Avenue	4-Lane Arterial	32,200	13,900	LOS A
Fowler Avenue	4-Lane Arterial	32,200	24,800	LOS C
Armstrong Road	4-Lane Collector	25,300	10,000	LOS A
Temperance Avenue	4-Lane Expressway	34,200	21,100	LOS B
Locan Avenue	4-Lane Collector	25,300	5,400	LOS A
DeWolf Avenue	4-Lane Arterial	32,200	7,300	LOS A
Leonard Avenue	4-Lane Arterial	32,200	8,000	LOS A
Highland Avenue	4-Lane Collector	25,300	3,700	LOS A
Thompson Avenue	4-Lane Collector	11,700	6,600	LOS A
Mc Call Avenue	4-Lane Expressway	34,300	14,000	LOS A

The data presented in Table 6 show that all of the roadways within the study-area are forecast to operate in the LOS A-C range with General Plan Buildout traffic volumes.

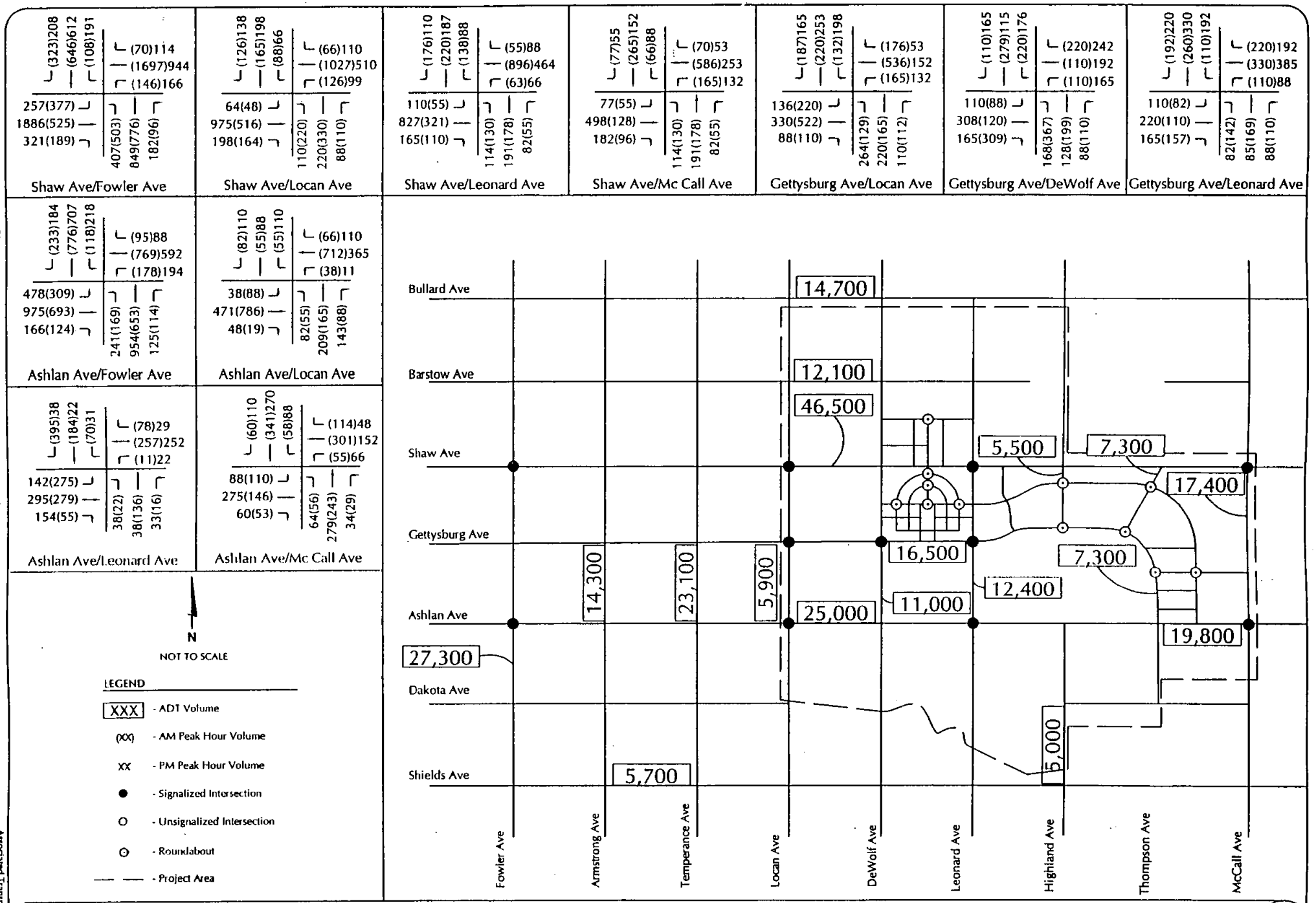
7.2 *General Plan Buildout Intersection Operations.* The General Plan Buildout A.M. and P.M. peak hour volumes are shown in Figure 6. Table 7 list the type of control and General Plan Buildout peak hour LOS for each of the study-area intersections. LOS calculation sheets are shown in the Technical Appendix.

Table 7
General Plan Buildout Intersection Levels of Service

Intersection	Control Type	Delay / LOS	
		A.M. Peak Hour	P.M. Peak Hour
Shaw Avenue/Fowler Avenue	Signal	22.3 sec./LOS C	22.9 sec./LOS C
Shaw Avenue/Locan Avenue	Signal	28.4 sec./LOS C	16.5 sec./LOS B
Shaw Avenue/Leonard Avenue	Signal	26.7 sec./LOS C	17.7 sec./LOS B
Shaw Avenue/Mc Call Avenue	Signal	25.0 sec./LOS C	21.1 sec./LOS C
Gettysburg Avenue/Locan Avenue	Signal	24.2 sec./LOS C	27.7 sec./LOS C
Gettysburg Avenue/De Wolf Avenue	Signal	18.7 sec./LOS B	20.7 sec./LOS C
Gettysburg Avenue/Leonard Avenue	Signal	23.5 sec./LOS C	22.7 sec./LOS C
Ashlan Avenue/Fowler Avenue	Signal	27.2 sec./LOS C	31.5 sec./LOS C
Ashlan Avenue/Locan Avenue	Signal	26.4 sec./LOS C	17.9 sec./LOS B
Ashlan Avenue/Leonard Avenue	Signal	25.1 sec./LOS C	20.8 sec./LOS C
Ashlan Avenue/Mc Call Avenue	Signal	24.1 sec./LOS C	17.9 sec./LOS B

The data presented in Table 7 show that all of the study-area intersections are forecasted to operate at LOS D or better during the A.M. and P.M. peak hour periods. This analysis assumed that the intersections improvements as shown on Figure 5 are in place.

7.3 *General Plan Buildout with Specific Plan Roadway Operations.* Figure 7 shows the General Plan Buildout ADT volumes on roadway segments throughout the study-area. Table 8 shows the General Plan Buildout plus Specific Plan traffic volumes, roadway classifications, roadway capacities, and levels of service for the major roadway sections. The proposed Specific Plan roadway cross-sections are assumed for the following roadway evaluation.



ASSOCIATED TRANSPORTATION ENGINEERS

General Plan Buildout Traffic Volumes
(With Southeast Urban Center Specific Plan Land Uses)

Figure 7

Table 8
General Plan Buildout + Specific Plan
Roadway Levels of Service

Roadway Segment	Specific Plan Roadway Classification	ADT Capacity	Year 2020 + Specific Plan	
			ADT	LOS
Bullard Avenue	4-Lane Arterial	32,200	14,700	LOS A
Barstow Avenue	2-Lane Collector	11,700	12,100	LOS F
Shaw Avenue	6-Lane Arterial	51,200	46,500	LOS D
Gettysburg Avenue	4-Lane Collector	25,300	16,500	LOS B
Ashlan Avenue	4-Lane Arterial	32,200	25,000	LOS C
Fowler Avenue	4-Lane Arterial	32,200	27,300	LOS D
Armstrong Road	4-Lane Collector	25,300	14,300	LOS A
Temperance Avenue	4-Lane Expressway	34,200	23,100	LOS B
Locan Avenue	2-Lane Collector	11,700	5,900	LOS A
DeWolf Avenue	4-Lane Collector	25,300	11,000	LOS A
Leonard Avenue	4-Lane Arterial	32,200	12,400	LOS A
Highland Avenue	2-Lane Collector	11,700	5,000	LOS A
Thompson Avenue	2-Lane Collector	11,700	7,300	LOS B
Mc Call Avenue	4-Lane Expressway	34,200	17,400	LOS A

The data presented in Table 8 show that generally all of the roadways within the study-area are forecast to operate at LOS D or better with General Buildout plus specific plan traffic volumes. The 2-lane section of Barstow Avenue is forecast to operate at LOS F.

7.4 *Potential Roadway Impacts.* According to the Specific Plan, the internal streets would be improved as the adjacent land is developed. It is expected by General Plan Buildout all the streets would be improved to the full street sections, thus reducing any potentially significant impacts. ATE's evaluation of the proposed street sections determined that generally, they would be appropriate for the forecasted traffic volumes. Based on the roadway analysis, the proposed 2-lane section for Barstow Avenue should be widened to provide 4-lanes. The future forecast traffic volumes indicate that 6-lanes would be appropriate for the segment of Shaw Avenue east of Highland Avenue. This segment of Shaw Avenue is adjacent to both the City of Clovis and Fresno County and is expected carry regional traffic destined for the proposed McCall Avenue expressway

7.5 *General Plan Buildout with Specific Plan Intersection Operations.* The General Plan Buildout with Specific Plan A.M. and P.M. peak hour volumes are shown in Figure 7. Table 9 list the type of control and General Plan with Specific Plan A.M. and P.M. peak hour LOS for each of the study-area intersections. LOS calculation sheets are shown in the Technical Appendix.

Table 9
General Plan Buildout + Specific Plan
Intersection Levels of Service

Intersection	Control Type	Delay / LOS	
		A.M. Peak Hour	P.M. Peak Hour
Shaw Avenue/Fowler Avenue	Signal	47.0 sec./LOS D	29.8 sec./LOS C
Shaw Avenue/Locan Avenue	Signal	32.4 sec./LOS C	24.4 sec./LOS C
Shaw Avenue/Leonard Avenue	Signal	25.9 sec./LOS C	25.8 sec./LOS C
Shaw Avenue/Mc Call Avenue	Signal	26.5 sec./LOS C	27.1 sec./LOS C
Gettysburg Avenue/Locan Avenue	Signal	24.8 sec./LOS C	26.6 sec./LOS C
Gettysburg Avenue/De Wolf Avenue	Signal	25.7 sec./LOS C	21.2 sec./LOS C
Gettysburg Avenue/Leonard Avenue	Signal	23.0 sec./LOS C	21.5 sec./LOS C
Ashlan Avenue/Fowler Avenue	Signal	31.2 sec./LOS C	50.0 sec./LOS D
Ashlan Avenue/Locan Avenue	Signal	25.4 sec./LOS C	23.2 sec./LOS C
Ashlan Avenue/Leonard Avenue	Signal	20.4 sec./LOS C	25.6 sec./LOS C
Ashlan Avenue/Mc Call Avenue	Signal	25.6 sec./LOS C	27.0 sec./LOS C

The data presented in Table 9 show that all of the study-area intersections are forecast to operate at LOS D or better during the A.M. and P.M. peak hour periods.

7.6 *Potential Intersection Impacts.* According to the Specific Plan, the study-area intersections would be improved as part of the roadway improvements. Intersection improvements should include, the provision of exclusive left-turn and right-turn lanes at the major signalized intersections through out the Specific Plan area. Signalization and the planned roadway improvements would reduce any potentially significant impacts.

7.7 *Mitigations.* The General Plan Buildout plus specific plan analysis found that with the planned roadway improvements in place project's impacts would be mitigated. Though there are many more roadways and intersections throughout the Specific Plan area, it is assumed that since the major facilities will operate at acceptable levels of service, the minor facilities would also. The impacts to facilities outside the study-area are mitigated due to the increased employment opportunities and job/housing mix within the Specific Plan area. As discussed in the trip generation section only 54 percent of the project traffic would be external to the Specific Plan area.

8.0 TRANSPORTATION DEMAND MANAGEMENT

Transportation Demand Management (TDM) refers to programs and policies intended to reduce travel demands and congestion on the roadway system through various means, particularly during peak hour periods. TDM programs involve methods to reduce the number of single occupant vehicle trips made in the planning area by promoting alternative modes of travel such as ridesharing, transit and bicycling. TDM policies can be used to reduce or delay the need for more expensive conventional road improvements, such as adding travel lanes or constructing new roads. TDM strategies emphasize productivity, efficiency and modification of individual transportation choices. They are typically designed to promote alternative mode choices both voluntary and through trip reduction ordinances.

Land use planning strategies can also be implemented to reduce dependence on the automobile. For instance, residential communities, commercial center and employment bases can be located and designed in a way that reduce the need to drive. Land use policies and standards can also be developed which require development to mitigate their impacts on the circulation system. TDM measures are most frequently directed at commute trips made by employees because this group comprises the bulk of the peak hour volumes. The most effective opportunities for trip reductions occur among these commute trips.

It should be noted that the Southeast Urban Center Specific Plan contains land uses which are complementary, with a mix of residential, commercial/retail, educational and recreational land-uses. As discussed in the trip generation section, the jobs/housing mix provided by the Specific Plan, would reduce vehicle miles traveled and encourage alternative modes of transportation. The mixed-uses proposed by the project will result in a considerable amount of internal trips within the project boundaries (home-work, home-shopping, and work-shopping trips). And, the configuration of the land uses with a mixed use village center area at the center make for a unique opportunity to provide minimum distances for pedestrian and bicycle linkages.

Fresno County recommends a number or policies which promote the use of alternative transportation instead of single occupancy vehicles (SOV's). These policies would be expected to increase the use of various alternative transportation modes in the planning area, including transit, carpooling, bicycling and walking.

The Southeast Urban Center Specific Plan provides for the development of pedestrian pathways, bicycle paths, golf car paths and equestrian trails. Many of the pedestrian pathways in the planning area are within the street right-of-way, planned as separate 5 to 8 foot paved sidewalks. As part of the project's internal circulation system, the project will also complete portions of the citywide bicycle route. Sections of the regional bikeway run through the Specific Plan. The project will construct the section within the Specific Plan area. The bikeway sections will be constructed to City of Clovis design standards with the appropriate signage. Most of the bike paths are also within the street right-of way. A separate community collector trail would link provide linkage between the planned communities, the Reagan Educational Center and the business park.

9.0 STUDY PARTICIPANTS AND REFERENCES

Associated Transportation Engineers

Richard L. Pool, P.E., Project Manager
Darryl F. Nelson, Transportation Planner
Dennis Lammers, Traffic Technician
Brian Hiefield, Traffic Technician

References

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Persons Contacted

Brian James, The Planning Center
John Schull The Planning Center
Elizabeth Kim, The Planning Center
Mike Harrison, City of Clovis
David Fey, City of Clovis

10.0 TECHNICAL APPENDIX

INTERSECTION TRAFFIC COUNT DATA

ENGINEERING ROADWAY DESIGN CAPACITIES

PLANNED FULL STREET CROSS-SECTIONS

LEVEL OF SERVICE DEFINITIONS AND DISCUSSION

INTERSECTION LEVEL OF SERVICE WORKSHEETS

Ref. 1 Shaw Avenue/Fowler Avenue
Ref. 2 Shaw Avenue/Locan Avenue
Ref. 3 Shaw Avenue/Leonard Avenue
Ref. 4 Shaw Avenue/Mc Call Avenue
Ref. 5 Gettysburg Avenue/Locan Avenue
Ref. 6 Gettysburg Avenue/De Wolf Avenue
Ref. 7 Gettysburg Avenue/Leonard Avenue
Ref. 8 Ashlan Avenue/Fowler Avenue
Ref. 9 Ashlan Avenue/Locan Avenue
Ref. 10Ashlan Avenue/Leonard Avenue
Ref. 11Ashlan Avenue/Mc Call Avenue

SOUTHEAST URBAN CENTER SPECIFIC PLAN TRIP GENERATION

INTERSECTION COUNT DATA

TURN MOVEMENT COUNTS

Site Code : 08280101
N / S : FOWLER AVE
E / W : SHAW AVE
OPERATOR : THUR MICKY

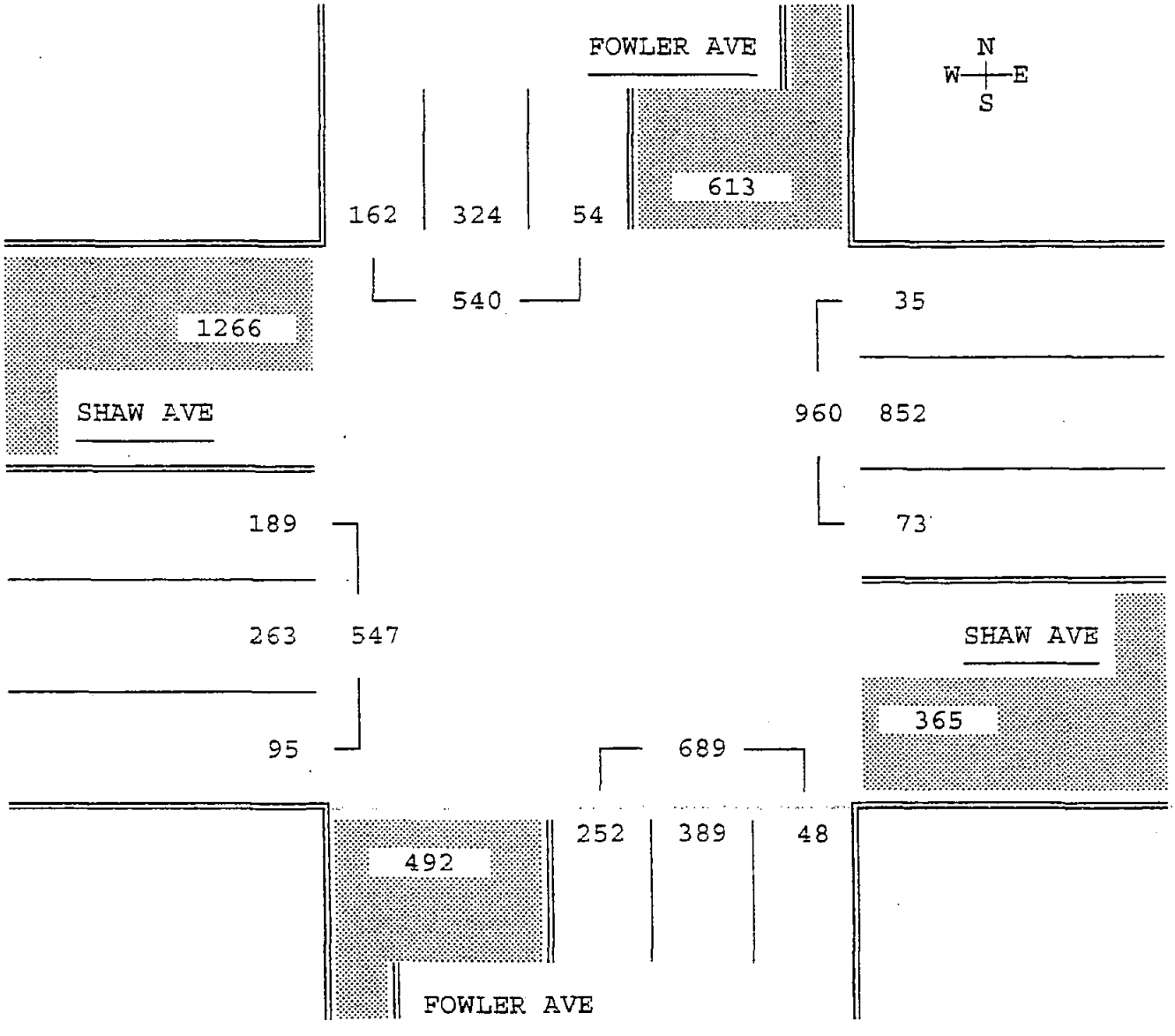
PAGE: 1
FILE: 08280101

Movements by: Primary

DATE: 8/30/01

PEAK PERIOD ANALYSIS FOR THE PERIOD: 7:00 AM - 9:00 AM

DIRECTION FROM	START PEAK HOUR	PEAK HR FACTOR	VOLUMES Right	Thru	Left	Total	PERCENTS Right	Thru	Left
North	7:15 AM	0.88	162	324	54	540	30	60	10
East	7:15 AM	0.84	35	852	73	960	4	89	8
South	7:15 AM	0.79	48	389	252	689	7	56	37
West	7:15 AM	0.92	95	263	189	547	17	48	35
Entire Intersection									
North	7:15 AM	0.88	162	324	54	540	30	60	10
East		0.84	35	852	73	960	4	89	8
South		0.79	48	389	252	689	7	56	37
West		0.92	95	263	189	547	17	48	35



TURN MOVEMENT COUNTS

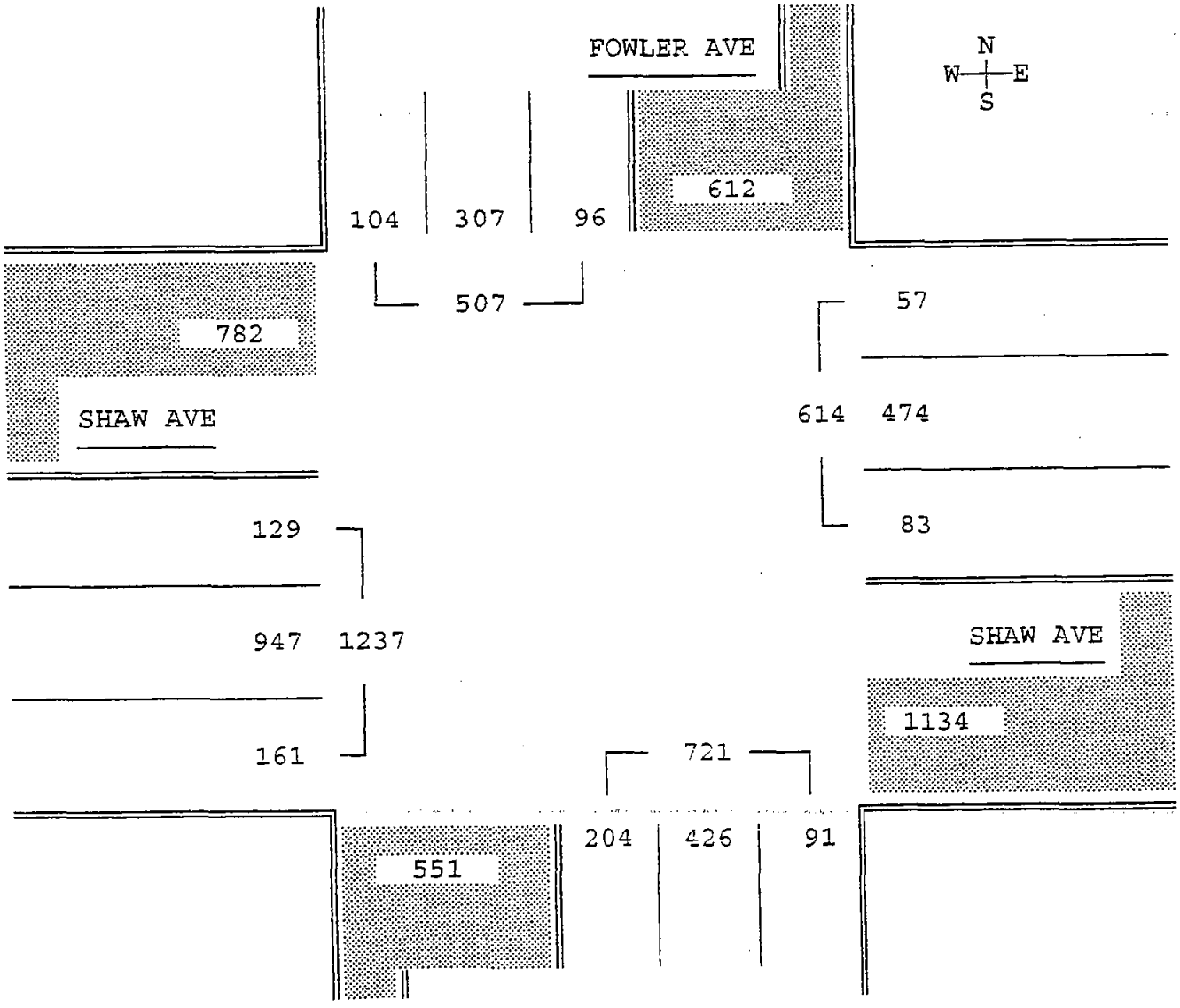
Site Code : 08280101
N / S : FOWLER AVE
E / W : SHAW AVE
OPERATOR : THUR MICKY

Movements by: Primary

DATE: 8/30/01

PEAK PERIOD ANALYSIS FOR THE PERIOD: 4:00 PM - 6:00 PM

DIRECTION FROM	START PEAK HOUR	PEAK HR FACTOR	VOLUMES Right	Thru	Left	Total	PERCENTS Right	Thru	Left
North	4:30 PM	0.89	115	290	102	507	23	57	20
East	4:00 PM	0.91	38	533	70	641	6	83	11
South	4:45 PM	0.96	93	445	192	730	13	61	26
West	4:45 PM	0.91	158	947	141	1246	13	76	11
Entire Intersection									
North	5:00 PM	0.89	104	307	96	507	21	61	19
East		0.92	57	474	83	614	9	77	14
South		0.94	91	426	204	721	13	59	28
West		0.91	161	947	129	1237	13	77	10



TURN MOVEMENT COUNTS

Site Code : 08280103
N / S : LOCAN AVE
E / W : SHAW AVE
OPERATOR : WED LORI

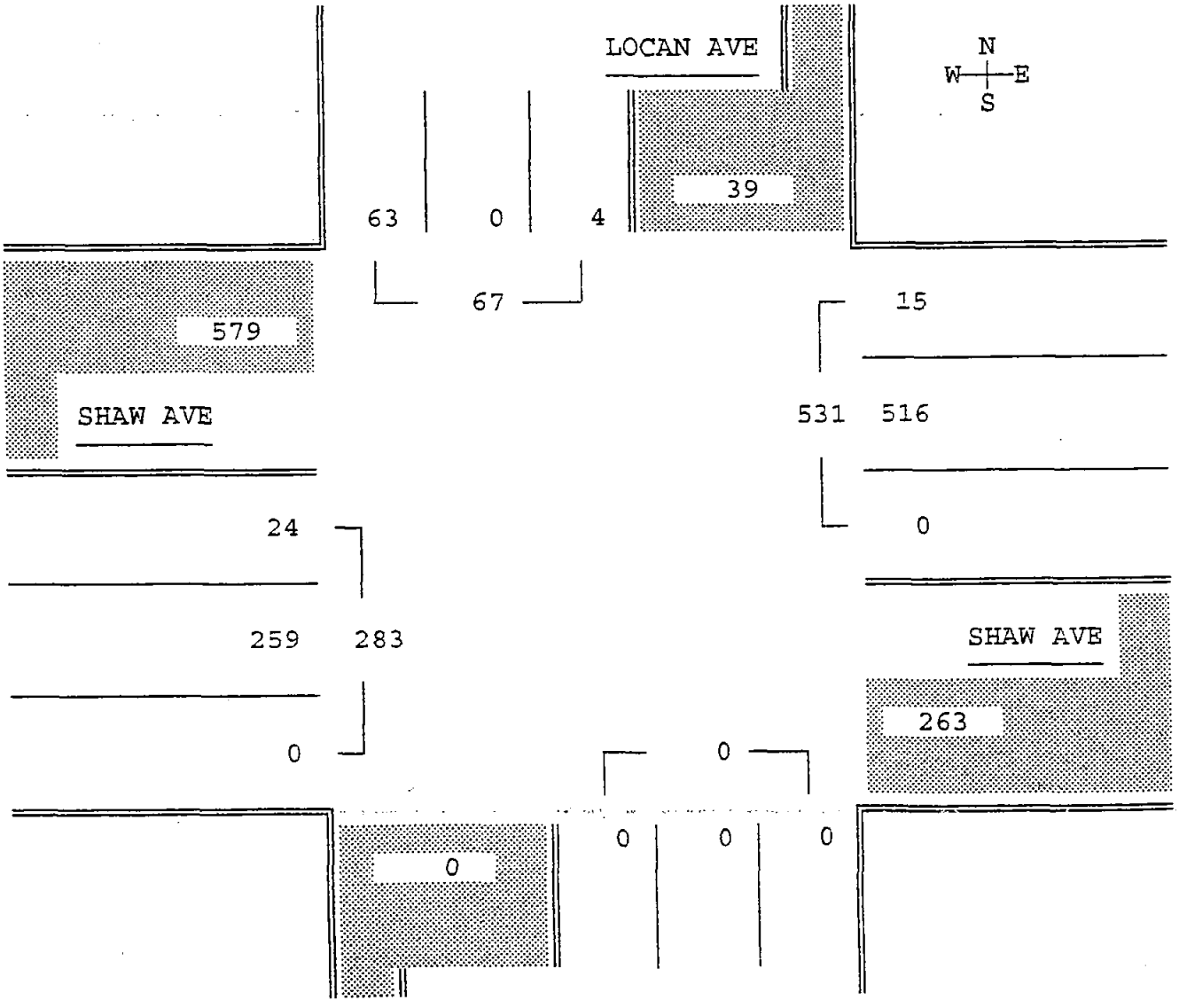
PAGE: 1
FILE: 08280103

Movements by: Primary

DATE: 8/29/01

PEAK PERIOD ANALYSIS FOR THE PERIOD: 7:00 AM - 9:00 AM

DIRECTION FROM	START PEAK HOUR	PEAK HR FACTOR	VOLUMES Right	Thru	Left	Total	PERCENTS Right	Thru	Left
North	7:45 AM	0.57	92	0	8	100	92	0	8
East	7:15 AM	0.80	15	516	0	531	3	97	0
South	7:15 AM	0.00	0	0	0	0	0	0	0
West	7:00 AM	0.65	0	292	12	304	0	96	4
Entire Intersection									
North	7:15 AM	0.38	63	0	4	67	94	0	6
East		0.80	15	516	0	531	3	97	0
South		0.00	0	0	0	0	0	0	0
West		0.60	0	259	24	283	0	92	8



TURN MOVEMENT COUNTS

Site Code : 08280103
N / S : LOCAN AVE
E / W : SHAW AVE
OPERATOR : WED LORI

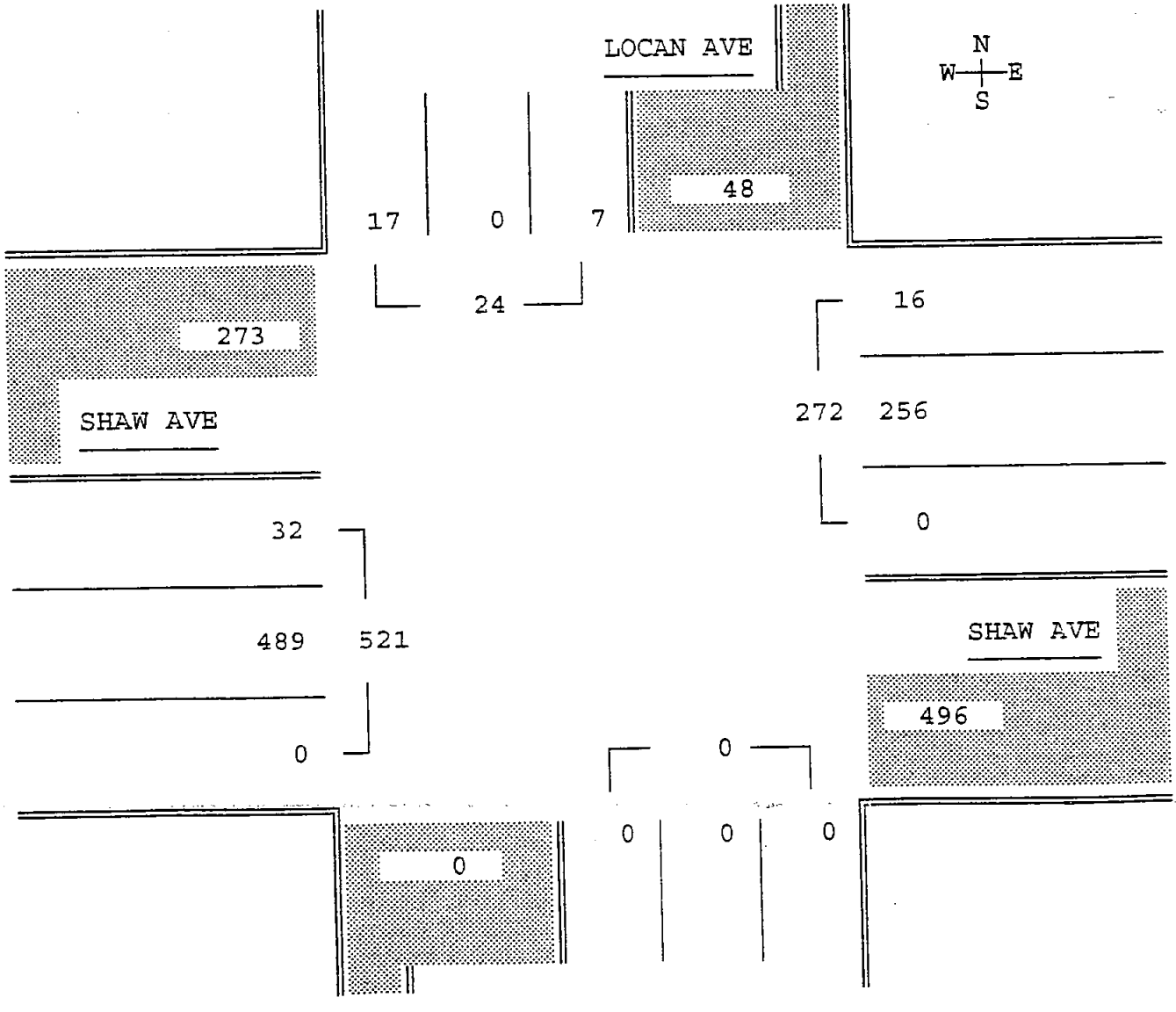
PAGE: 1
FILE: 08280103

Movements by: Primary

DATE: 8/29/01

PEAK PERIOD ANALYSIS FOR THE PERIOD: 4:00 PM - 6:00 PM

DIRECTION FROM	START PEAK HOUR	PEAK HR FACTOR	VOLUMES Right	Thru	Left	Total	PERCENTS Right	Thru	Left
North	4:15 PM	0.77	32	0	11	43	74	0	26
East	4:00 PM	0.87	8	288	0	296	3	97	0
South	4:00 PM	0.00	0	0	0	0	0	0	0
West	5:00 PM	0.89	0	489	32	521	0	94	6
Entire Intersection									
North	5:00 PM	0.55	17	0	7	24	71	0	29
East		0.91	16	256	0	272	6	94	0
South		0.00	0	0	0	0	0	0	0
West		0.89	0	489	32	521	0	94	6



TURN MOVEMENT COUNTS

Site Code : 08280108
N / S : LEONARD AVE
E / W : SHAW AVE
OPERATOR : WED GREG

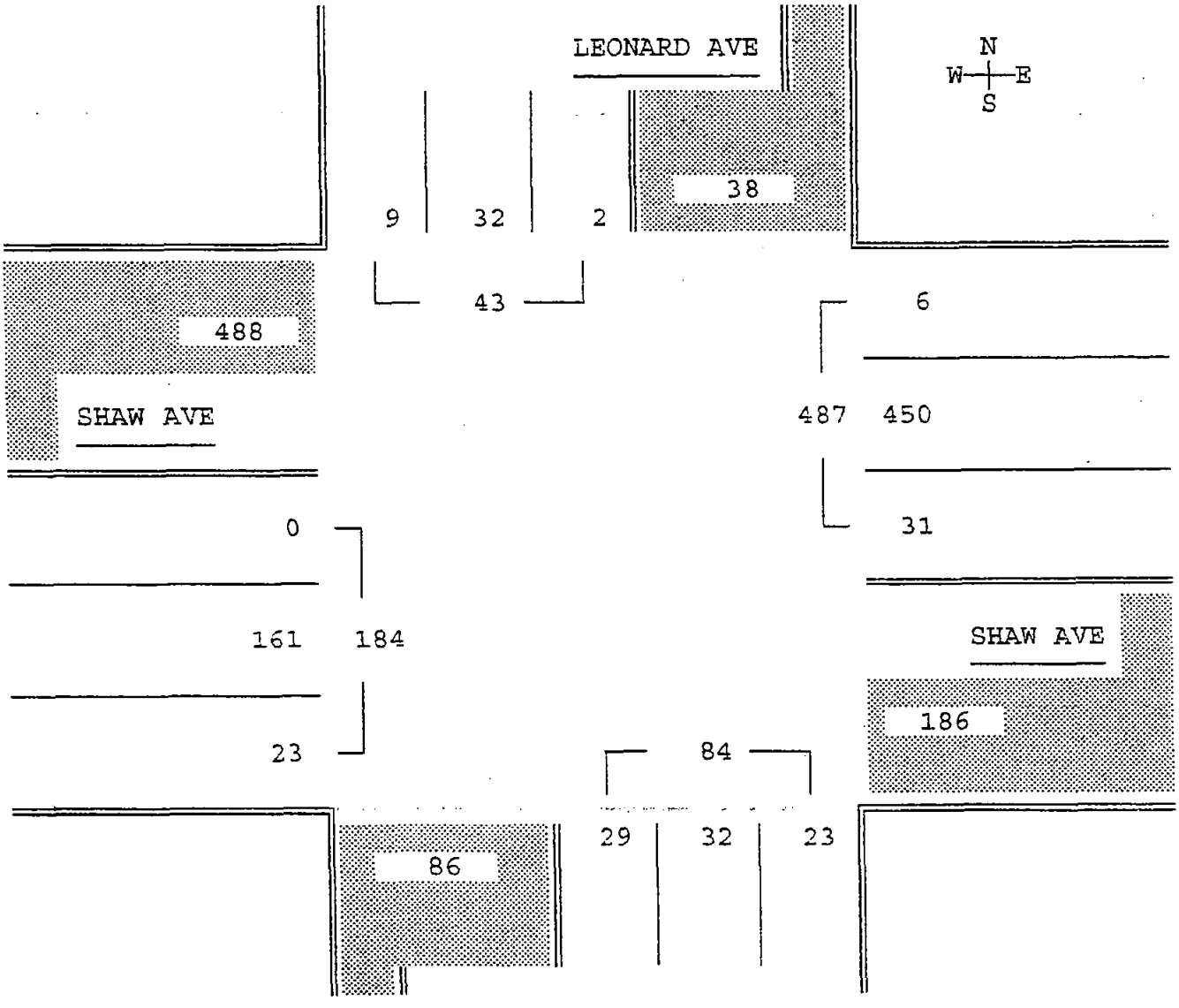
PAGE: 1
FILE: 00009008

Movements by: Primary

DATE: 8/23/01

PEAK PERIOD ANALYSIS FOR THE PERIOD: 7:00 AM - 9:00 AM

DIRECTION FROM	START PEAK HOUR	PEAK HR FACTOR	VOLUMES Right	Thru	Left	Total	PERCENTS Right	Thru	Left
North	7:00 AM	0.65	11	37	4	52	21	71	8
East	7:15 AM	0.85	6	450	31	487	1	92	6
South	7:15 AM	0.51	23	32	29	84	27	38	35
West	7:15 AM	0.92	23	161	0	184	12	88	0
Entire Intersection									
North	7:15 AM	0.54	9	32	2	43	21	74	5
East		0.85	6	450	31	487	1	92	6
South		0.51	23	32	29	84	27	38	35
West		0.92	23	161	0	184	12	88	0



Site Code : 08280108
N / S : LEONARD AVE
E / W : SHAW AVE
OPERATOR : WED GREG

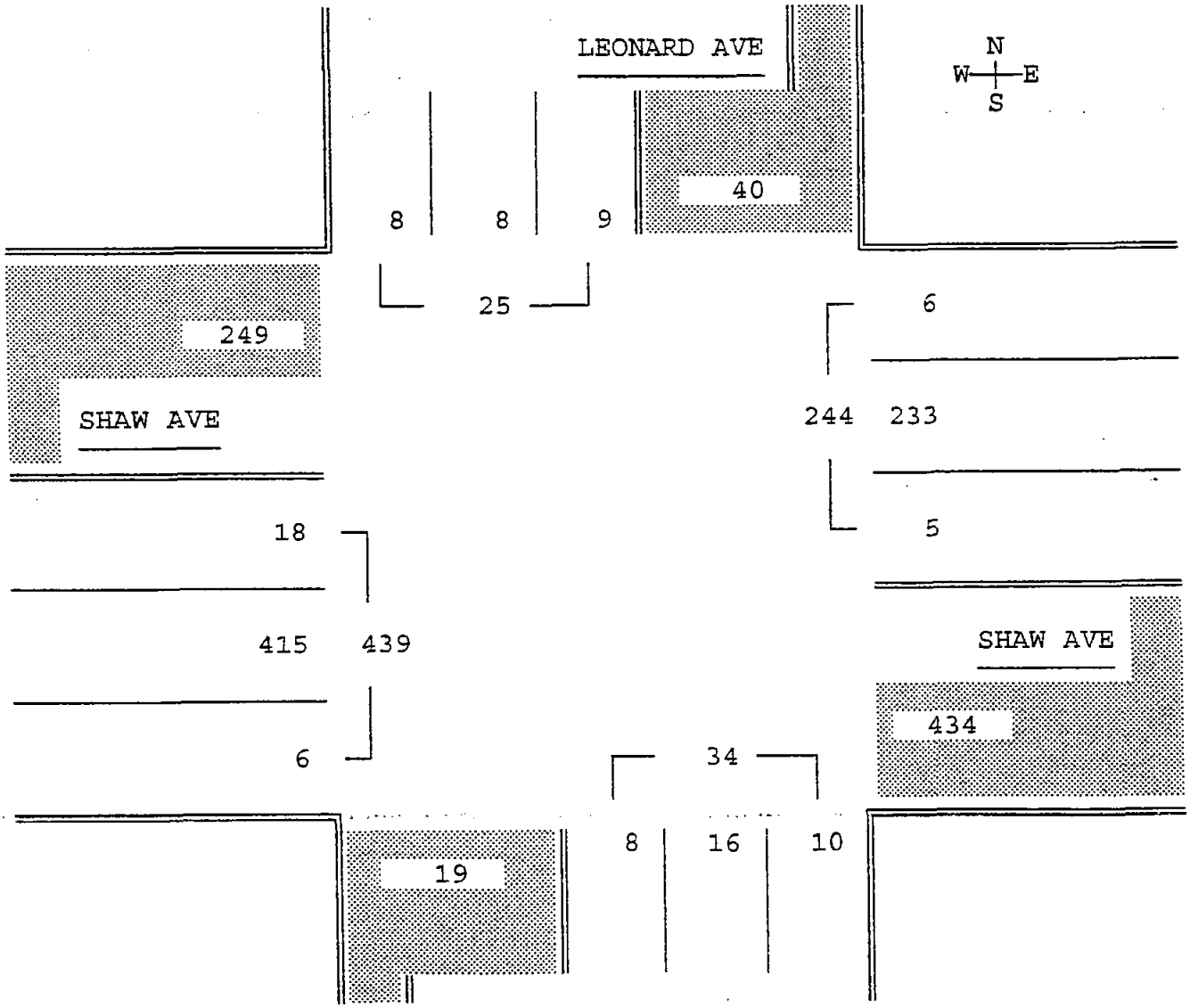
Movements by: Primary

FILE: 00000008

DATE: 8/29/01

PEAK PERIOD ANALYSIS FOR THE PERIOD: 4:00 PM - 6:00 PM

DIRECTION FROM	START PEAK HOUR	PEAK HR FACTOR	VOLUMES Right	Thru	Left	Total	PERCENTS Right	Thru	Left
North	4:00 PM	0.65	6	15	5	26	23	58	19
East	4:45 PM	0.92	6	233	5	244	2	95	2
South	4:00 PM	0.52	10	27	9	46	22	59	20
West	4:45 PM	0.89	6	415	18	439	1	95	4
Entire Intersection									
North	4:45 PM	0.78	8	8	9	25	32	32	36
East		0.92	6	233	5	244	2	95	2
South		0.71	10	16	8	34	29	47	24
West		0.89	6	415	18	439	1	95	4



TURN MOVEMENT COUNTS

Site Code : 08280106
N / S : McCALL AVE
E / W : SHAW AVE
OPERATOR : WED DAN

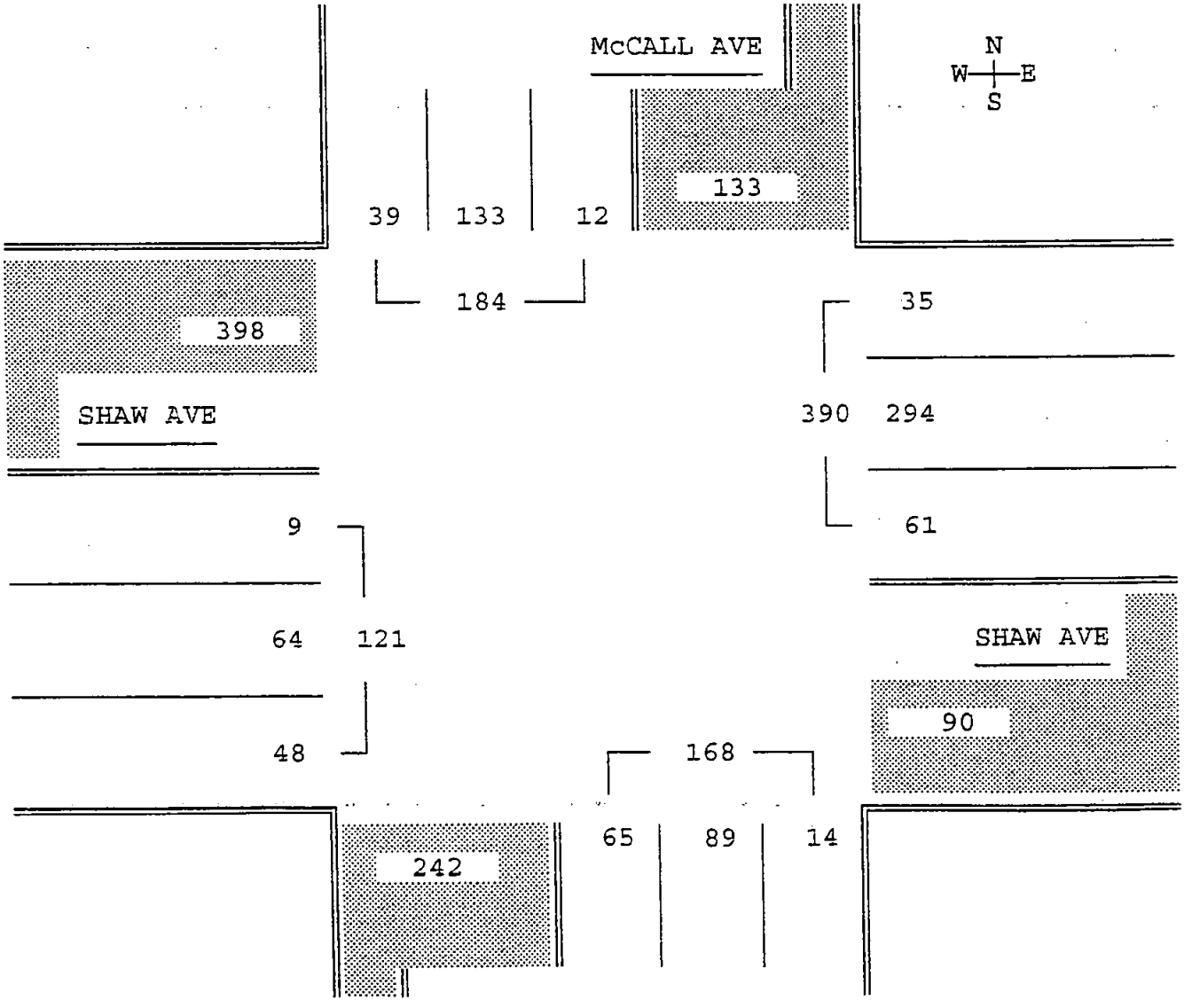
PAGE: 1
FILE: 08280106

Movements by: Primary

DATE: 8/29/01

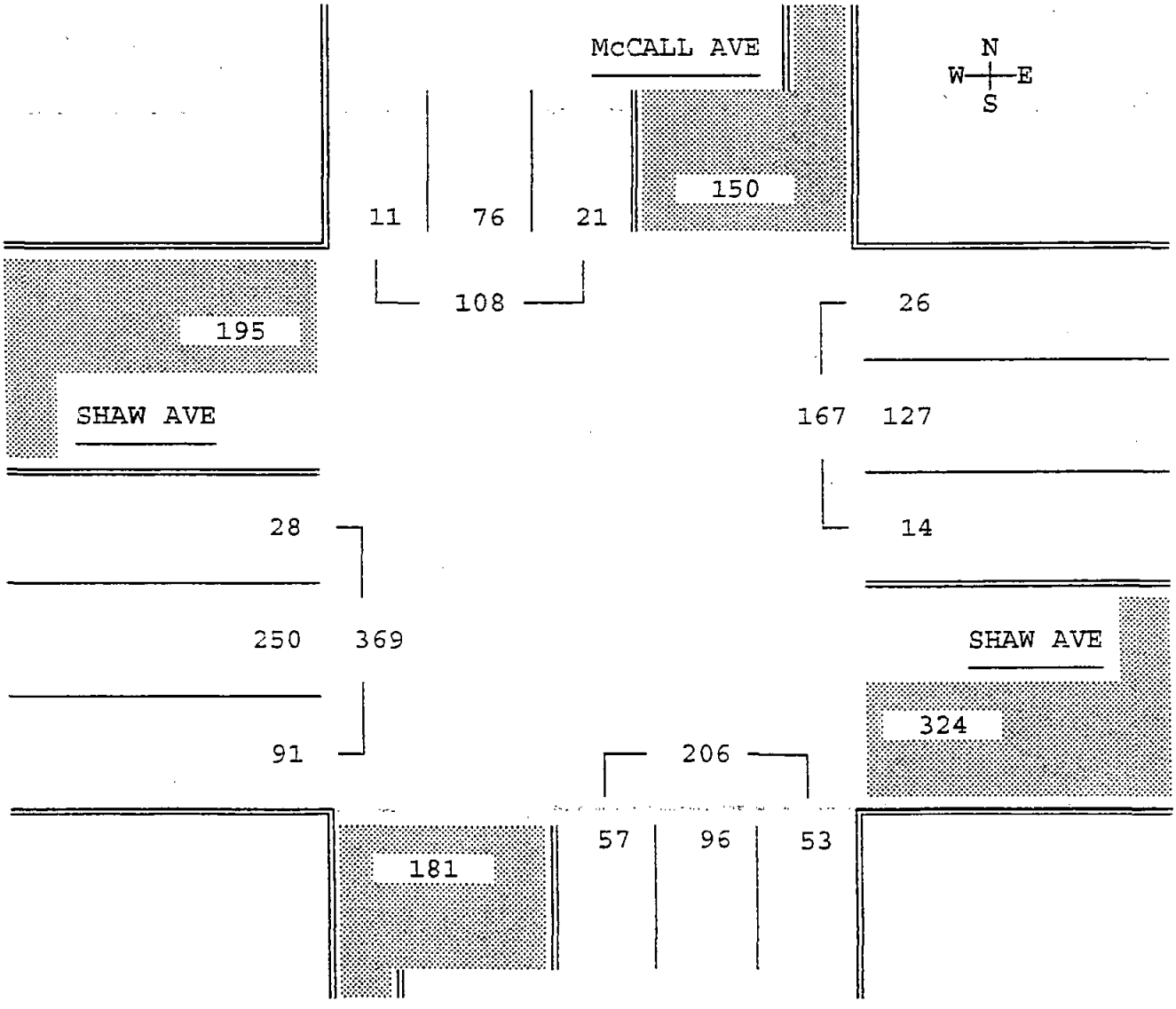
PEAK PERIOD ANALYSIS FOR THE PERIOD: 7:00 AM - 9:00 AM

DIRECTION FROM	START PEAK HOUR	PEAK HR FACTOR	VOLUMES Right	Thru	Left	Total	PERCENTS Right	Thru	Left
North	7:00 AM	0.66	39	133	12	184	21	72	7
East	7:00 AM	0.79	35	294	61	390	9	75	16
South	7:15 AM	0.87	15	99	73	187	8	53	39
West	8:00 AM	0.74	34	84	15	133	26	63	11
Entire Intersection									
North	7:00 AM	0.66	39	133	12	184	21	72	7
East		0.79	35	294	61	390	9	75	16
South		0.88	14	89	65	168	8	53	39
West		0.86	48	64	9	121	40	53	7



PEAK PERIOD ANALYSIS FOR THE PERIOD: 4:00 PM - 6:00 PM

DIRECTION FROM	START PEAK HOUR	PEAK HR FACTOR	VOLUMES Right	Thru	Left	Total	PERCENTS Right	Thru	Left
North	4:00 PM	0.89	20	72	26	118	17	61	22
East	4:00 PM	0.82	27	135	11	173	16	78	6
South	5:00 PM	0.89	53	96	57	206	26	47	28
West	5:00 PM	0.89	91	250	28	369	25	68	8
Entire Intersection									
North	5:00 PM	0.87	11	76	21	108	10	70	19
East		0.85	26	127	14	167	16	76	8
South		0.89	53	96	57	206	26	47	28
West		0.89	91	250	28	369	25	68	8



TURN MOVEMENT COUNTS

Site Code : 00000105
N / S : LOCAN AVE
E / W : GETTYSBURG AVE
OPERATOR : WED MICKY

PAGE: 1
FILE: 08280105

Movements by: Primary

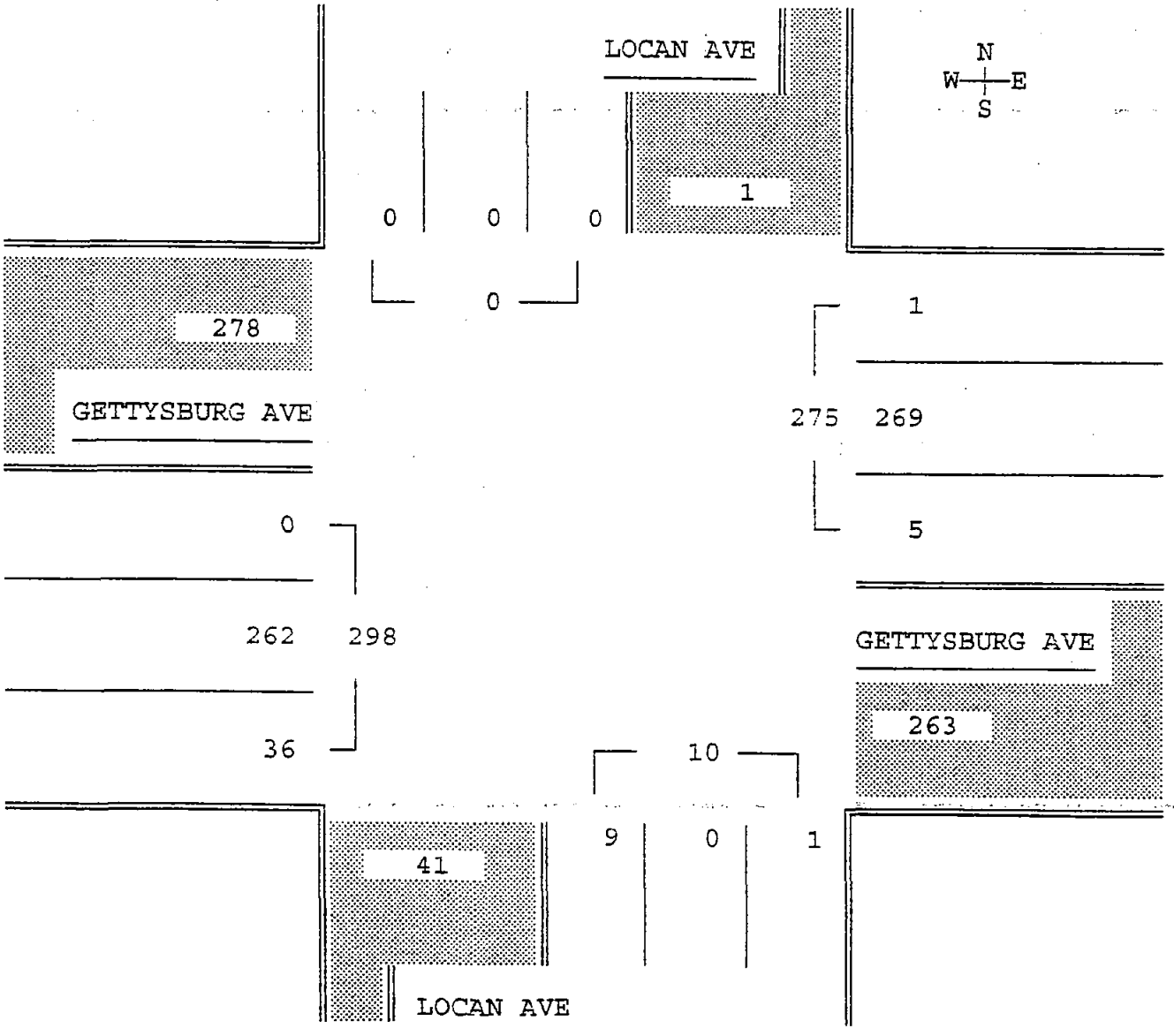
DATE: 8/29/01

PEAK PERIOD ANALYSIS FOR THE PERIOD: 7:00 AM - 9:00 AM

DIRECTION FROM	START PEAK HOUR	PEAK HR FACTOR	..... VOLUMES ..... Right	Thru	Left	Total	.... PERCENTS ... Right	Thru	Left
North	7:00 AM	0.00	0	0	0	0	0	0	0
East	7:00 AM	0.63	1	269	5	275	0	98	2
South	7:45 AM	0.61	3	0	31	34	9	0	91
West	7:00 AM	0.56	36	262	0	298	12	88	0

Entire Intersection

North	7:00 AM	0.00	0	0	0	0	0	0	0
East		0.63	1	269	5	275	0	98	2
South		0.31	1	0	9	10	10	0	90
West		0.56	36	262	0	298	12	88	0



TURN MOVEMENT COUNTS

Site Code : 00000105
N / S : LOCAN AVE
E / W : GETTYSBURG AVE
OPERATOR : WED MICKY

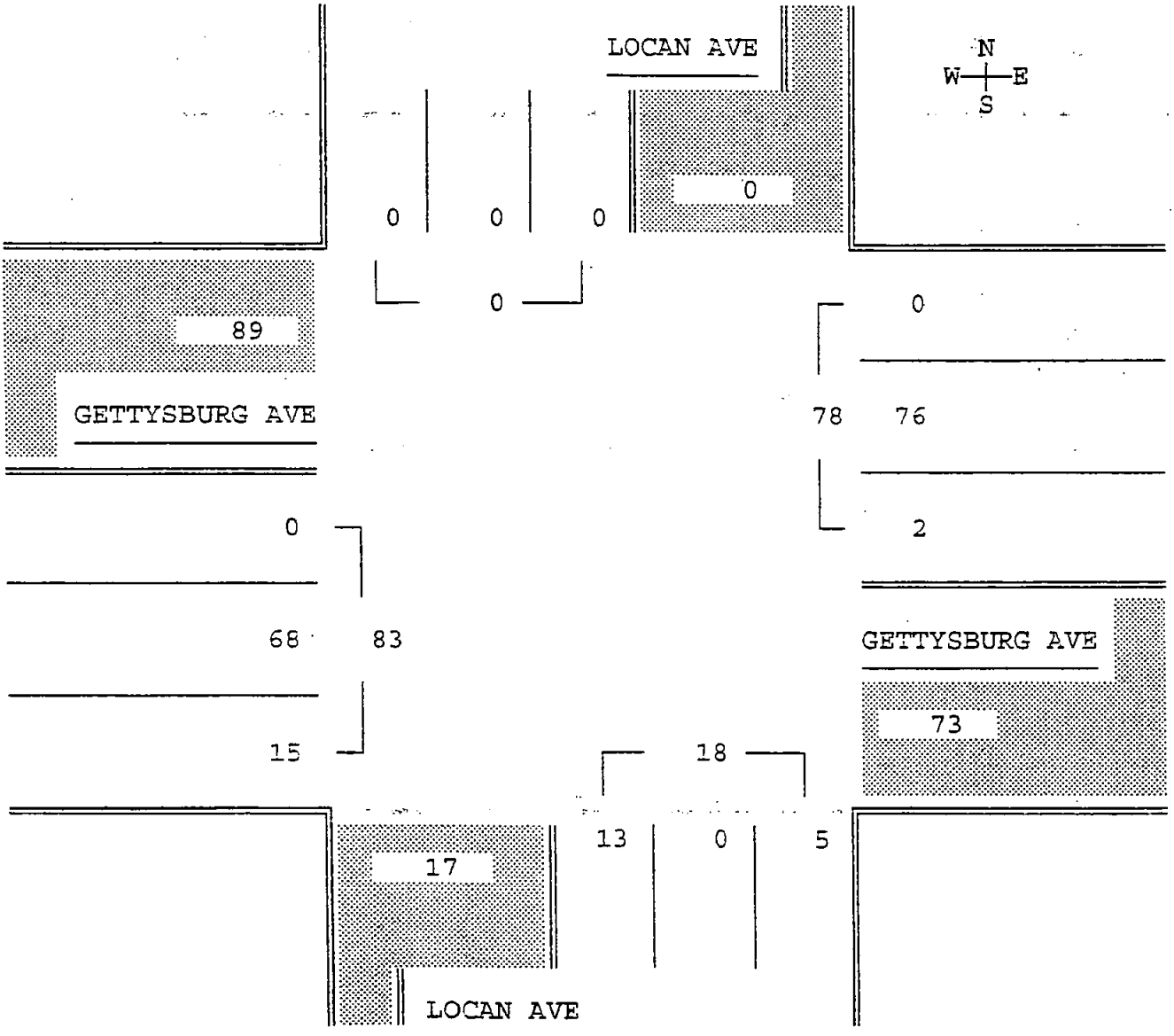
PAGE: 1
FILE: 08280105

Movements by: Primary

DATE: 8/29/01

PEAK PERIOD ANALYSIS FOR THE PERIOD: 4:00 PM - 6:00 PM

DIRECTION FROM	START PEAK HOUR	PEAK HR FACTOR	VOLUMES Right	Thru	Left	Total	PERCENTS Right	Thru	Left
North	4:00 PM	0.00	0	0	0	0	0	0	0
East	4:15 PM	0.70	0	76	2	78	0	97	3
South	4:00 PM	0.79	5	0	14	19	26	0	74
West	5:00 PM	0.74	16	73	0	89	18	82	0
Entire Intersection									
North	4:15 PM	0.00	0	0	0	0	0	0	0
East		0.70	0	76	2	78	0	97	3
South		0.75	5	0	13	18	28	0	72
West		0.74	15	68	0	83	18	82	0



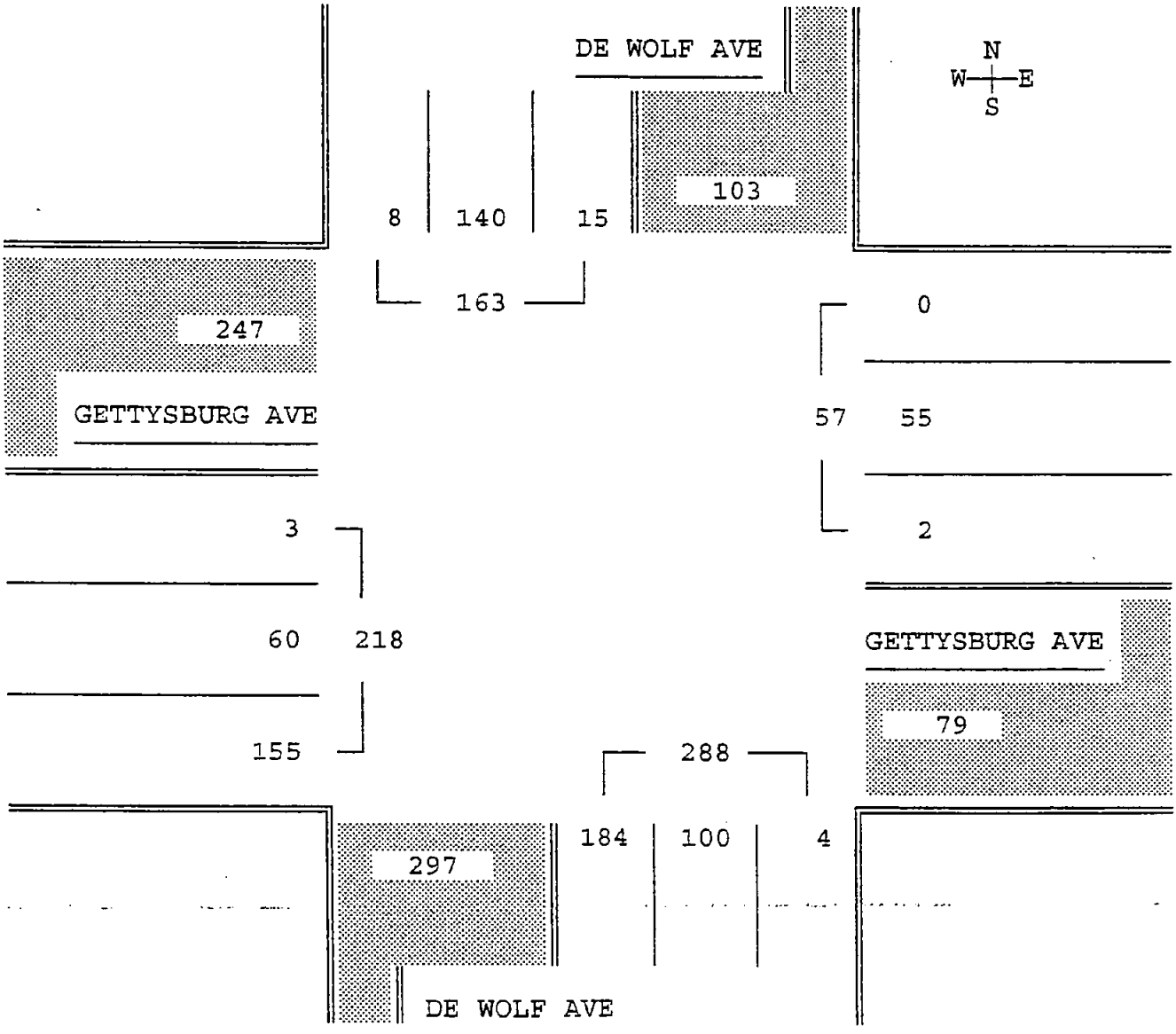
Site Code : 08280111
N / S : DE WOLF AVE
E / W : GETTYSBURG AVE
OPERATOR : THUR NICKY

Movements by: Primary

DATE: 8/30/01

PEAK PERIOD ANALYSIS FOR THE PERIOD: 7:00 AM - 9:00 AM

DIRECTION FROM	START PEAK HOUR	PEAK HR FACTOR	VOLUMES Right	Thru	Left	Total	PERCENTS Right	Thru	Left
North	7:00 AM	0.56	8	140	15	163	5	86	9
East	7:00 AM	0.37	0	55	2	57	0	96	4
South	7:00 AM	0.60	4	100	184	288	1	35	64
West	7:00 AM	0.59	155	60	3	218	71	28	1
Entire Intersection									
North	7:00 AM	0.56	8	140	15	163	5	86	9
East		0.37	0	55	2	57	0	96	4
South		0.60	4	100	184	288	1	35	64
West		0.59	155	60	3	218	71	28	1



TURN MOVEMENT COUNTS

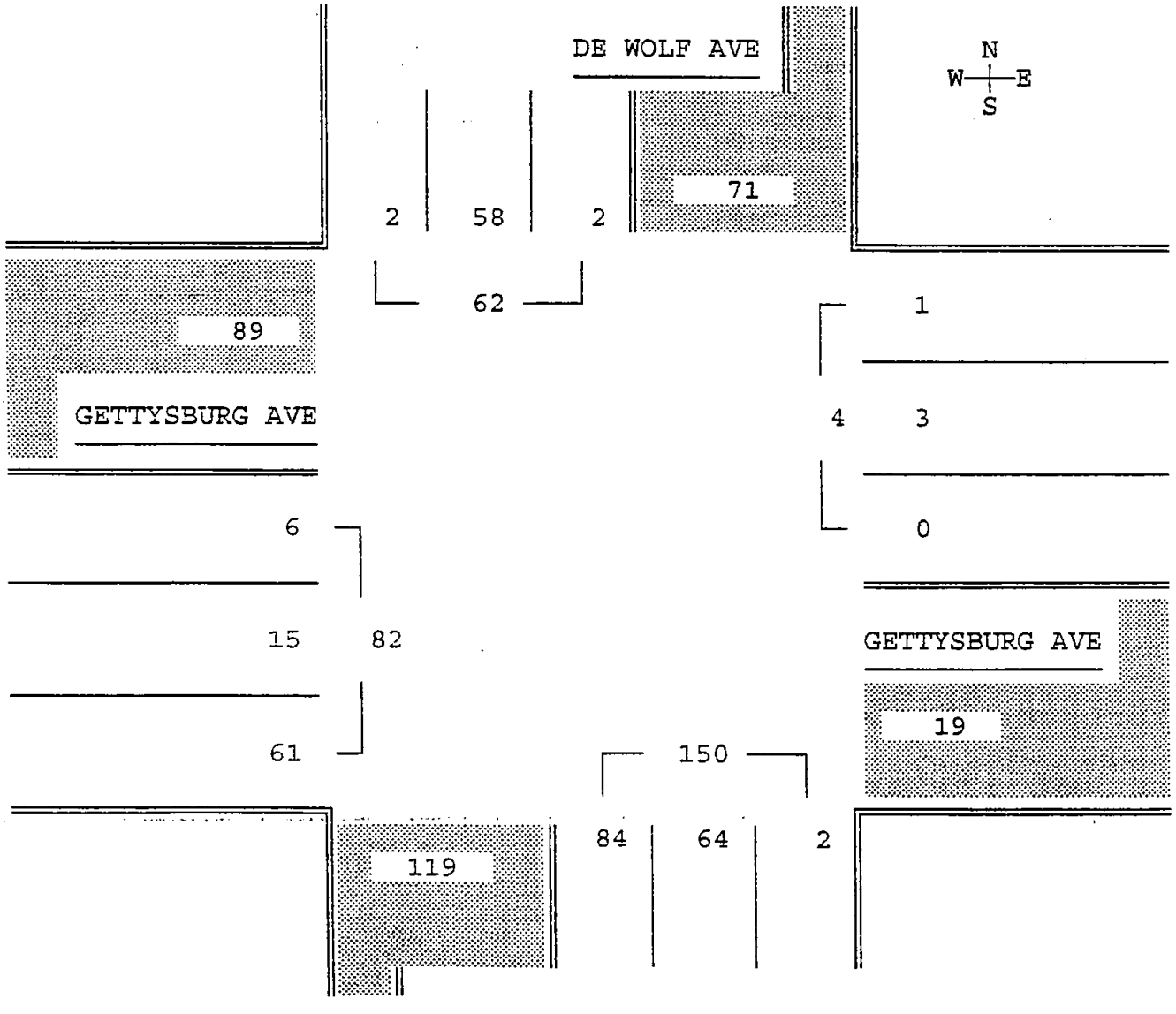
Site Code : 08280111
N / S : DE WOLF AVE
E / W : GETTYSBURG AVE
OPERATOR : THUR NICKY

Movements by: Primary

DATE: 8/30/01

PEAK PERIOD ANALYSIS FOR THE PERIOD: 4:00 PM - 6:00 PM

DIRECTION FROM	START PEAK HOUR	PEAK HR FACTOR	VOLUMES Right	Thru	Left	Total	PERCENTS Right	Thru	Left
North	4:00 PM	0.92	4	57	5	66	6	86	8
East	5:00 PM	0.45	0	6	3	9	0	67	33
South	4:15 PM	0.82	2	64	84	150	1	43	56
West	4:30 PM	0.64	56	19	9	84	67	23	11
Entire Intersection									
North	4:15 PM	0.86	2	58	2	62	3	94	3
East		0.50	1	3	0	4	25	75	0
South		0.82	2	64	84	150	1	43	56
West		0.62	61	15	6	82	74	18	7



TURN MOVEMENT COUNTS

Site Code : 08280110
N / S : LEONARD AVE
E / W : GETTYSBURG AVE
OPERATOR : THUR GREG

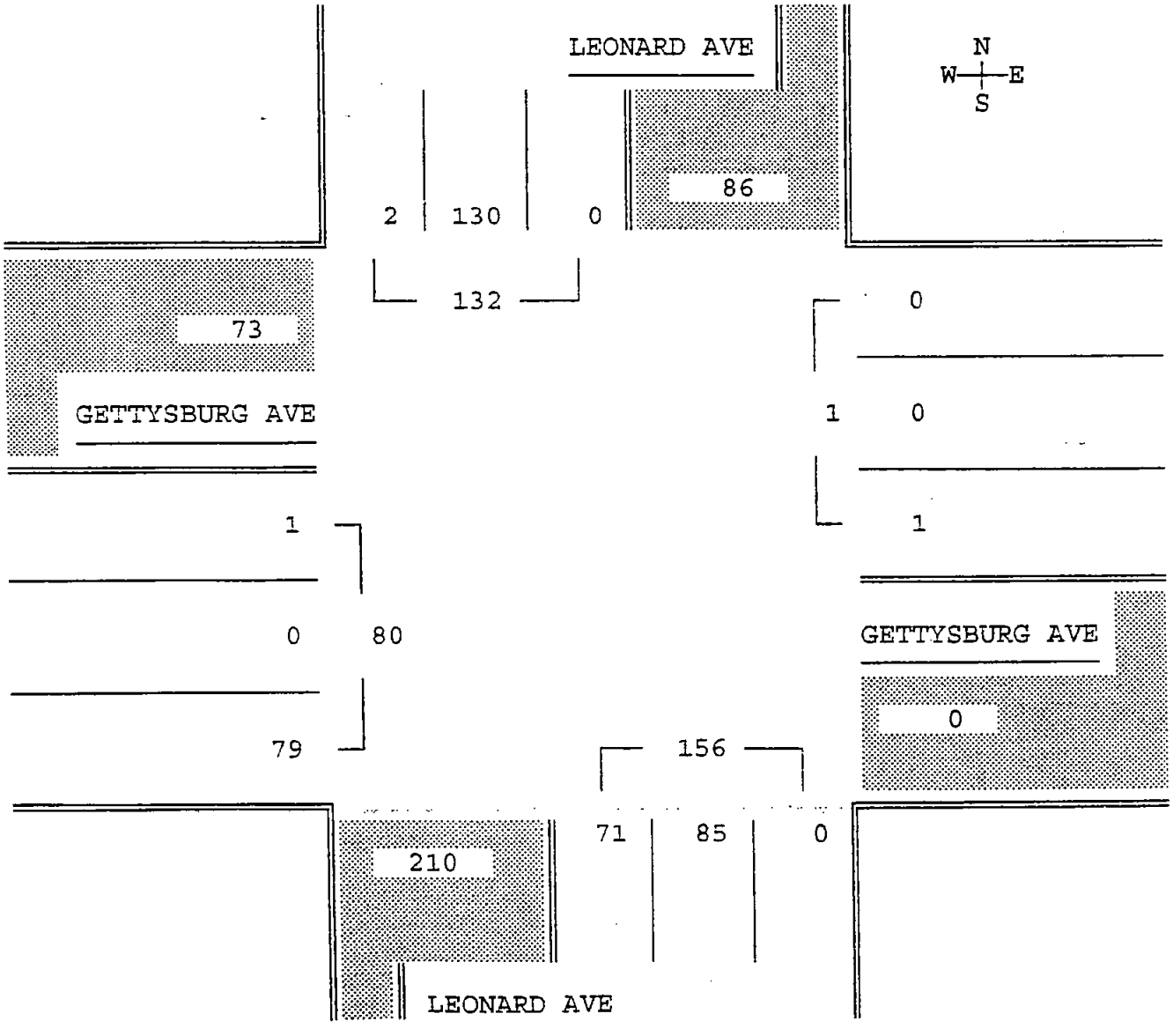
PAGE: 1
FILE: 08280110

Movements by: Primary

DATE: 8/30/01

PEAK PERIOD ANALYSIS FOR THE PERIOD: 7:00 AM - 9:00 AM

DIRECTION FROM	START PEAK HOUR	PEAK HR FACTOR	..... VOLUMES ..... Right	Thru	Left	Total	.... PERCENTS ... Right	Thru	Left
North	7:00 AM	0.50	2	130	0	132	2	98	0
East	7:00 AM	0.25	0	0	1	1	0	0	%100
South	7:00 AM	0.57	0	85	71	156	0	54	46
West	7:00 AM	0.54	79	0	1	80	99	0	1
Entire Intersection									
North	7:00 AM	0.50	2	130	0	132	2	98	0
East		0.25	0	0	1	1	0	0	%100
South		0.57	0	85	71	156	0	54	46
West		0.54	79	0	1	80	99	0	1



TURN MOVEMENT COUNTS

Site Code : 08280110
N / S : LEONARD AVE
E / W : GETTYSBURG AVE
OPERATOR : THUR GREG

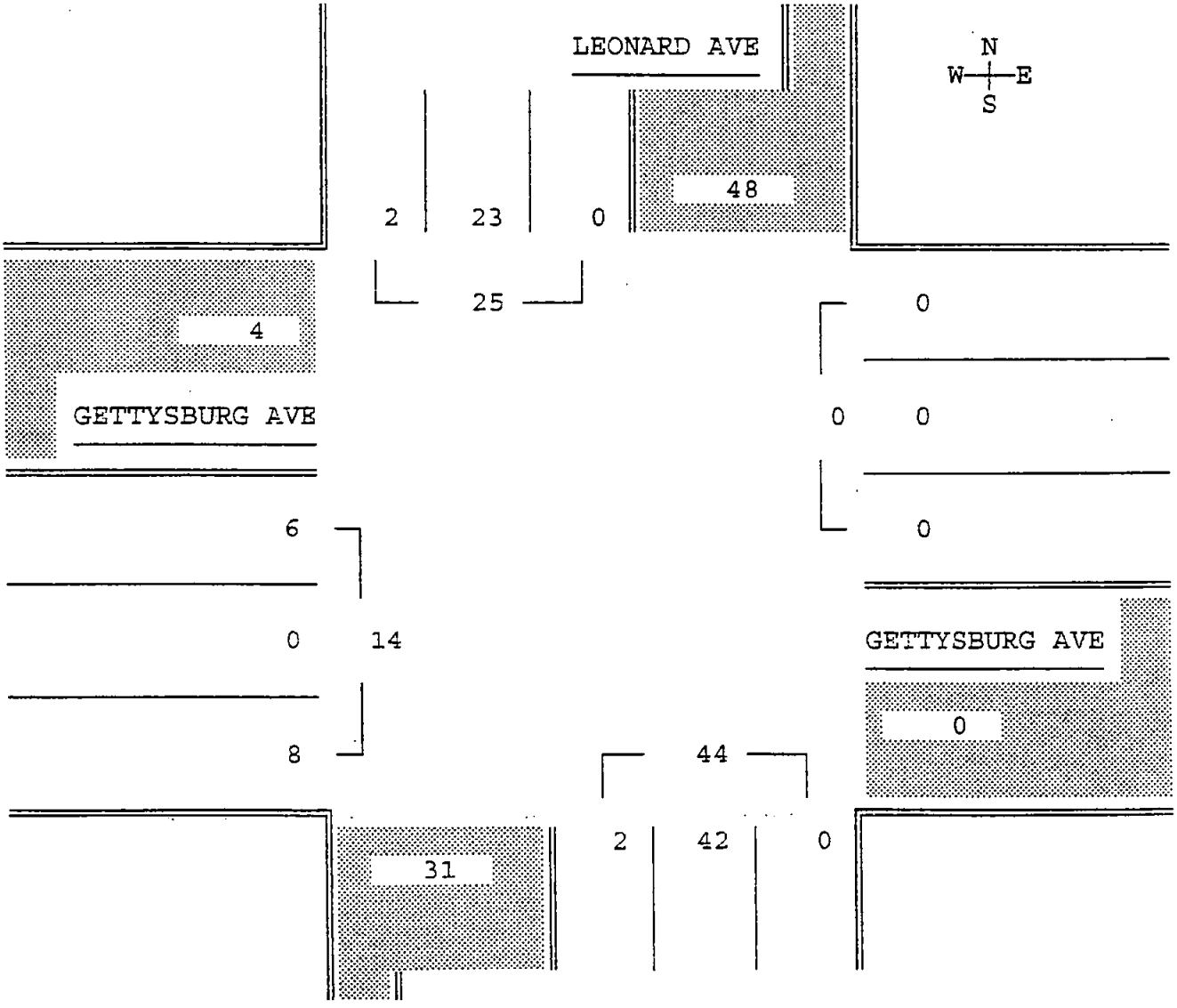
PAGE: 1
FILE: 08280110

Movements by: Primary

DATE: 8/30/01

PEAK PERIOD ANALYSIS FOR THE PERIOD: 4:00 PM - 6:00 PM

DIRECTION FROM	START PEAK HOUR	PEAK HR FACTOR	VOLUMES Right	Thru	Left	Total	PERCENTS Right	Thru	Left
North	5:00 PM	0.66	2	27	0	29	7	93	0
East	5:00 PM	0.00	0	0	0	0	0	0	0
South	4:30 PM	0.85	0	42	2	44	0	95	5
West	4:30 PM	0.70	8	0	6	14	57	0	43
Entire Intersection									
North	4:30 PM	0.57	2	23	0	25	8	92	0
East		0.00	0	0	0	0	0	0	0
South		0.85	0	42	2	44	0	95	5
West		0.70	8	0	6	14	57	0	43



TURN MOVEMENT COUNTS

Site Code : 08280102
N / S : FOWLER AVE
E / W : ASHLAN AVE
OPERATOR : THUR LORI

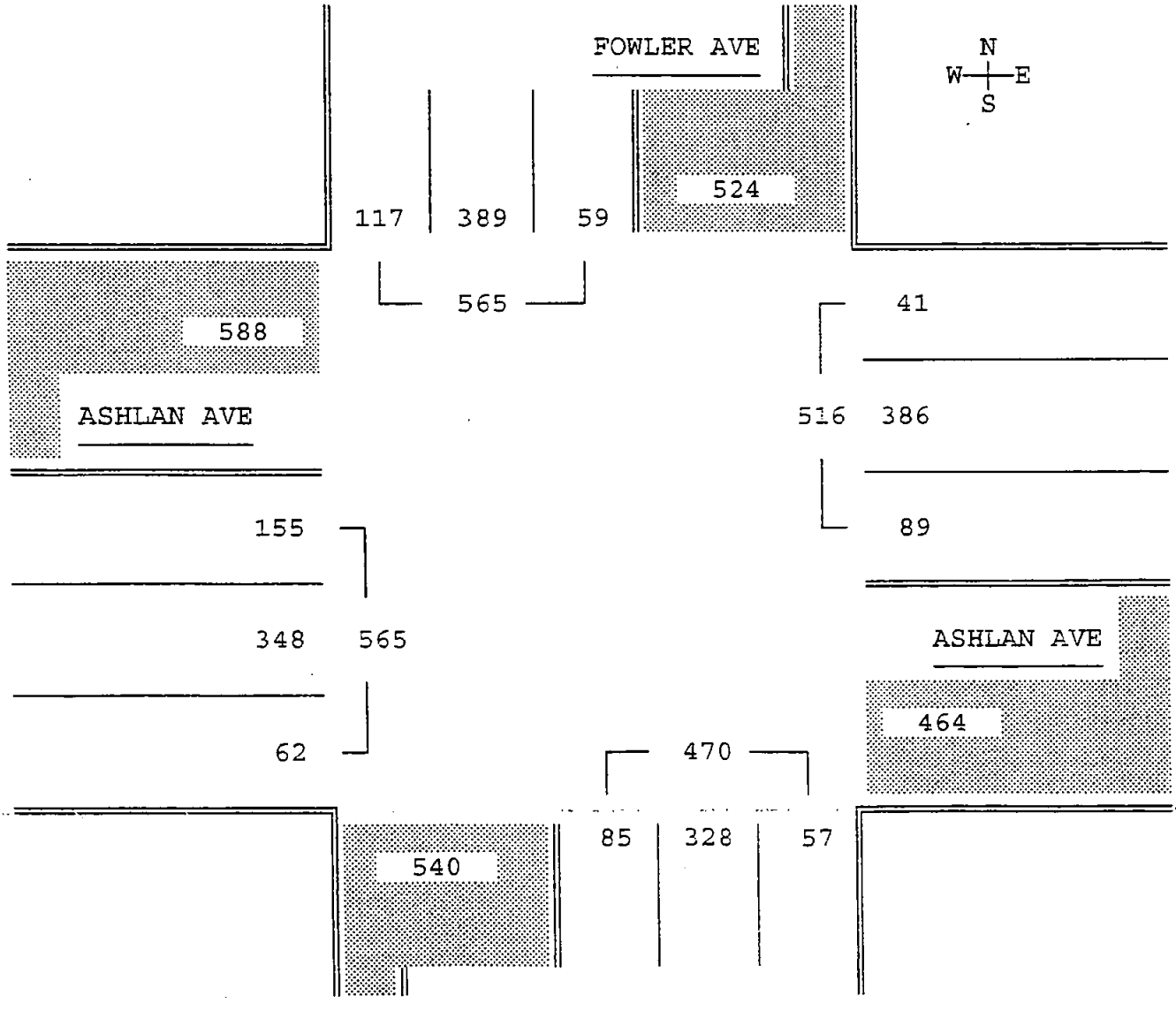
PAGE: 1
FILE: 08280102

Movements by: Primary

DATE: 8/30/01

PEAK PERIOD ANALYSIS FOR THE PERIOD: 7:00 AM - 9:00 AM

DIRECTION FROM	START PEAK HOUR	PEAK HR FACTOR	VOLUMES Right	Thru	Left	Total	PERCENTS Right	Thru	Left
North	7:15 AM	0.81	132	391	60	583	23	67	10
East	7:00 AM	0.83	41	386	89	516	8	75	17
South	7:15 AM	0.80	44	349	94	487	9	72	19
West	7:00 AM	0.88	62	348	155	565	11	62	27
Entire Intersection									
North	7:00 AM	0.78	117	389	59	565	21	69	10
East		0.83	41	386	89	516	8	75	17
South		0.77	57	328	85	470	12	70	18
West		0.88	62	348	155	565	11	62	27



TURN MOVEMENT COUNTS

Site Code : 08280102
N / S : FOWLER AVE
E / W : ASHLAN AVE
OPERATOR : THUR LORI

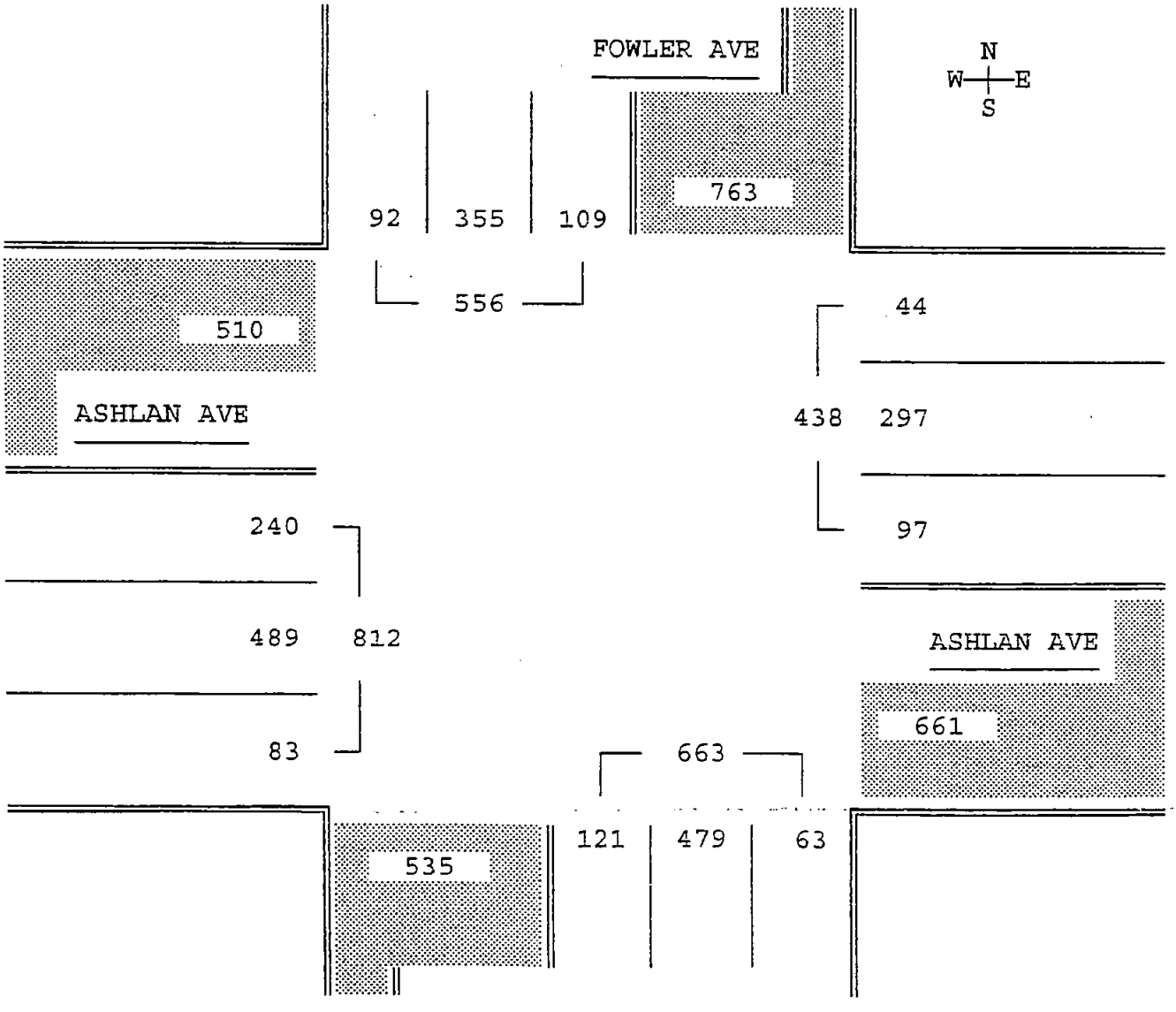
FILE: 08280102

Movements by: Primary

DATE: 8/30/01

PEAK PERIOD ANALYSIS FOR THE PERIOD: 4:00 PM - 6:00 PM

DIRECTION FROM	START PEAK HOUR	PEAK HR FACTOR	VOLUMES Right	Thru	Left	Total	PERCENTS Right	Thru	Left
North	5:00 PM	0.87	92	355	109	556	17	64	20
East	5:00 PM	0.94	44	297	97	438	10	68	22
South	5:00 PM	0.92	63	479	121	663	10	72	18
West	5:00 PM	0.93	83	489	240	812	10	60	30
Entire Intersection									
North	5:00 PM	0.87	92	355	109	556	17	64	20
East		0.94	44	297	97	438	10	68	22
South		0.92	63	479	121	663	10	72	18
West		0.93	83	489	240	812	10	60	30



TURN MOVEMENT COUNTS

Site Code : 08280104
N / S : LOCAN AVE
E / W : ASHLAN AVE
OPERATOR : TUE JC

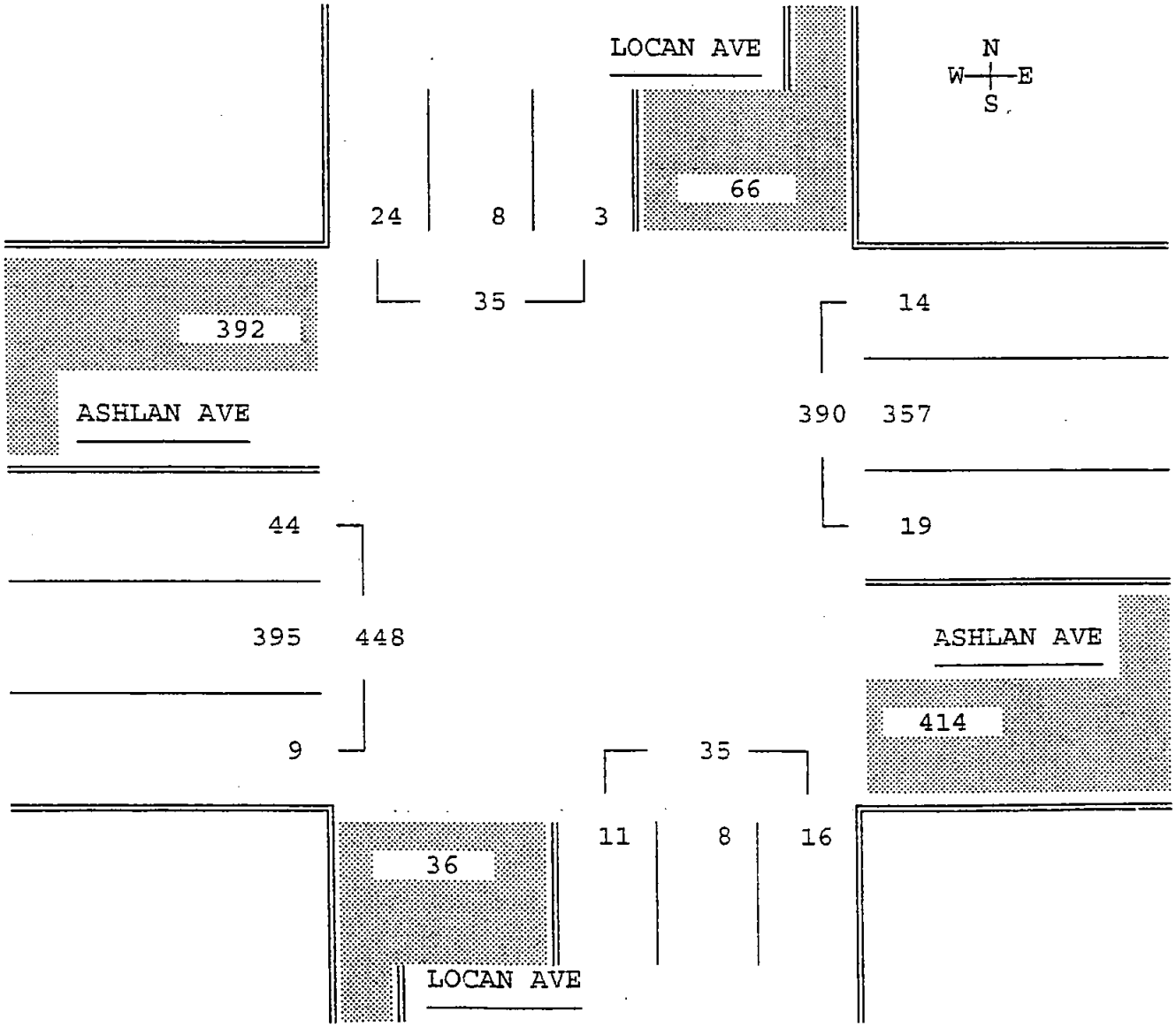
PAGE: 1
FILE: 08280104

Movements by: Primary

DATE: 9/05/01

PEAK PERIOD ANALYSIS FOR THE PERIOD: 7:00 AM - 9:00 AM

DIRECTION FROM	START PEAK HOUR	PEAK HR FACTOR	VOLUMES Right	Thru	Left	Total	PERCENTS Right	Thru	Left
North	7:45 AM	0.42	33	11	5	49	67	22	10
East	7:00 AM	0.62	14	357	19	390	4	92	5
South	7:15 AM	0.75	12	9	15	36	33	25	42
West	7:00 AM	0.58	9	395	44	448	2	88	10
Entire Intersection									
North	7:00 AM	0.30	24	8	3	35	69	23	9
East		0.62	14	357	19	390	4	92	5
South		0.80	16	8	11	35	46	23	31
West		0.58	9	395	44	448	2	88	10



▸&k0S

TURN MOVEMENT COUNTS

Site Code : 08280104
N / S : LOCAN AVE
E / W : ASHLAN AVE
OPERATOR : TUE JC

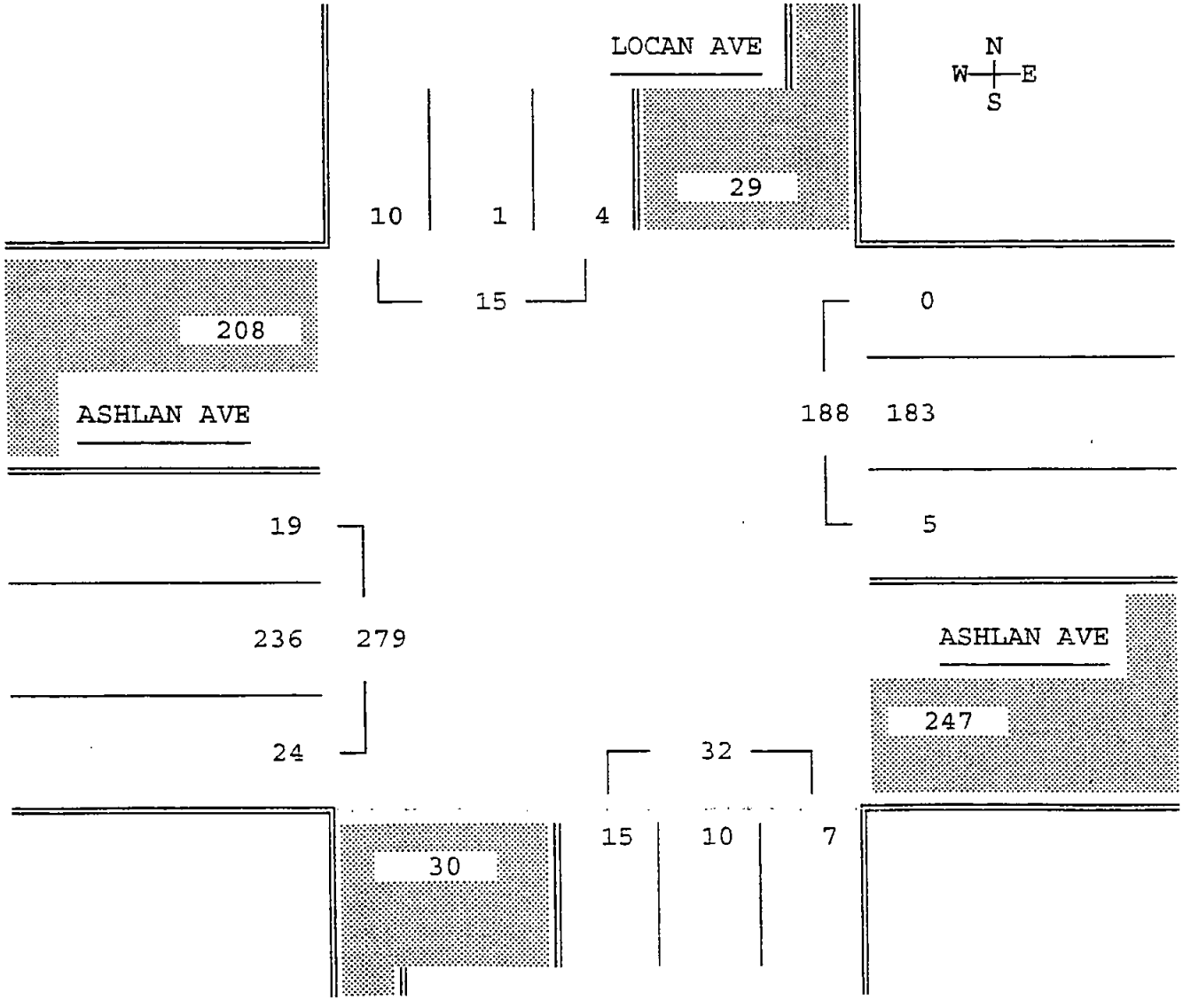
PAGE: 1
FILE: 08280104

Movements by: Primary

DATE: 9/05/01

PEAK PERIOD ANALYSIS FOR THE PERIOD: 4:00 PM - 6:00 PM

DIRECTION FROM	START PEAK HOUR	PEAK HR FACTOR	VOLUMES Right	Thru	Left	Total	PERCENTS Right	Thru	Left
North	5:00 PM	0.61	10	3	4	17	59	18	24
East	4:15 PM	0.88	2	189	6	197	1	96	3
South	4:45 PM	0.89	7	10	15	32	22	31	47
West	4:45 PM	0.87	24	236	19	279	9	85	7
Entire Intersection									
North	4:45 PM	0.54	10	1	4	15	67	7	27
East		0.84	0	183	5	188	0	97	3
South		0.89	7	10	15	32	22	31	47
West		0.87	24	236	19	279	9	85	7



TURN MOVEMENT COUNTS

Site Code : 08280109
N / S : LEONARD AVE
E / W : ASHLAN AVE
OPERATOR : WBD NICKY

PAGE: 1
FILE: 08280109

Movements by: Primary

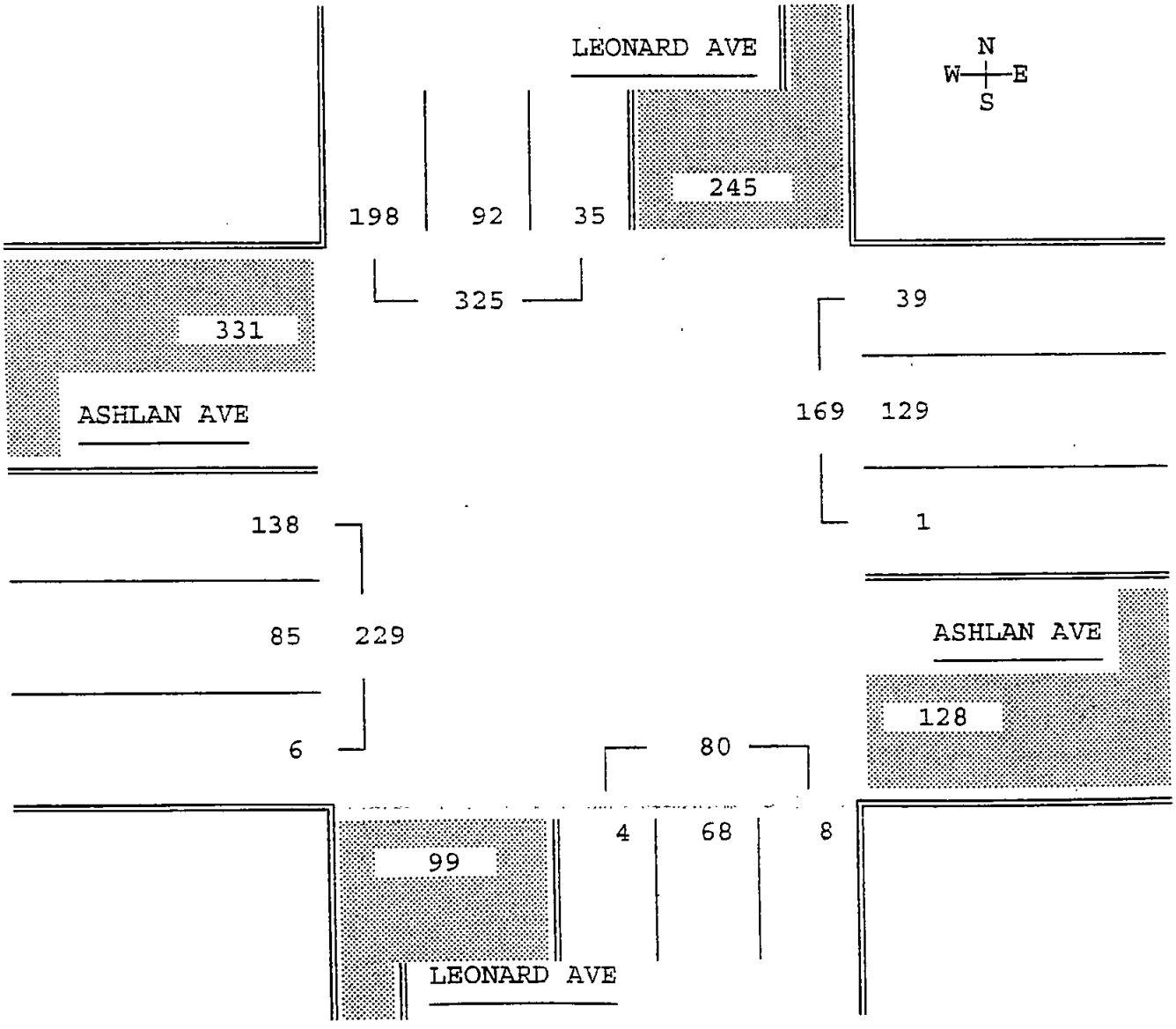
DATE: 8/29/01

PEAK PERIOD ANALYSIS FOR THE PERIOD: 7:00 AM - 9:00 AM

DIRECTION FROM	START PEAK HOUR	PEAK HR FACTOR	..... VOLUMES ..... Right	Thru	Left	Total	.... PERCENTS ... Right	Thru	Left
North	7:00 AM	0.50	198	92	35	325	61	28	11
East	7:15 AM	0.64	40	132	0	172	23	77	0
South	7:00 AM	0.48	8	68	4	80	10	85	5
West	7:00 AM	0.57	6	85	138	229	3	37	60

Entire Intersection

North	7:00 AM	0.50	198	92	35	325	61	28	11
East		0.63	39	129	1	169	23	76	1
South		0.48	8	68	4	80	10	85	5
West		0.57	6	85	138	229	3	37	60



TURN MOVEMENT COUNTS

Site Code : 08280109
N / S : LEONARD AVE
E / W : ASHLAN AVE
OPERATOR : WED NICKY

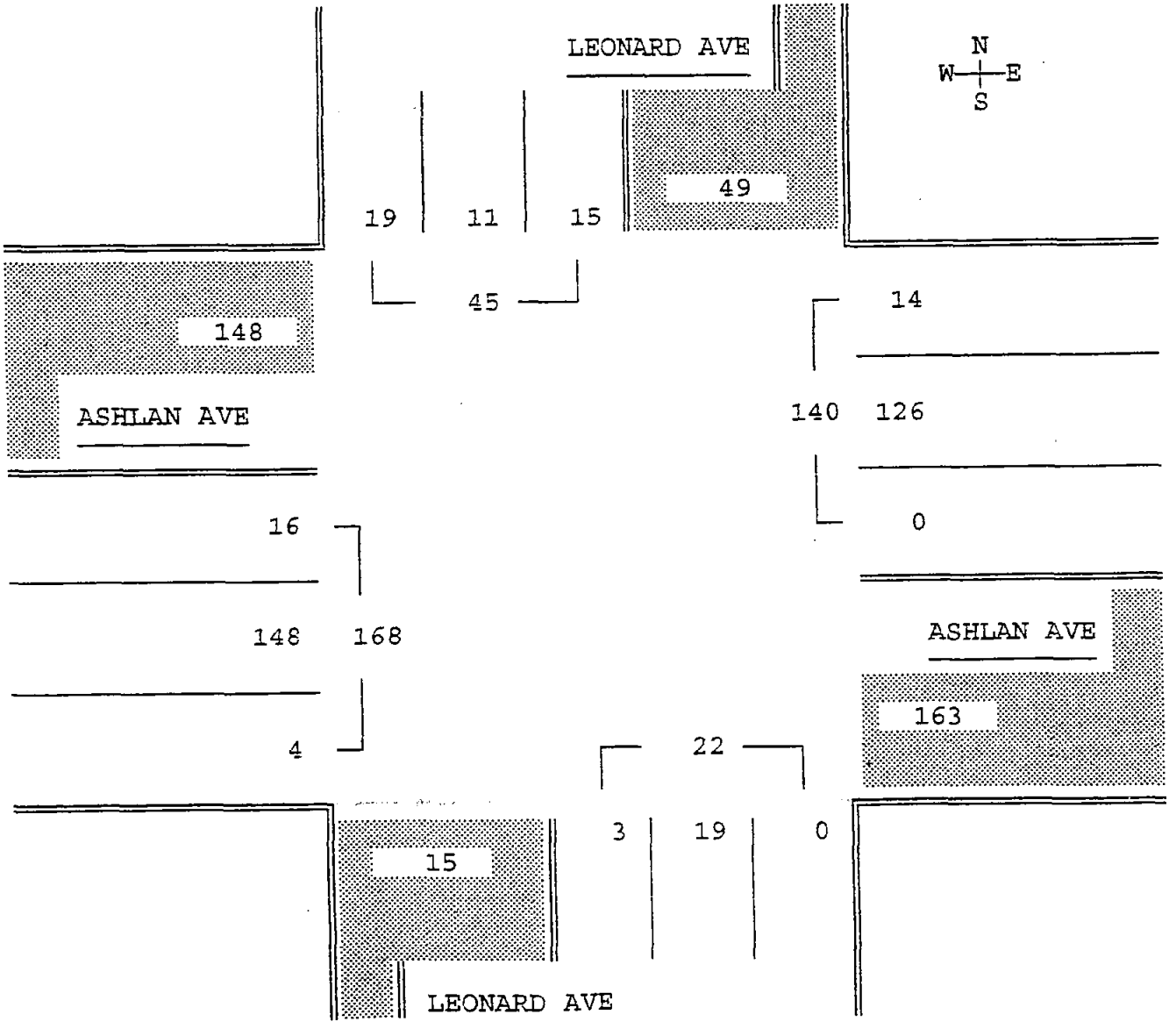
PAGE: 1
FILE: 08280109

Movements by: Primary

DATE: 8/29/01

PEAK PERIOD ANALYSIS FOR THE PERIOD: 4:00 PM - 6:00 PM

DIRECTION FROM	START PEAK HOUR	PEAK HR FACTOR	VOLUMES Right	Thru	Left	Total	PERCENTS Right	Thru	Left
North	4:30 PM	0.88	24	18	21	63	38	29	33
East	4:00 PM	0.90	14	126	0	140	10	90	0
South	4:00 PM	0.69	0	19	3	22	0	86	14
West	4:00 PM	0.82	4	148	16	168	2	88	10
Entire Intersection									
North	4:00 PM	0.63	19	11	15	45	42	24	33
East		0.90	14	126	0	140	10	90	0
South		0.69	0	19	3	22	0	86	14
West		0.82	4	148	16	168	2	88	10



TURN MOVEMENT COUNTS

Site Code : 08280107
N / S : MCCALL AVE
E / W : ASHLAN AVE
OPERATOR : WED JC

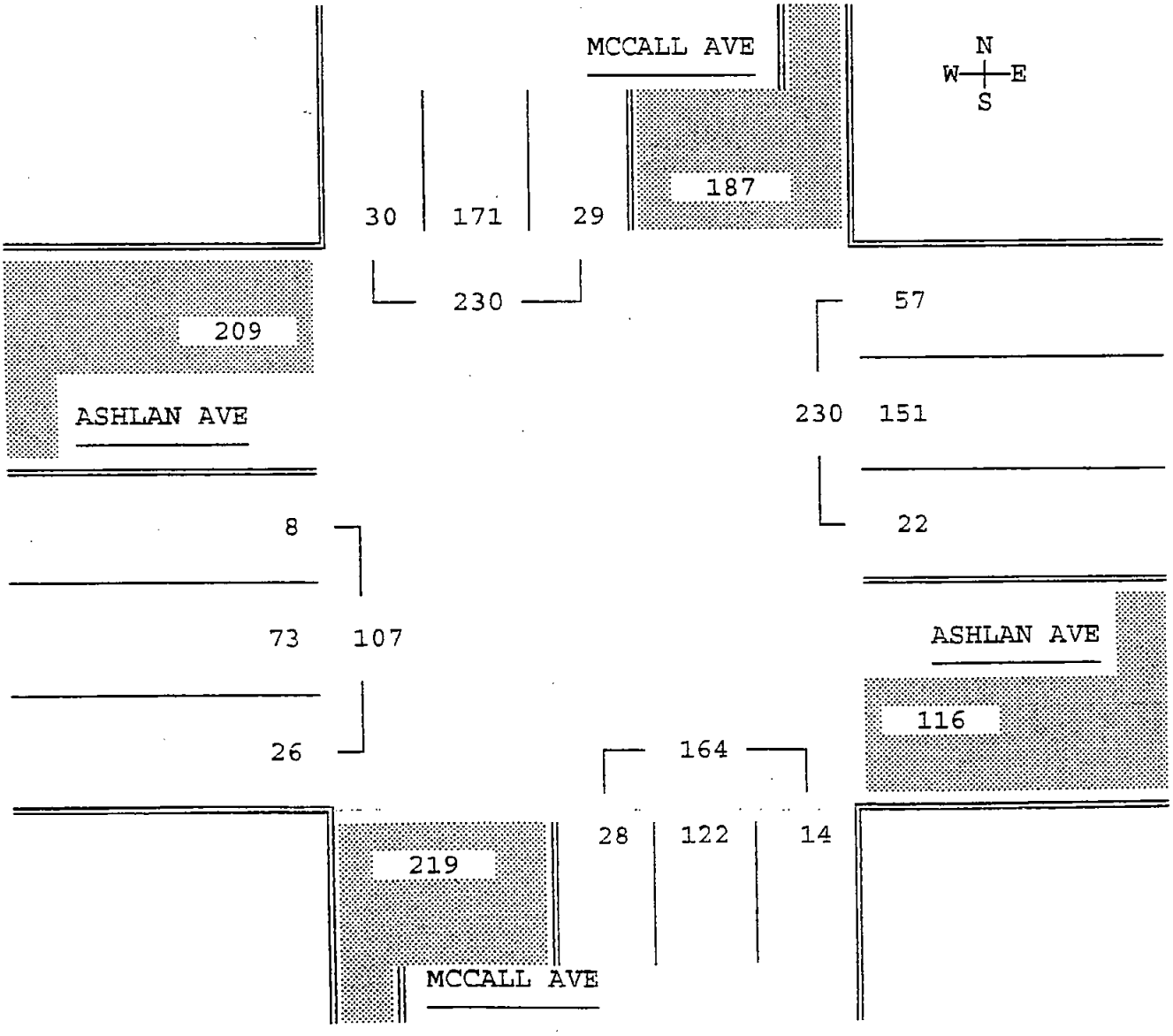
PAGE: 1
FILE: 08280107

Movements by: Primary

DATE: 9/06/01

PEAK PERIOD ANALYSIS FOR THE PERIOD: 7:00 AM - 9:00 AM

DIRECTION FROM	START PEAK HOUR	PEAK HR FACTOR	VOLUMES Right	Thru	Left	Total	PERCENTS Right	Thru	Left
North	7:00 AM	0.75	30	171	29	230	13	74	13
East	7:00 AM	0.88	57	151	22	230	25	66	10
South	7:15 AM	0.95	12	139	24	175	7	79	14
West	7:00 AM	0.89	26	73	8	107	24	68	7
Entire Intersection									
North	7:00 AM	0.75	30	171	29	230	13	74	13
East		0.88	57	151	22	230	25	66	10
South		0.89	14	122	28	164	9	74	17
West		0.89	26	73	8	107	24	68	7



TURN MOVEMENT COUNTS

Site Code : 08280107
N / S : MCCALL AVE
E / W : ASHLAN AVE
OPERATOR : WED JC

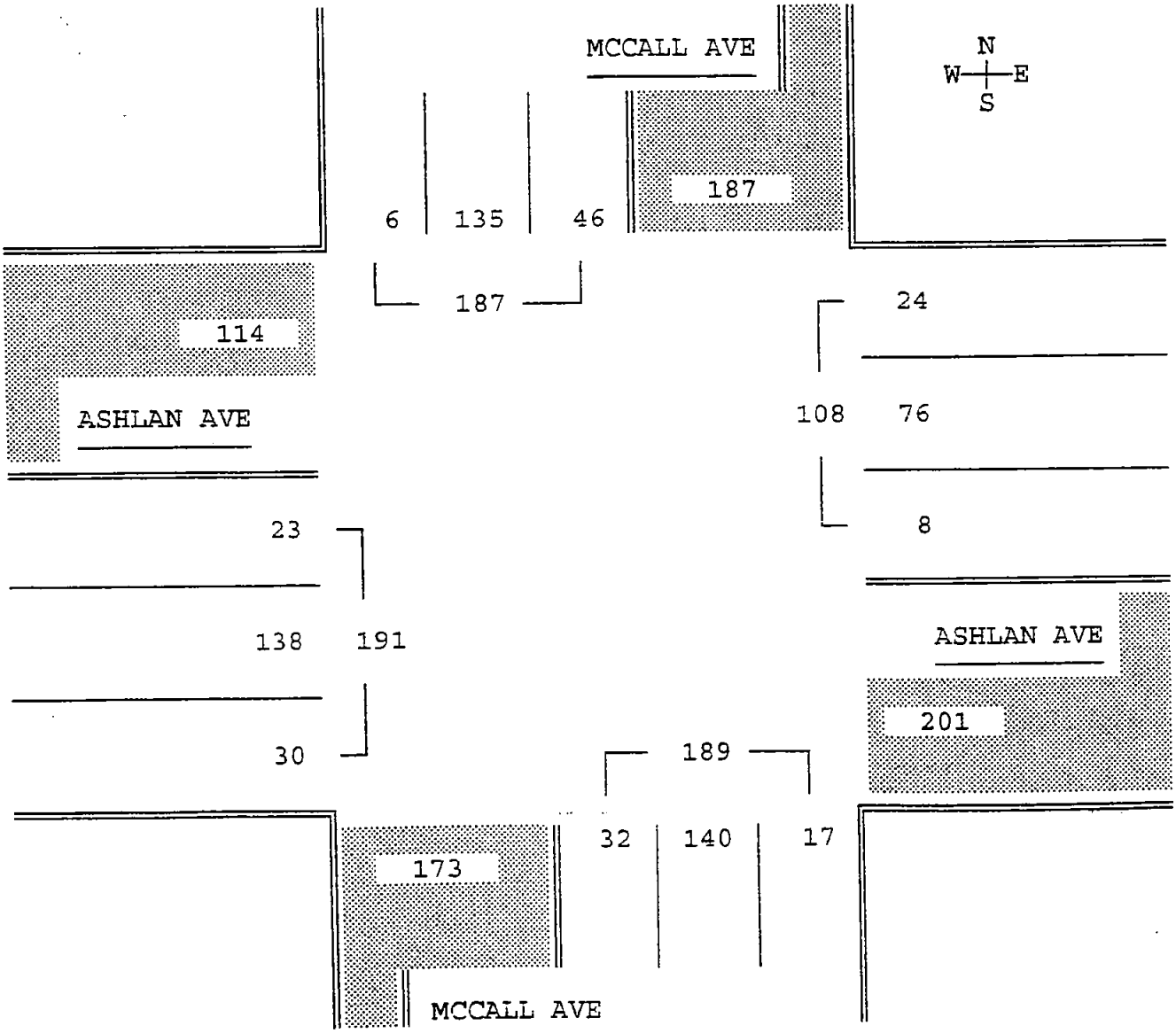
PAGE: 1
FILE: 08280107

Movements by: Primary

DATE: 9/06/01

PEAK PERIOD ANALYSIS FOR THE PERIOD: 4:00 PM - 6:00 PM

DIRECTION FROM	START PEAK HOUR	PEAK HR FACTOR	VOLUMES Right	Thru	Left	Total	PERCENTS Right	Thru	Left
North	5:00 PM	0.88	6	135	46	187	3	72	25
East	4:00 PM	0.85	14	91	10	115	12	79	9
South	4:30 PM	0.92	12	156	35	203	6	77	17
West	5:00 PM	0.82	30	138	23	191	16	72	12
Entire Intersection									
North	5:00 PM	0.88	6	135	46	187	3	72	25
East		0.71	24	76	8	108	22	70	7
South		0.86	17	140	32	189	9	74	17
West		0.82	30	138	23	191	16	72	12



ENGINEERING ROADWAY DESIGN CAPACITIES

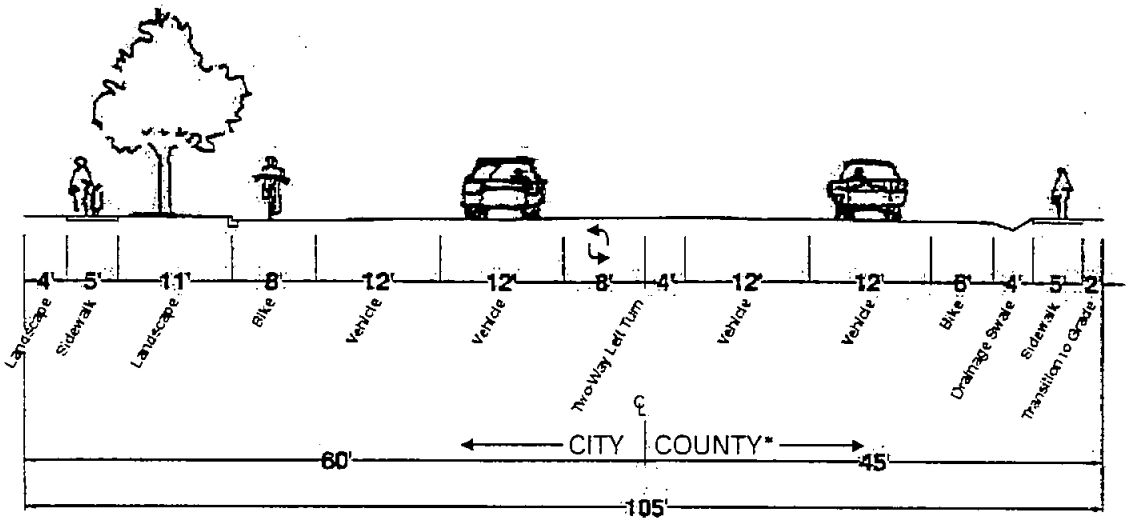
CITY OF CLOVIS GENERALIZED DAILY MAXIMUM TRAFFIC VOLUMES	
Lanes	LEVEL of Service "E"
Freeways	
4	74,100
6	111,200
Expressways	
4	34,200
6	51,200
8	62,800
Arterials	
2	15,000
4	32,200
5	48,800
Collectors	
2	11,700
4	25,300
SOURCE: Clovis General Plan EIR	

Engineering Roadway Design Capacities

Type of Roadway	# of Lanes	LOS A		LOS B		LOS C		LOS D		LOS E	
		Low	High	Low	High	Low	High	Low	High	Low	High
Arterial	2 Lanes	8,100	12,000	9,400	14,000	10,800	16,000	12,100	18,000	13,500	20,000
Arterial	4 Lanes	16,100	23,900	18,900	27,900	21,600	31,900	24,300	35,900	27,000	39,900
Major	2 Lanes	6,500	9,600	7,500	11,200	8,600	12,800	9,700	14,400	10,800	16,000
Major	4 Lanes	12,900	19,200	15,100	22,300	17,200	25,500	19,400	28,700	21,600	31,900
Collector	- -	4,600	7,100	5,400	8,200	6,200	9,400	6,900	10,600	7,700	11,800

The roadway capacities listed above are "rule of thumb" figures only. Some factors which affect these capacities are intersections (numbers and configuration), degrees of access control, roadway grades, design geometrics (horizontal and vertical alignment standards), sight distance, level of truck and bus traffic and level of pedestrian and bicycle traffic.

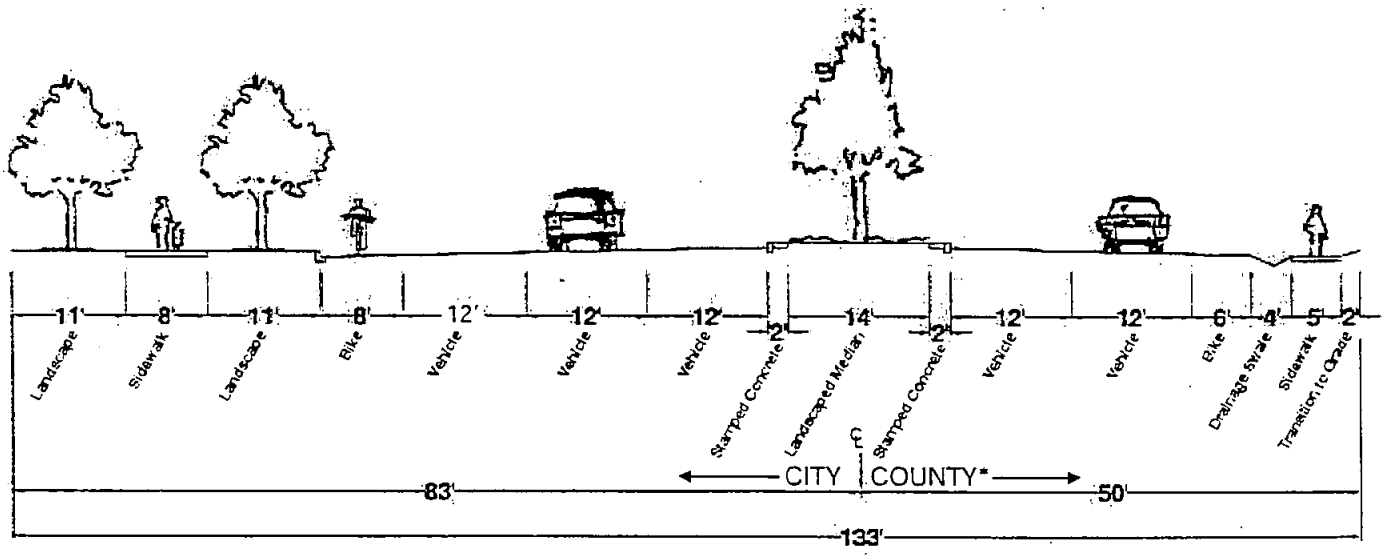
PLANNED FULL STREET CROSS-SECTIONS



City/County Arterial Section A

Bullard Ave.

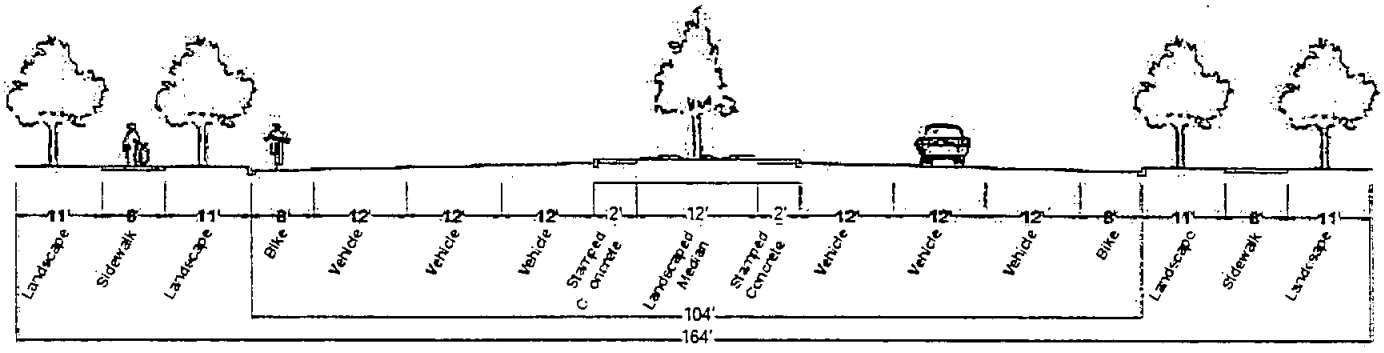
*Cross-section tobeestablished by County policy.



*Cross-section tobeestablished by County policy.

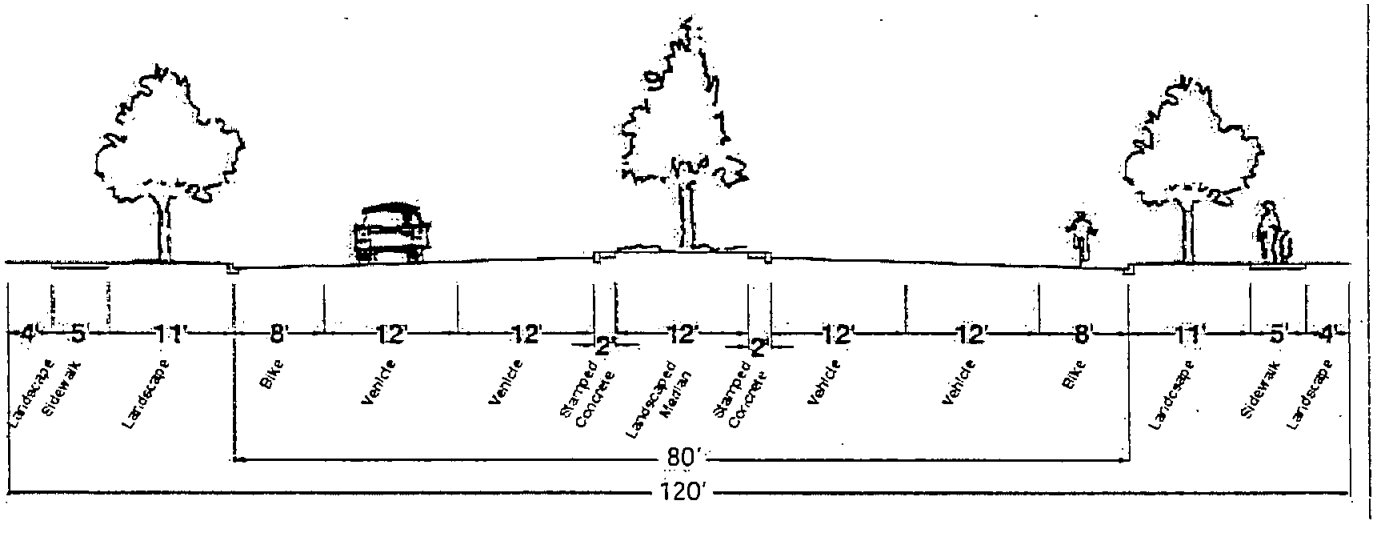
City/County Arterial/Expressway Section B

Shaw Ave. Arterial (East of Highland, Access limited to 1/4 mile intervals)
McCall Ave. Expressway (Access limited to 1/2 mile intervals)



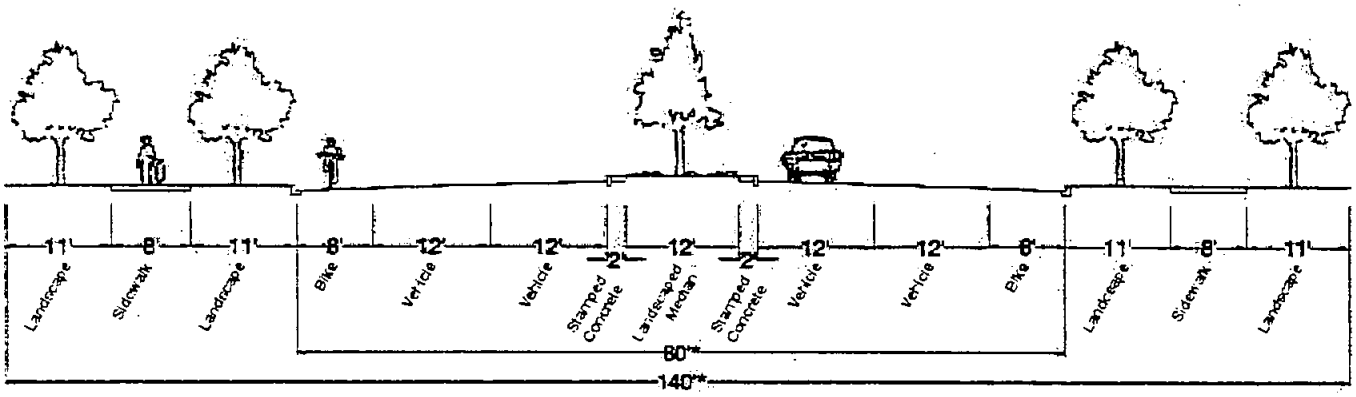
Arterial Section C

Shaw Ave. (Between Locan and Highland)



Arterial Section D

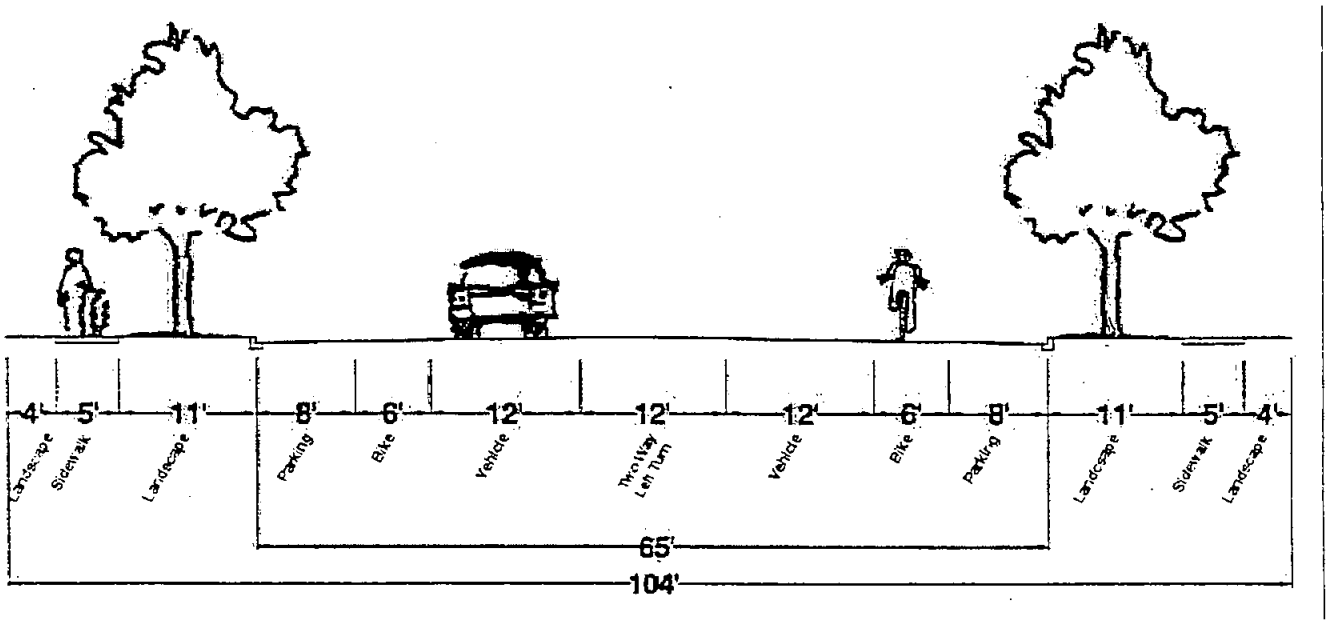
Leonard Ave. (North of Barstow and South of Ashlan)



*Add 6' oneachsidetoaccomodateparking lanes adjacent tothe curbalong Reagan Education Center.

Arterial Section E

Ashlan Ave.
Leonard Ave. (Ashlan to Barstow)



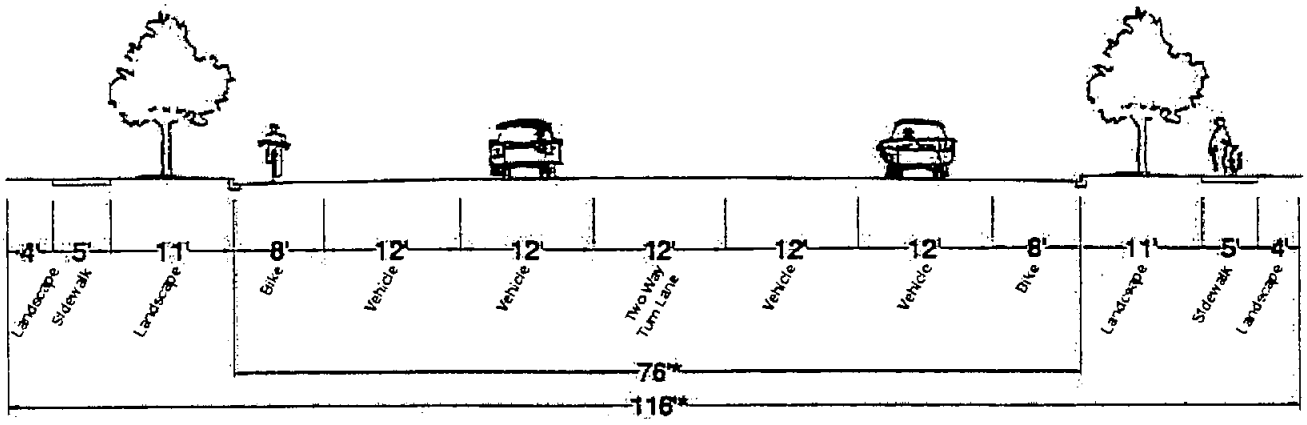
Collector (Low Volume) Section F

Barstow Ave.
Highland Ave.
Locan Ave. (without center two-way left turn lane)
Dakota Ave. (without center two-way left turn lane)
Thompson Ave. (Ashlan to Dakota)

Not to Scale

Figure 17c

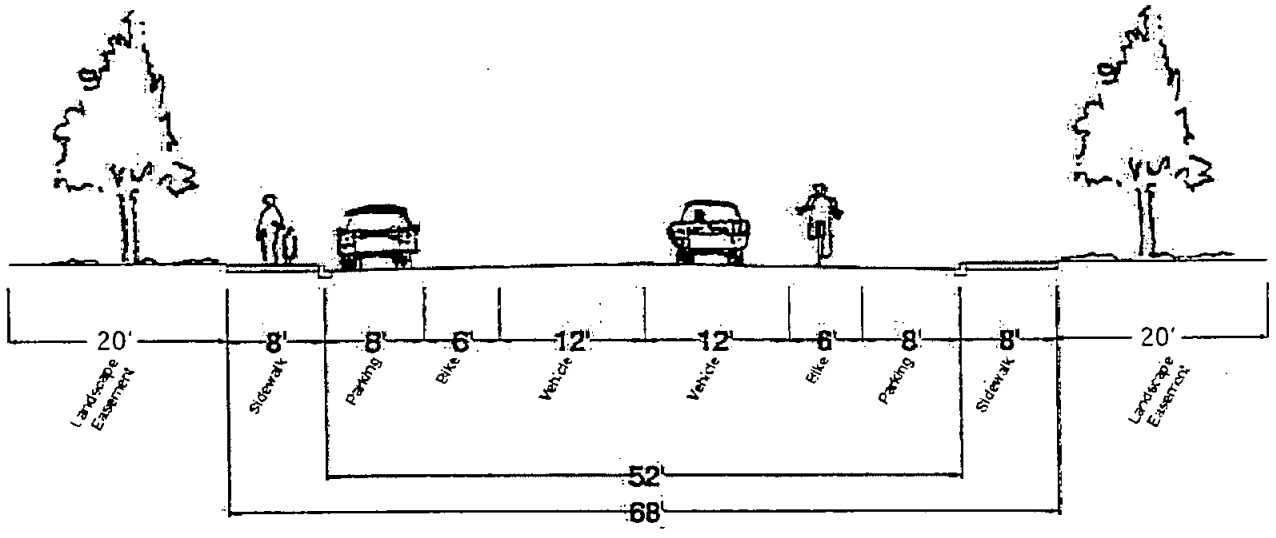
Street Sections



*Add 6' oneachsidetoaccomodateparking lanes adjacent tothe curbalong Reagan Education Center.

Collector (High Volume) Section G

Gettysburg Ave. (Locan to Thompson)
DeWolf Ave.
Thompson Ave. (Shaw to Ashlan)



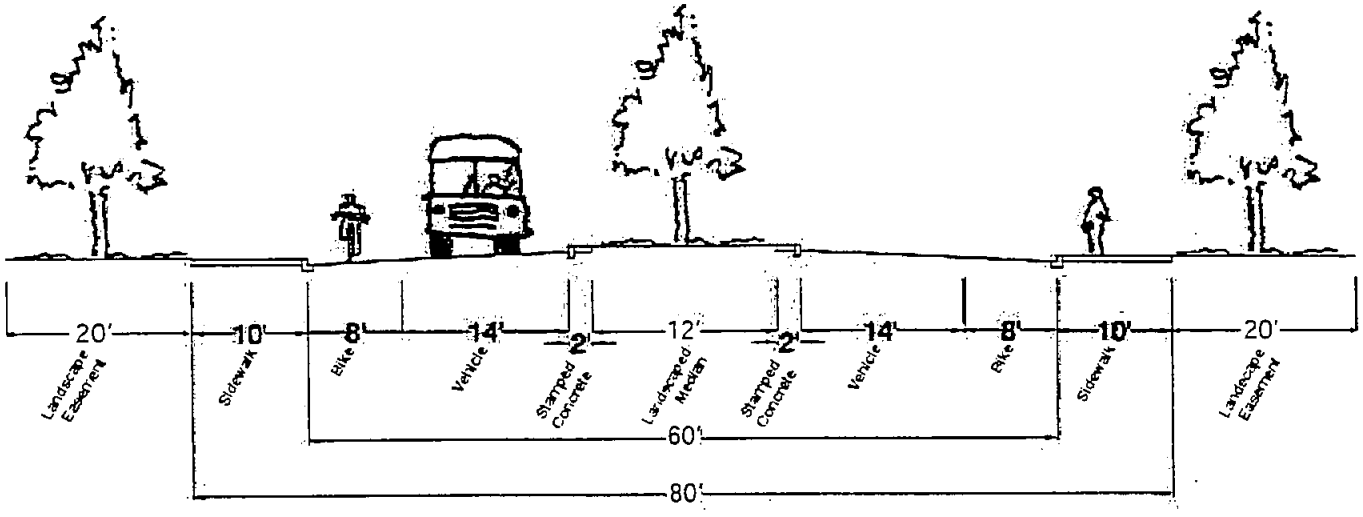
Alternative Minor Collector without Median Island

City of Clovis
Southeast Urban Center
Specific Plan

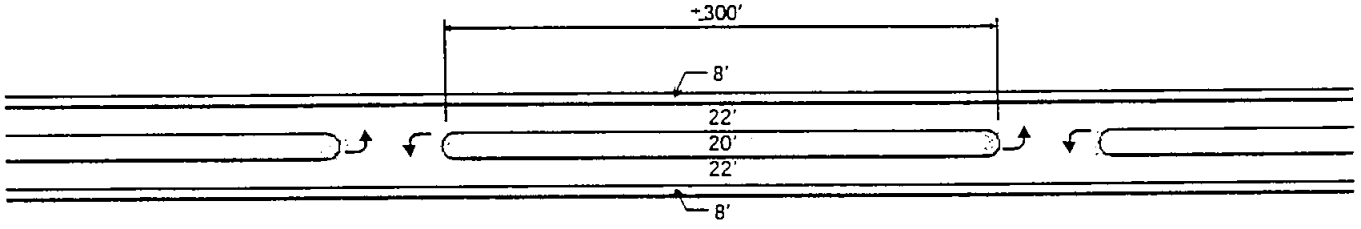
Not to Scale

Figure 17d

Street Sections



Minor Collector with Median Section H



Minor Collector with Median

Business Campus (Plan View)

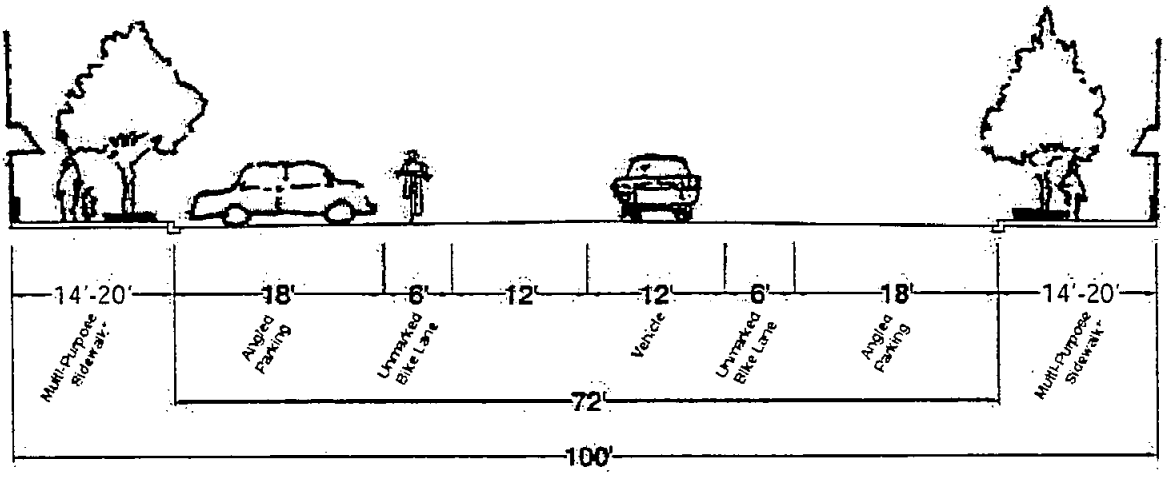
City of Clovis

Southeast Urban Center

Specific Plan

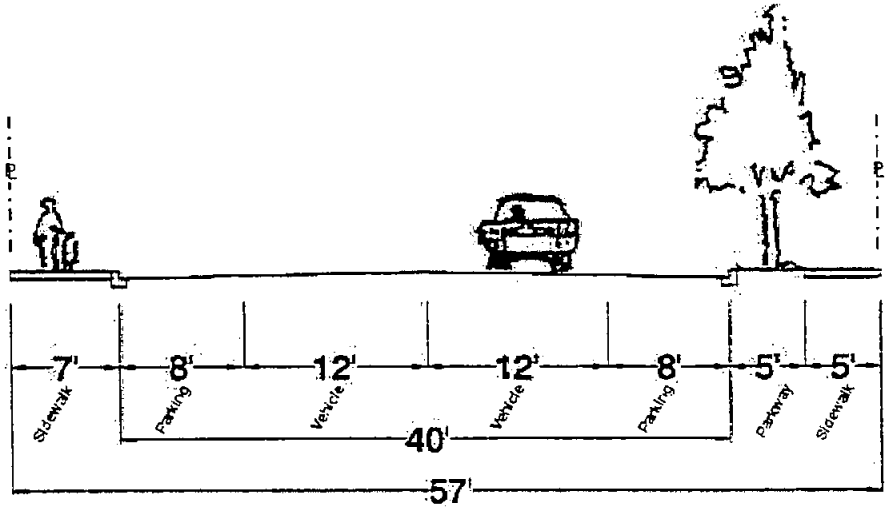
Not to Scale

Figure 17e



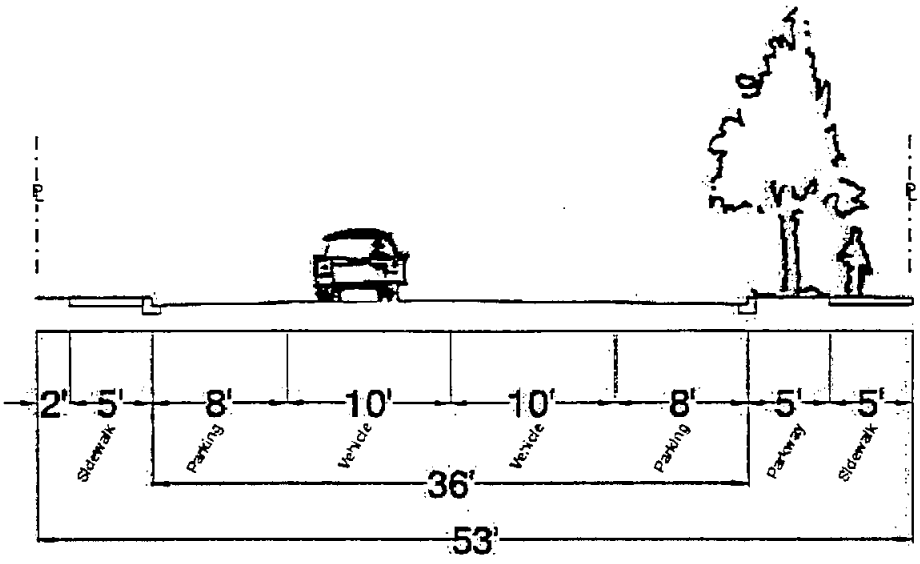
Community Center Street Section I

*Sidewalk section may beenlarged to accomodate business activity.
A landscaped median island may be included subject to review and approval of the director.

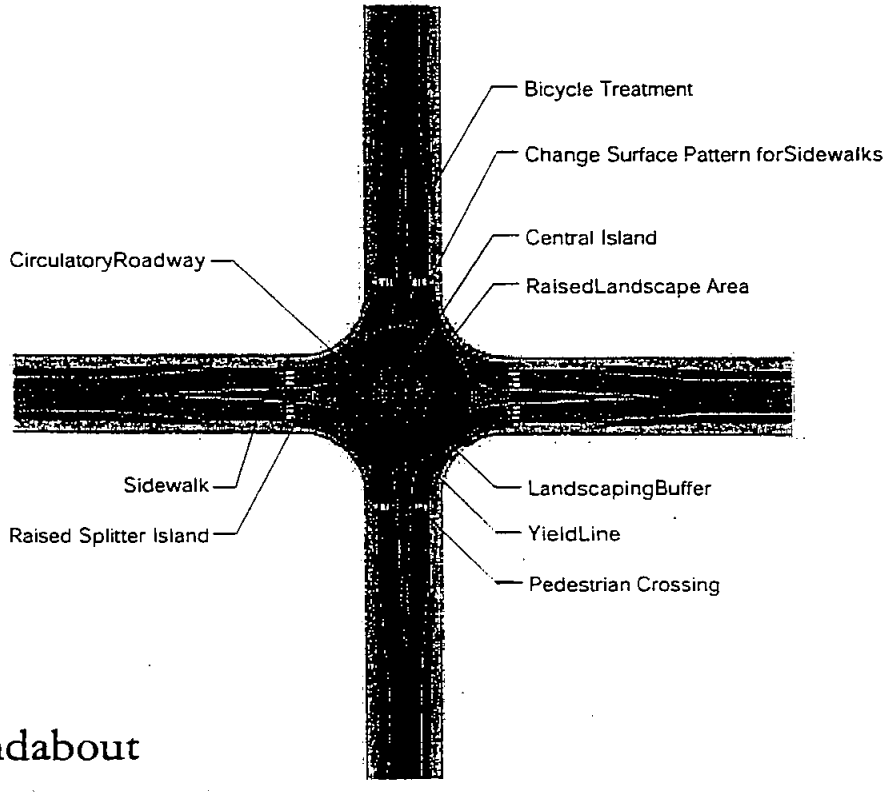


Local Street (Residential)

Street Sections



Narrow Local Street (Residential)



Typical Roundabout

City of Clovis
Southeast Urban Center
Specific Plan

Not to Scale

Figure 17g

LEVEL OF SERVICE DEFINITIONS AND DISCUSSION

LEVELS OF SERVICE DISCUSSION FOR SIGNALIZED INTERSECTIONS

The capacity analyses performed by ATE included use of the Critical Movement Summations (CMS) technique. The following discussion describes the levels of service corresponding to the various traffic conditions and to specific critical lane volumes.

The ability of a highway system to carry traffic is expressed in terms of its "Service Level" at critical locations, usually intersections. The table on the following page lists the CMS ranges[2] used in determining service levels. Service levels are defined as follows:

"A" Conditions of free unobstructed flow, no delays and all signal phases sufficient in duration to clear all approaching vehicles.

"B" Conditions of stable flow, very little delay, a few phases are unable to handle all approaching vehicles.

"C" Conditions of stable flow, delays are low to moderate, full use of peak direction signal phase(s) is experienced.

"D" Conditions approaching unstable flow, delays are moderate to heavy, significant signal time deficiencies are experienced for short durations during the peak traffic period.

"E" Conditions of unstable flow, delays are significant, signal phase timing is generally insufficient, congestion exists for extended duration throughout the peak period.

"F" Conditions of forced flow, travel speeds are low and volumes are well above capacity. This condition is often caused when vehicles released by an upstream signal are unable to proceed because of back-ups from a downstream signal.

Although "level of service" was originally intended as a measure of the type of operation over a distance, it has been recognized that intersections are the primary restrictors of capacity on urban arterials, and that the originally defined values of speed versus distance did not apply to point locations. Since level of service is described in terms of driver satisfactions, it is for intersections now usually related to congestion or delay. Intersection service levels are now commonly calculated by the Critical Movement Analysis technique,[3] which relates the sum of existing or expected conflicting traffic movements to a maximum value in order to determine a volume/capacity ratio and corresponding service level. The method provides an acceptably accurate measure of intersection performance, provided it is remembered that overall route level of service may be affected or controlled by other conditions or phenomena in addition to intersection performance. The numerical definitions of Intersection Level of Service ranges are shown in a table on the following page.

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2 "Critical Movement Analysis (Draft Report)", JHK and Associates, 1979.

3 "Interim Materials on Highway Capacity", Transportation Research Circular No. 212, Transportation Research Board, Washington, D.C.

DISCUSSION OF SIGNALIZED LOS

I. Level of Service - by V/C Ratio and Delay Range

Intersection Level of Service Ranges

Level of Service	V/C Ratio	Delay Range (sec./veh.)
LOS A	0.00 - 0.60	0 ≤ 10.0
LOS B	0.61 - 0.70	> 10.0 - 20.0
LOS C	0.71 - 0.80	> 20.1 - 35.0
LOS D	0.81 - 0.90	> 35.0 - 55.0
LOS E	0.91 - 1.00	> 55.0 - 80.0
LOS F	Variable	> 80.0

II. Level of Service - Maximum Sum of Critical Lane Volumes, By Signal Phasing Type

Sum of Critical Lane Volumes (passenger cars per hour)

Level of Service	Two Phase	Three Phase	Four or More Phases
LOS A	900	855	825
LOS B	1,050	1,000	965
LOS C	1,200	1,140	1,100
LOS D	1,350	1,275	1,225
LOS E	1,500	1,425	1,375
LOS F	——— not applicable ———		

UNSIGNALIZED INTERSECTION LEVELS OF SERVICE DISCUSSION

The following table lists the Highway Capacity Manual delay ranges used in determining service levels for unsignalized intersections:

Intersection Level of Service Delay Ranges

Level of Service	Control Delay (sec./veh.)
LOS A	0 - 10.0
LOS B	> 10.0 and ≤ 15.0
LOS C	> 15.0 and ≤ 25.0
LOS D	> 25.0 and ≤ 35.0
LOS E	> 35.0 and ≤ 50.0
LOS F	> 50.0

Capacities of All-Way Stop Controlled Intersections With Varying Traffic Demand Split

	*Capacity (vph)				
Demand Split	1 x 2	2 x 2	1 x 4	2 x 4	4 x 4
***Three-Way Stop*:**					
50/50	1,425	1,850	2,325	2,700	–
55/45	1,375	1,780	2,255	2,610	–
60/40	1,325	1,710	2,185	2,520	–
65/35	1,275	1,640	2,115	2,430	–
70/30	1,225	1,570	2,045	2,340	–
***Four-Way Stop*:**					
50/50	–	1,900	–	2,800	3,600
55/45	–	1,800	–	2,660	3,420
60/40	–	1,700	–	2,520	3,240
65/35	–	1,600	–	2,380	3,060
70/30	–	1,500	–	2,240	2,880

* Total capacity, all legs

Source: Derived from material contained in the Highway Capacity Manual, Special Report 209, Transportation Research Board, National Research Council, 1985 and update October 1994.

INTERSECTION LEVEL OF SERVICE WORKSHEETS

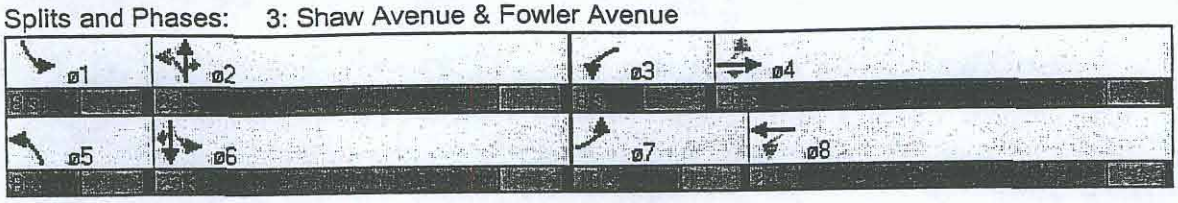
Ref. 1	Shaw Avenue/Fowler Avenue
Ref. 2	Shaw Avenue/Locan Avenue
Ref. 3	Shaw Avenue/Leonard Avenue
Ref. 4	Shaw Avenue/Mc Call Avenue
Ref. 5	Gettysburg Avenue/Locan Avenue
Ref. 6	Gettysburg Avenue/De Wolf Avenue
Ref. 7	Gettysburg Avenue/Leonard Avenue
Ref. 8	Ashlan Avenue/Fowler Avenue
Ref. 9	Ashlan Avenue/Locan Avenue
Ref. 10	Ashlan Avenue/Leonard Avenue
Ref. 11	Ashlan Avenue/Mc Call Avenue

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Volume (vph)	189	263	95	73	852	252	389	48	54	324	162
Lane Group Flow (vph)	205	286	103	79	964	274	423	52	59	352	176
Turn Type	pm+pt		Perm	pm+pt		pm+pt		Perm	pm+pt		Perm
Protected Phases	7	4		3	8	5	2		1	6	
Permitted Phases	4		4	8		2		2	6		6
Detector Phases	7	4	4	3	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	20.0	8.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0
Total Split (s)	10.0	26.0	26.0	8.0	24.0	8.0	23.0	23.0	8.0	23.0	23.0
Total Split (%)	15%	40%	40%	12%	37%	12%	35%	35%	12%	35%	35%
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	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Coord	Coord	None	Coord	Coord
Act Effct Green (s)	28.0	23.3	23.3	23.8	19.8	24.9	22.5	22.5	23.3	19.3	19.3
Actuated g/C Ratio	0.43	0.36	0.36	0.37	0.30	0.38	0.35	0.35	0.36	0.30	0.30
v/c Ratio	0.74	0.43	0.16	0.20	0.90	0.45	0.65	0.09	0.24	0.64	0.30
Uniform Delay, d1	10.4	15.8	0.0	9.9	20.7	12.4	20.0	0.0	12.1	20.5	0.0
Delay	21.5	17.0	4.1	10.5	27.2	12.6	23.6	5.8	11.8	20.5	3.5
LOS	C	B	A	B	C	B	C	A	B	C	A
Approach Delay		16.3			25.9		18.3			14.6	
Approach LOS		B			C		B			B	
Queue Length 50th (ft)	47	87	0	17	187	34	152	0	14	121	0
Queue Length 95th (ft)	#129	152	27	38	#298	55	#280	20	33	201	36
Internal Link Dist (ft)		1168			2576		2584			1720	
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

Cycle Length: 65
Actuated Cycle Length: 65
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.90
Intersection Signal Delay: 19.9 Intersection LOS: B
Intersection Capacity Utilization 77.9% ICU Level of Service C
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: Shaw Avenue & Fowler Avenue



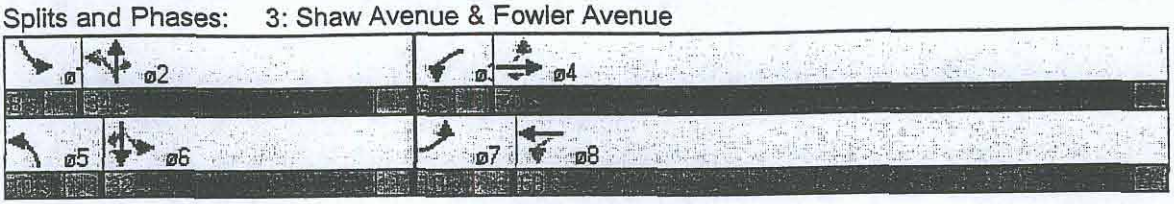
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Volume (vph)	129	947	161	83	474	204	426	91	96	307	104
Lane Group Flow (vph)	140	1029	175	90	577	222	463	99	104	334	113
Turn Type	pm+pt		Perm	pm+pt		pm+pt		Perm	pm+pt		Perm
Protected Phases	7	4		3	8	5	2		1	6	
Permitted Phases	4		4	8		2		2	6		6
Detector Phases	7	4	4	3	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	20.0	8.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0
Total Split (s)	10.0	70.0	70.0	8.0	68.0	10.0	34.0	34.0	8.0	32.0	32.0
Total Split (%)	8%	58%	58%	7%	57%	8%	28%	28%	7%	27%	27%
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	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Coord	Coord	None	Coord	Coord
Act Effct Green (s)	71.5	66.0	66.0	68.5	64.6	35.5	30.0	30.0	32.5	28.6	28.6
Actuated g/C Ratio	0.60	0.55	0.55	0.57	0.54	0.30	0.25	0.25	0.27	0.24	0.24
v/c Ratio	0.30	1.00	0.19	0.74	0.31	0.65	0.99	0.21	0.85	0.76	0.24
Uniform Delay, d1	9.6	27.0	3.6	9.9	14.9	30.1	44.9	1.7	32.1	42.5	0.0
Delay	9.9	49.6	4.4	33.1	15.0	31.5	74.8	8.1	67.3	45.1	6.8
LOS	A	D	A	C	B	C	E	A	E	D	A
Approach Delay		39.5			17.5		54.1			41.4	
Approach LOS		D			B		D			D	
Queue Length 50th (ft)	42	~775	17	26	121	64	359	0	58	242	0
Queue Length 95th (ft)	71	#1086	51	#78	158	95	#577	46	#149	#358	46
Internal Link Dist (ft)		1168			2576		2584			1720	
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	
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green	
Natural Cycle: 120	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.00	
Intersection Signal Delay: 38.9	Intersection LOS: D
Intersection Capacity Utilization 102.7%	ICU Level of Service F

~ 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.

Splits and Phases: 3: Shaw Avenue & Fowler Avenue



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	377	525	189	146	1697	70	503	776	96	108	646	323
Lane Group Flow (vph)	410	571	205	159	1845	76	547	843	104	117	702	351
Turn Type	pm+pt		Perm	pm+pt		Perm	pm+pt		Perm	pm+pt		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phases	7	4	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	4.0
Minimum Split (s)	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0
Total Split (s)	19.0	44.0	44.0	10.0	35.0	35.0	13.0	28.0	28.0	8.0	23.0	23.0
Total Split (%)	21%	49%	49%	11%	39%	39%	14%	31%	31%	9%	26%	26%
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	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	0.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Coord	Coord	None	Coord	Coord
Act Effct Green (s)	50.0	40.5	40.5	36.5	31.0	31.0	32.0	24.0	24.0	23.2	19.1	19.1
Actuated g/C Ratio	0.56	0.45	0.45	0.41	0.34	0.34	0.36	0.27	0.27	0.26	0.21	0.21
v/c Ratio	1.09	0.25	0.25	0.42	1.05	0.13	1.09	0.89	0.21	0.72	0.93	0.65
Uniform Delay, d1	23.3	15.3	0.0	11.0	29.5	0.2	22.6	31.8	0.0	20.9	34.8	8.1
Delay	84.6	15.4	2.3	11.9	62.2	5.5	80.0	38.1	5.7	36.7	47.8	9.8
LOS	F	B	A	B	E	A	F	D	A	D	D	A
Approach Delay		37.1			56.3			51.2			35.3	
Approach LOS		D			E			D			D	
Queue Length 50th (ft)	~214	71	0	41	~424	0	~129	242	0	45	207	44
Queue Length 95th (ft)	#396	95	36	72	#519	28	#234	#351	37	#114	#318	133
Internal Link Dist (ft)		1168			2576			2584			1720	
50th Up Block Time (%)												
95th Up Block Time (%)												
Turn Bay Length (ft)												
50th Bay Block Time %												
95th Bay Block Time %												
Queuing Penalty (veh)												

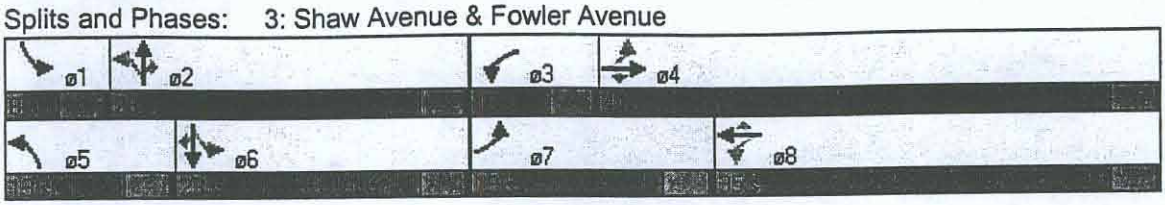
Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.09
Intersection Signal Delay: 47.0 Intersection LOS: D
Intersection Capacity Utilization 106.7% ICU Level of Service F

~ 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.

Splits and Phases: 3: Shaw Avenue & Fowler Avenue



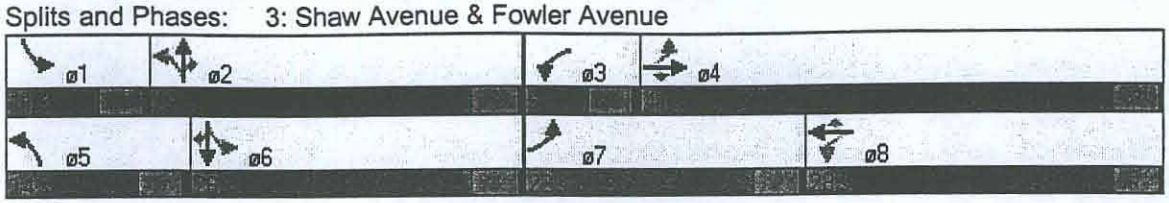
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	257	1886	321	166	944	114	407	849	182	191	612	208
Lane Group Flow (vph)	279	2050	349	180	1026	124	442	923	198	208	665	226
Turn Type	pm+pt		Perm	pm+pt		Perm	pm+pt		Perm	pm+pt		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phases	7	4	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	4.0
Minimum Split (s)	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0
Total Split (s)	22.0	41.0	41.0	9.0	28.0	28.0	14.0	29.0	29.0	11.0	26.0	26.0
Total Split (%)	24%	46%	46%	10%	31%	31%	16%	32%	32%	12%	29%	29%
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	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	0.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Coord	Coord	None	Coord	Coord
Act Effct Green (s)	44.0	37.0	37.0	39.0	34.0	34.0	31.5	25.3	25.3	32.5	25.7	25.7
Actuated g/C Ratio	0.49	0.41	0.41	0.43	0.38	0.38	0.35	0.28	0.28	0.36	0.29	0.29
v/c Ratio	1.05	0.98	0.43	0.83	0.53	0.18	1.10	0.93	0.36	0.91	0.66	0.37
Uniform Delay, d1	13.8	26.1	4.4	12.6	21.8	0.0	20.3	31.5	7.0	19.0	28.3	0.0
Delay	20.6	38.2	5.3	43.2	22.6	4.4	29.8	39.1	8.7	49.5	28.7	3.9
LOS	C	D	A	D	C	A	C	D	A	D	C	A
Approach Delay		32.1			23.7			32.6			27.5	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)	~128	410	31	53	157	0	~100	269	24	79	173	0
Queue Length 95th (ft)	#210	#535	94	#162	228	37	#174	#373	77	#205	239	53
Internal Link Dist (ft)		1168			2576			2584			1720	
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	
Cycle Length: 90	
Actuated Cycle Length: 90	
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: 1.10	
Intersection Signal Delay: 29.8	Intersection LOS: C
Intersection Capacity Utilization 99.9%	ICU Level of Service E

~ 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.

Splits and Phases: 3: Shaw Avenue & Fowler Avenue



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	275	382	138	107	1235	52	366	564	70	79	470	236
Lane Group Flow (vph)	299	415	150	116	1342	57	398	613	76	86	511	257
Turn Type	pm+pt		Perm	pm+pt		Perm	pm+pt		Perm	pm+pt		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phases	7	4	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	4.0
Minimum Split (s)	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0
Total Split (s)	19.0	43.0	43.0	10.0	34.0	34.0	13.0	29.0	29.0	8.0	24.0	24.0
Total Split (%)	21%	48%	48%	11%	38%	38%	14%	32%	32%	9%	27%	27%
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	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	0.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Coord	Coord	None	Coord	Coord
Act Effct Green (s)	43.0	35.8	35.8	34.2	28.7	28.7	36.6	32.2	32.2	33.1	29.1	29.1
Actuated g/C Ratio	0.48	0.40	0.40	0.38	0.32	0.32	0.41	0.36	0.36	0.37	0.32	0.32
v/c Ratio	1.03	0.21	0.21	0.29	0.83	0.10	0.81	0.48	0.12	0.32	0.45	0.37
Uniform Delay, d1	20.6	17.8	0.0	13.1	27.6	0.0	18.0	23.7	0.0	16.2	24.7	0.0
Delay	29.2	17.5	2.8	12.6	28.4	6.2	22.2	24.6	6.4	18.6	25.6	3.8
LOS	C	B	A	B	C	A	C	C	A	B	C	A
Approach Delay		19.0			26.3			22.5			18.4	
Approach LOS		B			C			C			B	
Queue Length 50th (ft)	~125	56	0	34	250	0	75	148	0	29	122	0
Queue Length 95th (ft)	#239	71	1	56	306	20	#155	216	32	64	183	57
Internal Link Dist (ft)		1168			2576			2584			1720	
50th Up Block Time (%)												
95th Up Block Time (%)												
Turn Bay Length (ft)												
50th Bay Block Time %												
95th Bay Block Time %												
Queuing Penalty (veh)												

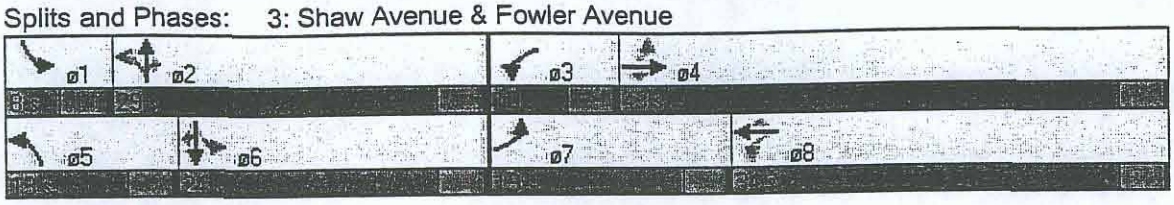
Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 60 (67%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.03
Intersection Signal Delay: 22.3 Intersection LOS: C
Intersection Capacity Utilization 81.3% ICU Level of Service D

~ 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.

Splits and Phases: 3: Shaw Avenue & Fowler Avenue

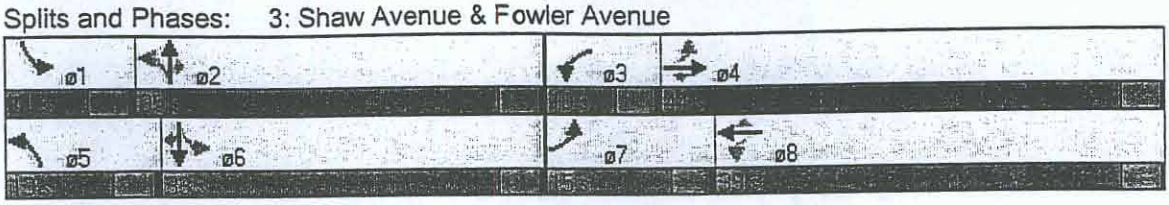


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	188	1372	234	121	687	84	296	618	132	140	445	152
Lane Group Flow (vph)	204	1491	254	132	747	91	322	672	143	152	484	165
Turn Type	pm+pt		Perm	pm+pt		Perm	pm+pt		Perm	pm+pt		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phases	7	4	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	4.0
Minimum Split (s)	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0
Total Split (s)	15.0	44.0	44.0	10.0	39.0	39.0	13.0	35.0	35.0	11.0	33.0	33.0
Total Split (%)	15%	44%	44%	10%	39%	39%	13%	35%	35%	11%	33%	33%
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	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	0.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Coord	Coord	None	Coord	Coord
Act Effct Green (s)	46.8	37.1	37.1	38.5	32.5	32.5	42.8	33.9	33.9	39.1	32.1	32.1
Actuated g/C Ratio	0.47	0.37	0.37	0.39	0.33	0.33	0.43	0.34	0.34	0.39	0.32	0.32
v/c Ratio	0.57	0.79	0.34	0.75	0.45	0.16	0.46	0.56	0.23	0.56	0.43	0.27
Uniform Delay, d1	15.8	28.0	0.0	16.1	26.6	0.0	16.8	26.9	0.0	16.8	26.7	0.0
Delay	15.4	27.8	2.7	28.1	26.4	5.0	17.6	28.0	4.6	19.2	27.8	4.5
LOS	B	C	A	C	C	A	B	C	A	B	C	A
Approach Delay		23.3			24.6			22.1			21.4	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)	71	293	0	44	132	0	65	189	0	59	132	0
Queue Length 95th (ft)	115	346	47	#124	167	32	96	252	42	104	182	45
Internal Link Dist (ft)		1168			2576			2584			1720	
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

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.79
Intersection Signal Delay: 22.9 Intersection LOS: C
Intersection Capacity Utilization 76.4% ICU Level of Service C
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: Shaw Avenue & Fowler Avenue



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	377	525	189	146	1697	70	503	776	96	108	646	323
Lane Group Flow (vph)	410	571	205	159	1845	76	547	843	104	117	702	351
Turn Type	pm+pt		Perm	pm+pt		Perm	pm+pt		Perm	pm+pt		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phases	7	4	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	4.0
Minimum Split (s)	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0
Total Split (s)	19.0	44.0	44.0	10.0	35.0	35.0	13.0	28.0	28.0	8.0	23.0	23.0
Total Split (%)	21%	49%	49%	11%	39%	39%	14%	31%	31%	9%	26%	26%
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	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	0.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Coord	Coord	None	Coord	Coord
Act Effct Green (s)	50.0	40.5	40.5	36.5	31.0	31.0	32.0	24.0	24.0	23.2	19.1	19.1
Actuated g/C Ratio	0.56	0.45	0.45	0.41	0.34	0.34	0.36	0.27	0.27	0.26	0.21	0.21
v/c Ratio	1.09	0.25	0.25	0.42	1.05	0.13	1.09	0.89	0.21	0.72	0.93	0.65
Uniform Delay, d1	23.3	15.3	0.0	11.0	29.5	0.2	22.6	31.8	0.0	20.9	34.8	8.1
Delay	84.6	15.4	2.3	11.9	62.2	5.5	80.0	38.1	5.7	36.7	47.8	9.8
LOS	F	B	A	B	E	A	F	D	A	D	D	A
Approach Delay		37.1			56.3			51.2			35.3	
Approach LOS		D			E			D			D	
Queue Length 50th (ft)	~214	71	0	41	~424	0	~129	242	0	45	207	44
Queue Length 95th (ft)	#396	95	36	72	#519	28	#234	#351	37	#114	#318	133
Internal Link Dist (ft)		1168			2576			2584			1720	
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

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.09

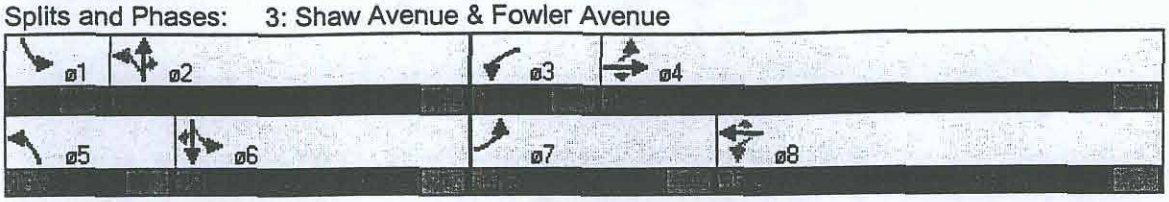
Intersection Signal Delay: 47.0 Intersection LOS: D

Intersection Capacity Utilization 106.7% ICU Level of Service F

~ 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.

Splits and Phases: 3: Shaw Avenue & Fowler Avenue



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	257	1886	321	166	944	114	407	849	182	191	612	208
Lane Group Flow (vph)	279	2050	349	180	1026	124	442	923	198	208	665	226
Turn Type	pm+pt		Perm	pm+pt		Perm	pm+pt		Perm	pm+pt		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phases	7	4	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	4.0
Minimum Split (s)	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0
Total Split (s)	22.0	41.0	41.0	9.0	28.0	28.0	14.0	29.0	29.0	11.0	26.0	26.0
Total Split (%)	24%	46%	46%	10%	31%	31%	16%	32%	32%	12%	29%	29%
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	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	0.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Coord	Coord	None	Coord	Coord
Act Effct Green (s)	44.0	37.0	37.0	39.0	34.0	34.0	31.5	25.3	25.3	32.5	25.7	25.7
Actuated g/C Ratio	0.49	0.41	0.41	0.43	0.38	0.38	0.35	0.28	0.28	0.36	0.29	0.29
v/c Ratio	1.05	0.98	0.43	0.83	0.53	0.18	1.10	0.93	0.36	0.91	0.66	0.37
Uniform Delay, d1	13.8	26.1	4.4	12.6	21.8	0.0	20.3	31.5	7.0	19.0	28.3	0.0
Delay	20.6	38.2	5.3	43.2	22.6	4.4	29.8	39.1	8.7	49.5	28.7	3.9
LOS	C	D	A	D	C	A	C	D	A	D	C	A
Approach Delay		32.1			23.7			32.6			27.5	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)	~128	410	31	53	157	0	~100	269	24	79	173	0
Queue Length 95th (ft)	#210	#535	94	#162	228	37	#174	#373	77	#205	239	53
Internal Link Dist (ft)		1168			2576			2584			1720	
50th Up Block Time (%)												
95th Up Block Time (%)												
Turn Bay Length (ft)												
50th Bay Block Time %												
95th Bay Block Time %												
Queuing Penalty (veh)												

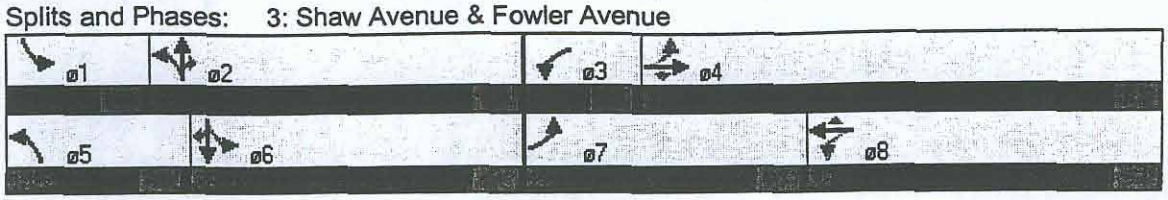
Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
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: 1.10
Intersection Signal Delay: 29.8 Intersection LOS: C
Intersection Capacity Utilization 99.9% ICU Level of Service E

~ *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.

Splits and Phases: 3: Shaw Avenue & Fowler Avenue



TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*Darryl Nelson*	Intersection	*Shaw Avenue & Locan Avenue*
Agency/Co.	*ATE*	Jurisdiction	*Clovis, California*
Date Performed	*09/17/2001*	Analysis Year	*Existing Conditionsq*
Analysis Time Period	*A.M. Peak Hour*	Project ID	*Southeast Urban Center Specific Plan - Clovis, California*

East/West Street: *Shaw Avenue*	North/South Street: *Locan Avenue*
Intersection Orientation: *East-West*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*24*	*259*	*0*	*0*	*516*	*15*
Peak-Hour Factor, PHF	*0.92*	*0.92*	*1.00*	*1.00*	*0.92*	*0.92*
Hourly Flow Rate, HFR	*26*	*281*	*0*	*0*	*560*	*16*
Percent Heavy Vehicles	*2*	–	–	*0*	–	–
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*0*	*0*	*0*	*4*	*0*	*63*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.92*	*1.00*	*0.92*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*4*	*0*	*68*
Percent Heavy Vehicles	*0*	*0*	*0*	*2*	*0*	*2*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LR*	
v (vph)	*26*						*72*	
C (m) (vph)	*997*						*502*	
v/c	*0.03*						*0.14*	
95% queue length	*0.08*						*0.50*	
Control Delay	*8.7*						*13.4*	
LOS	*A*						*B*	
Approach Delay	–	–					*13.4*	
Approach LOS	–	–					*B*	

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*Darryl Nelson*	Intersection	*Shaw Avenue & Locan Avenue*
Agency/Co.	*ATE*	Jurisdiction	*Clovis, California*
Date Performed	*09/17/2001*	Analysis Year	*Existing Conditions*
Analysis Time Period	*P.M. Peak Hour*	Project ID	*Southeast Urban Center Specific Plan - Clovis, California*

East/West Street: *Shaw Avenue*	North/South Street: *Locan Avenue*
Intersection Orientation: *East-West*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*32*	*489*	*0*	*0*	*256*	*16*
Peak-Hour Factor, PHF	*0.92*	*0.92*	*1.00*	*1.00*	*0.92*	*0.92*
Hourly Flow Rate, HFR	*34*	*531*	*0*	*0*	*278*	*17*
Percent Heavy Vehicles	*2*	–	–	*0*	–	–
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*0*	*0*	*0*	*7*	*0*	*17*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.92*	*1.00*	*0.92*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*7*	*0*	*18*
Percent Heavy Vehicles	*0*	*0*	*0*	*2*	*0*	*2*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LR*	
v (vph)	*34*						*25*	
C (m) (vph)	*1266*						*535*	
v/c	*0.03*						*0.05*	
95% queue length	*0.08*						*0.15*	
Control Delay	*7.9*						*12.1*	
LOS	*A*						*B*	
Approach Delay	--	--					*12.1*	
Approach LOS	--	--					*B*	

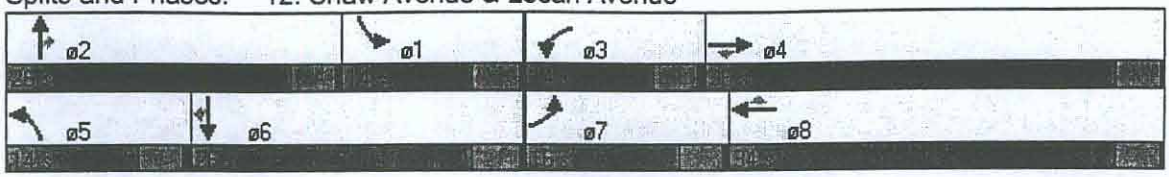
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	48	516	164	126	1027	66	220	330	110	88	165	126
Lane Group Flow (vph)	52	561	178	137	1116	72	239	359	120	96	179	137
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phases	7	4	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	4.0
Minimum Split (s)	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0
Total Split (s)	16.0	36.0	36.0	14.0	34.0	34.0	14.0	26.0	26.0	14.0	26.0	26.0
Total Split (%)	18%	40%	40%	16%	38%	38%	16%	29%	29%	16%	29%	29%
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	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	0.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Coord	Coord	None	Coord	Coord
Act Effct Green (s)	7.9	21.4	21.4	9.6	27.0	27.0	10.0	35.8	35.8	10.0	33.0	33.0
Actuated g/C Ratio	0.09	0.24	0.24	0.11	0.30	0.30	0.11	0.40	0.40	0.11	0.37	0.37
v/c Ratio	0.33	0.46	0.35	0.72	0.73	0.14	1.21	0.25	0.17	0.49	0.14	0.21
Uniform Delay, d1	40.8	28.0	0.0	38.9	28.2	0.0	40.0	19.8	0.0	39.5	20.1	0.0
Delay	37.9	28.2	3.6	46.9	28.1	5.6	143.6	15.2	2.9	38.3	22.0	5.0
LOS	D	C	A	D	C	A	F	B	A	D	C	A
Approach Delay		23.3			28.8			55.9			20.1	
Approach LOS		C			C			E			C	
Queue Length 50th (ft)	28	96	0	76	210	0	~173	62	0	52	37	0
Queue Length 95th (ft)	62	114	42	#161	244	28	#312	103	m5	102	68	42
Internal Link Dist (ft)		2544			2544			2583			1332	
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

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.21
Intersection Signal Delay: 32.4 Intersection LOS: C
Intersection Capacity Utilization 56.4% ICU Level of Service A

~ 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.

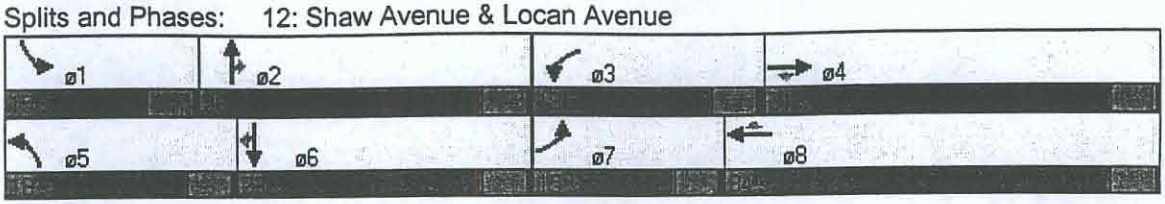
Splits and Phases: 12: Shaw Avenue & Locan Avenue



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	64	975	198	99	510	110	110	220	88	66	198	138
Lane Group Flow (vph)	70	1060	215	108	554	120	120	239	96	72	215	150
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phases	7	4	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	4.0
Minimum Split (s)	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0
Total Split (s)	15.0	31.0	31.0	18.0	34.0	34.0	18.0	26.0	26.0	15.0	23.0	23.0
Total Split (%)	17%	34%	34%	20%	38%	38%	20%	29%	29%	17%	26%	26%
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	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	0.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Coord	Coord	None	Coord	Coord
Act Effct Green (s)	8.6	24.9	24.9	10.4	26.6	26.6	11.1	34.0	34.0	8.6	29.6	29.6
Actuated g/C Ratio	0.10	0.28	0.28	0.12	0.30	0.30	0.12	0.38	0.38	0.10	0.33	0.33
v/c Ratio	0.41	0.75	0.36	0.53	0.37	0.22	0.55	0.18	0.15	0.42	0.18	0.24
Uniform Delay, d1	39.3	29.7	0.0	38.6	25.0	0.0	37.1	19.7	0.0	39.4	22.1	0.0
Delay	37.8	29.6	3.7	36.8	24.6	4.4	48.9	21.2	7.2	37.8	25.3	5.4
LOS	D	C	A	D	C	A	D	C	A	D	C	A
Approach Delay		25.9			23.2			25.6			20.6	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)	38	195	0	59	87	0	75	38	0	39	48	0
Queue Length 95th (ft)	78	242	48	106	115	36	132	62	0	80	86	47
Internal Link Dist (ft)		2544			2544			2583			1332	
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		
Cycle Length: 90		
Actuated Cycle Length: 90		
Offset: 48 (53%), Referenced to phase 2:NBT and 6:SBT, Start of Green		
Natural Cycle: 60		
Control Type: Actuated-Coordinated		
Maximum v/c Ratio: 0.75		
Intersection Signal Delay: 24.4	Intersection LOS: C	
Intersection Capacity Utilization 52.3%	ICU Level of Service A	

Splits and Phases: 12: Shaw Avenue & Locan Avenue



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	36	376	120	92	748	48	160	240	80	64	120	92
Lane Group Flow (vph)	39	409	130	100	813	52	174	261	87	70	130	100
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phases	7	4	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	4.0
Minimum Split (s)	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0
Total Split (s)	16.0	36.0	36.0	14.0	34.0	34.0	14.0	26.0	26.0	14.0	26.0	26.0
Total Split (%)	18%	40%	40%	16%	38%	38%	16%	29%	29%	16%	29%	29%
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	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	0.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Coord	Coord	None	Coord	Coord
Act Effct Green (s)	7.4	17.5	17.5	8.9	20.9	20.9	10.0	42.4	42.4	10.0	39.6	39.6
Actuated g/C Ratio	0.08	0.19	0.19	0.10	0.23	0.23	0.11	0.47	0.47	0.11	0.44	0.44
v/c Ratio	0.27	0.41	0.32	0.57	0.69	0.13	0.88	0.16	0.11	0.36	0.08	0.13
Uniform Delay, d1	40.9	31.0	0.0	39.9	31.6	0.0	39.4	15.0	0.0	38.9	15.6	0.0
Delay	38.2	31.0	5.2	38.7	31.2	7.6	78.8	12.8	2.8	37.7	17.6	4.7
LOS	D	C	A	D	C	A	E	B	A	D	B	A
Approach Delay		25.7			30.7			33.2			18.0	
Approach LOS		C			C			C			B	
Queue Length 50th (ft)	21	76	0	55	158	0	105	28	0	37	23	0
Queue Length 95th (ft)	51	93	40	106	185	25	#214	60	0	79	48	34
Internal Link Dist (ft)		2544			2544			2583			1332	
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

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

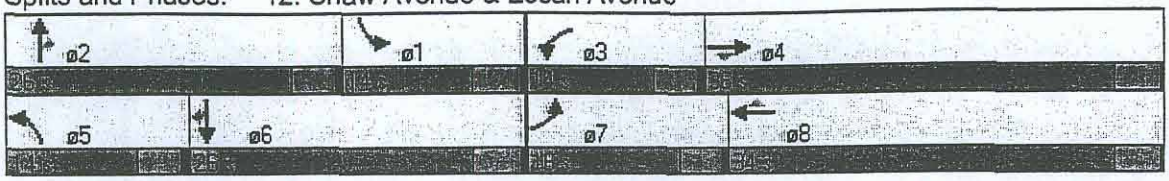
Maximum v/c Ratio: 0.88

Intersection Signal Delay: 28.4 Intersection LOS: C

Intersection Capacity Utilization 45.6% ICU Level of Service A

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 12: Shaw Avenue & Locan Avenue

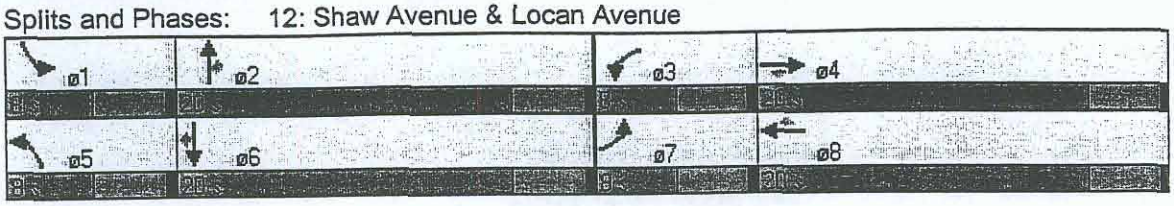


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	47	709	144	72	372	80	80	160	64	48	144	100
Lane Group Flow (vph)	51	771	157	78	404	87	87	174	70	52	157	109
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phases	7	4	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	4.0
Minimum Split (s)	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0
Total Split (s)	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0
Total Split (%)	14%	36%	36%	14%	36%	36%	14%	36%	36%	14%	36%	36%
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	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	0.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Coord	Coord	None	Coord	Coord
Act Effct Green (s)	4.0	14.0	14.0	4.0	15.6	15.6	4.0	22.8	22.8	4.0	21.2	21.2
Actuated g/C Ratio	0.07	0.25	0.25	0.07	0.28	0.28	0.07	0.41	0.41	0.07	0.38	0.38
v/c Ratio	0.40	0.61	0.31	0.62	0.29	0.17	0.69	0.12	0.10	0.41	0.12	0.16
Uniform Delay, d1	26.4	17.8	0.0	26.0	15.8	0.0	26.2	12.4	0.0	26.4	12.9	0.0
Delay	25.4	18.3	3.6	38.6	15.7	4.6	43.7	13.6	5.0	25.4	14.3	4.2
LOS	C	B	A	D	B	A	D	B	A	C	B	A
Approach Delay		16.3			17.2			19.7			12.7	
Approach LOS		B			B			B			B	
Queue Length 50th (ft)	17	80	0	26	39	0	29	22	0	17	20	0
Queue Length 95th (ft)	#47	110	32	#81	58	24	#91	42	23	#50	39	29
Internal Link Dist (ft)		2544			2544			2583			1332	
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

Cycle Length: 56
Actuated Cycle Length: 56
Offset: 48 (86%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.69
Intersection Signal Delay: 16.5 Intersection LOS: B
Intersection Capacity Utilization 41.7% ICU Level of Service A
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 12: Shaw Avenue & Locan Avenue



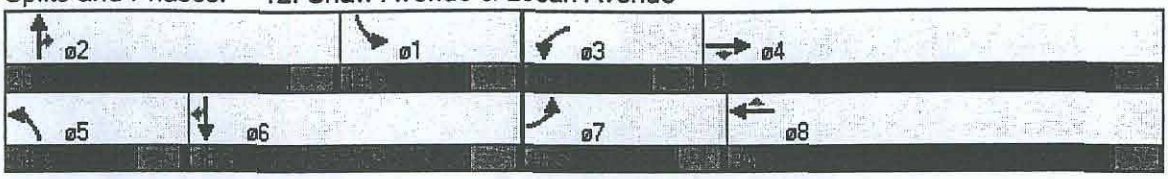
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	48	516	164	126	1027	66	220	330	110	88	165	126
Lane Group Flow (vph)	52	561	178	137	1116	72	239	359	120	96	179	137
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phases	7	4	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	4.0
Minimum Split (s)	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0
Total Split (s)	16.0	36.0	36.0	14.0	34.0	34.0	14.0	26.0	26.0	14.0	26.0	26.0
Total Split (%)	18%	40%	40%	16%	38%	38%	16%	29%	29%	16%	29%	29%
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	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	0.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Coord	Coord	None	Coord	Coord
Act Effct Green (s)	7.9	21.4	21.4	9.6	27.0	27.0	10.0	35.8	35.8	10.0	33.0	33.0
Actuated g/C Ratio	0.09	0.24	0.24	0.11	0.30	0.30	0.11	0.40	0.40	0.11	0.37	0.37
v/c Ratio	0.33	0.46	0.35	0.72	0.73	0.14	1.21	0.25	0.17	0.49	0.14	0.21
Uniform Delay, d1	40.8	28.0	0.0	38.9	28.2	0.0	40.0	19.8	0.0	39.5	20.1	0.0
Delay	37.9	28.2	3.6	46.9	28.1	5.6	143.6	15.2	2.9	38.3	22.0	5.0
LOS	D	C	A	D	C	A	F	B	A	D	C	A
Approach Delay		23.3			28.8			55.9			20.1	
Approach LOS		C			C			E			C	
Queue Length 50th (ft)	28	96	0	76	210	0	~173	62	0	52	37	0
Queue Length 95th (ft)	62	114	42	#161	244	28	#312	103	m5	102	68	42
Internal Link Dist (ft)		2544			2544			2583			1332	
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

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.21
Intersection Signal Delay: 32.4 Intersection LOS: C
Intersection Capacity Utilization 56.4% ICU Level of Service A

~ 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: 12: Shaw Avenue & Locan Avenue

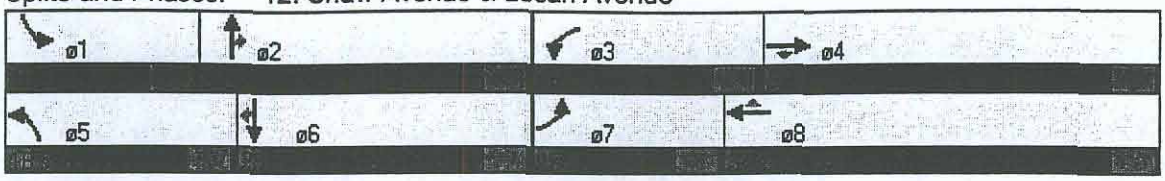


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	64	975	198	99	510	110	110	220	88	66	198	138
Lane Group Flow (vph)	70	1060	215	108	554	120	120	239	96	72	215	150
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phases	7	4	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	4.0
Minimum Split (s)	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0
Total Split (s)	15.0	31.0	31.0	18.0	34.0	34.0	18.0	26.0	26.0	15.0	23.0	23.0
Total Split (%)	17%	34%	34%	20%	38%	38%	20%	29%	29%	17%	26%	26%
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	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	0.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Coord	Coord	None	Coord	Coord
Act Effct Green (s)	8.6	24.9	24.9	10.4	26.6	26.6	11.1	34.0	34.0	8.6	29.6	29.6
Actuated g/C Ratio	0.10	0.28	0.28	0.12	0.30	0.30	0.12	0.38	0.38	0.10	0.33	0.33
v/c Ratio	0.41	0.75	0.36	0.53	0.37	0.22	0.55	0.18	0.15	0.42	0.18	0.24
Uniform Delay, d1	39.3	29.7	0.0	38.6	25.0	0.0	37.1	19.7	0.0	39.4	22.1	0.0
Delay	37.8	29.6	3.7	36.8	24.6	4.4	48.9	21.2	7.2	37.8	25.3	5.4
LOS	D	C	A	D	C	A	D	C	A	D	C	A
Approach Delay		25.9			23.2			25.6			20.6	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)	38	195	0	59	87	0	75	38	0	39	48	0
Queue Length 95th (ft)	78	242	48	106	115	36	132	62	0	80	86	47
Internal Link Dist (ft)		2544			2544			2583			1332	
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

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 48 (53%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.75
Intersection Signal Delay: 24.4 Intersection LOS: C
Intersection Capacity Utilization 52.3% ICU Level of Service A

Splits and Phases: 12: Shaw Avenue & Locan Avenue



TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*Darryl Nelson*	Intersection	*Shaw Avenue & Leonard Avenue*
Agency/Co.	*ATE*	Jurisdiction	*Clovis, California*
Date Performed	*09/17/2001*	Analysis Year	*Existing Conditions*
Analysis Time Period	*A.M. Peak Hour*	Project ID	*Southeast Urban Center Specific Plan - Clovis, California*

East/West Street: *Shaw Avenue*	North/South Street: *Leonard Avenue*
Intersection Orientation: *East-West*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*0*	*161*	*23*	*31*	*450*	*6*
Peak-Hour Factor, PHF	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*
Hourly Flow Rate, HFR	*0*	*174*	*24*	*33*	*489*	*6*
Percent Heavy Vehicles	*2*	–	–	*2*	–	–
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LTR*			*LTR*		
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*29*	*32*	*23*	*2*	*32*	*9*
Peak-Hour Factor, PHF	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*
Hourly Flow Rate, HFR	*31*	*34*	*24*	*2*	*34*	*9*
Percent Heavy Vehicles	*2*	*2*	*2*	*2*	*2*	*2*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LTR*	*LTR*		*LTR*			*LTR*	
v (vph)	*0*	*33*		*89*			*45*	
C (m) (vph)	*1069*	*1375*		*369*			*354*	
v/c	*0.00*	*0.02*		*0.24*			*0.13*	
95% queue length	*0.00*	*0.07*		*0.93*			*0.43*	
Control Delay	*8.4*	*7.7*		*17.8*			*16.6*	
LOS	*A*	*A*		*C*			*C*	
Approach Delay	--	--		*17.8*			*16.6*	
Approach LOS	--	--		*C*			*C*	

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*Darryl Nelson*	Intersection	*Shaw Avenue & Leonard Avenue*
Agency/Co.	*ATE*	Jurisdiction	*Clovis, California*
Date Performed	*09/17/2001*	Analysis Year	*Existing Conditions*
Analysis Time Period	*P.M. Peak Hour*	Project ID	*Southeast Urban Center Specific Plan - Clovis, California*

East/West Street: *Shaw Avenue* | North/South Street: *Leonard Avenue*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*18*	*415*	*6*	*5*	*233*	*6*
Peak-Hour Factor, PHF	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*
Hourly Flow Rate, HFR	*19*	*451*	*6*	*5*	*253*	*6*
Percent Heavy Vehicles	*2*	–	–	*2*	–	–
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LTR*			*LTR*		
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*8*	*16*	*10*	*9*	*8*	*8*
Peak-Hour Factor, PHF	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*
Hourly Flow Rate, HFR	*8*	*17*	*10*	*9*	*8*	*8*
Percent Heavy Vehicles	*2*	*2*	*2*	*2*	*2*	*2*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration		*LTR*			*LTR*	

Delay, Queue Length, and Level of Service

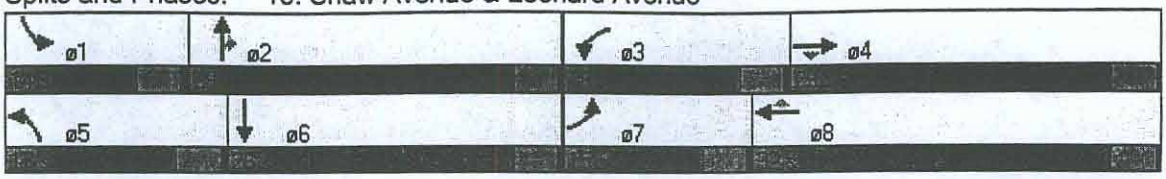
Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LTR*	*LTR*		*LTR*			*LTR*	
v (vph)	*19*	*5*		*35*			*25*	
C (m) (vph)	*1306*	*1104*		*370*			*383*	
v/c	*0.01*	*0.00*		*0.09*			*0.07*	
95% queue length	*0.04*	*0.01*		*0.31*			*0.21*	
Control Delay	*7.8*	*8.3*		*15.7*			*15.1*	
LOS	*A*	*A*		*C*			*C*	
Approach Delay	--	--	*15.7*			*15.1*		
Approach LOS	--	–	*C*			*C*		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Volume (vph)	55	321	110	63	896	55	130	178	55	138	220
Lane Group Flow (vph)	60	349	120	68	974	60	141	193	60	150	430
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot	
Protected Phases	7	4		3	8		5	2		1	6
Permitted Phases			4			8			2		
Detector Phases	7	4	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	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0
Total Split (s)	15.0	29.0	29.0	18.0	32.0	32.0	17.0	29.0	29.0	14.0	26.0
Total Split (%)	17%	32%	32%	20%	36%	36%	19%	32%	32%	16%	29%
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	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Coord	Coord	None	Coord
Act Effct Green (s)	8.3	22.9	22.9	8.7	23.3	23.3	11.3	34.5	34.5	9.7	32.9
Actuated g/C Ratio	0.09	0.25	0.25	0.10	0.26	0.26	0.13	0.38	0.38	0.11	0.37
v/c Ratio	0.37	0.27	0.24	0.40	0.74	0.13	0.63	0.14	0.09	0.78	0.32
Uniform Delay, d1	39.4	26.8	0.0	39.2	30.6	0.0	37.4	18.5	0.0	39.1	11.2
Delay	37.8	26.3	4.9	37.5	30.2	6.6	34.9	21.4	9.3	51.9	13.3
LOS	D	C	A	D	C	A	C	C	A	D	B
Approach Delay		22.7			29.4			24.4			23.3
Approach LOS		C			C			C			C
Queue Length 50th (ft)	33	58	0	37	185	0	79	41	0	84	51
Queue Length 95th (ft)	69	78	35	76	216	24	120	75	17	#180	102
Internal Link Dist (ft)		2544			5204			2582			1204
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

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 68 (76%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.78
Intersection Signal Delay: 25.9 Intersection LOS: C
Intersection Capacity Utilization 56.1% ICU Level of Service A
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 18: Shaw Avenue & Leonard Avenue

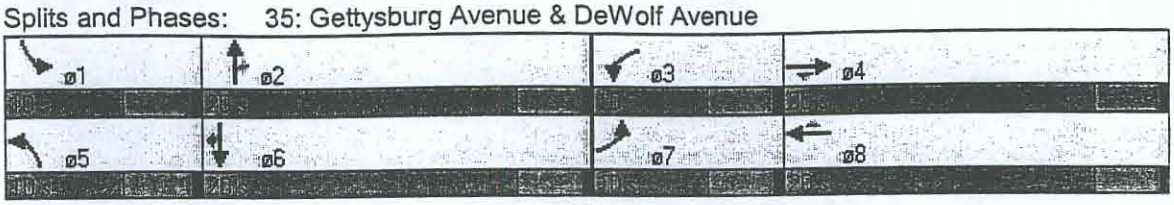


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations											
Volume (vph)	110	827	165	66	464	88	114	191	82	88	187
Lane Group Flow (vph)	120	899	179	72	504	96	124	208	89	96	323
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot	
Protected Phases	7	4		3	8		5	2		1	6
Permitted Phases			4			8			2		
Detector Phases	7	4	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	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0
Total Split (s)	20.0	30.0	30.0	17.0	27.0	27.0	20.0	25.0	25.0	18.0	23.0
Total Split (%)	22%	33%	33%	19%	30%	30%	22%	28%	28%	20%	26%
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	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Coord	Coord	None	Coord
Act Effct Green (s)	11.1	22.2	22.2	8.9	20.1	20.1	11.5	36.8	36.8	10.0	33.4
Actuated g/C Ratio	0.12	0.25	0.25	0.10	0.22	0.22	0.13	0.41	0.41	0.11	0.37
v/c Ratio	0.55	0.72	0.34	0.41	0.44	0.22	0.55	0.14	0.13	0.49	0.25
Uniform Delay, d1	38.3	31.0	0.0	39.1	30.0	0.0	36.8	17.7	0.0	38.7	12.3
Delay	36.3	30.7	4.2	37.4	29.9	6.2	37.0	23.8	10.2	36.8	15.1
LOS	D	C	A	D	C	A	D	C	B	D	B
Approach Delay		27.3			27.3			24.8			20.0
Approach LOS		C			C			C			C
Queue Length 50th (ft)	65	170	0	39	90	0	73	41	0	52	41
Queue Length 95th (ft)	114	204	46	78	119	35	130	78	9	96	89
Internal Link Dist (ft)		2544			5204			2582			1204
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

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 48 (53%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.72
Intersection Signal Delay: 25.8 Intersection LOS: C
Intersection Capacity Utilization 51.0% ICU Level of Service A

Splits and Phases: 35: Gettysburg Avenue & DeWolf Avenue



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	88	120	309	110	110	220	367	199	110	220	279	110
Lane Group Flow (vph)	96	130	336	120	120	239	399	216	120	239	303	120
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phases	7	4	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	4.0
Minimum Split (s)	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0
Total Split (s)	14.0	21.0	21.0	16.0	23.0	23.0	33.0	30.0	30.0	23.0	20.0	20.0
Total Split (%)	16%	23%	23%	18%	26%	26%	37%	33%	33%	26%	22%	22%
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	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	0.5
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lag	Lead	Lead	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Coord	Coord	None	Coord	Coord
Act Effct Green (s)	9.0	10.9	10.9	11.0	12.8	12.8	26.0	38.2	38.2	16.0	28.2	28.2
Actuated g/C Ratio	0.10	0.12	0.12	0.12	0.14	0.14	0.29	0.42	0.42	0.18	0.31	0.31
v/c Ratio	0.54	0.31	0.69	0.55	0.24	0.55	0.78	0.14	0.16	0.76	0.27	0.21
Uniform Delay, d1	39.8	36.2	0.0	38.4	34.3	0.0	29.4	16.3	0.0	35.2	23.7	0.0
Delay	55.0	53.9	27.1	25.8	21.6	7.6	29.3	19.5	4.8	34.8	27.1	6.5
LOS	D	D	C	C	C	A	C	B	A	C	C	A
Approach Delay		38.1			15.7			22.4			26.2	
Approach LOS		D			B			C			C	
Queue Length 50th (ft)	60	42	113	62	30	0	204	41	0	129	72	0
Queue Length 95th (ft)	111	73	182	119	51	92	302	77	37	204	123	44
Internal Link Dist (ft)		2544			2544			2554			2582	
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

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 26 (29%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.78
Intersection Signal Delay: 25.7 Intersection LOS: C
Intersection Capacity Utilization 54.0% ICU Level of Service A

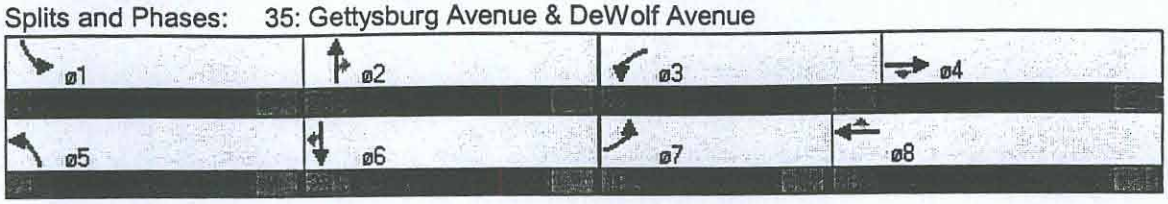
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	110	308	165	165	192	242	168	128	88	176	115	165
Lane Group Flow (vph)	120	335	179	179	209	263	183	139	96	191	125	179
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phases	7	4	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	4.0
Minimum Split (s)	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0
Total Split (s)	18.0	22.0	22.0	22.0	26.0	26.0	23.0	23.0	23.0	23.0	23.0	23.0
Total Split (%)	20%	24%	24%	24%	29%	29%	26%	26%	26%	26%	26%	26%
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	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	0.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Coord	Coord	None	Coord	Coord
Act Effct Green (s)	10.5	13.8	13.8	13.7	19.2	19.2	14.1	32.1	32.1	14.4	32.4	32.4
Actuated g/C Ratio	0.12	0.15	0.15	0.15	0.21	0.21	0.16	0.36	0.36	0.16	0.36	0.36
v/c Ratio	0.58	0.62	0.45	0.66	0.28	0.48	0.66	0.11	0.15	0.68	0.10	0.26
Uniform Delay, d1	39.0	34.9	0.0	35.9	29.6	0.0	35.7	19.9	0.0	35.6	19.6	0.0
Delay	24.6	25.5	13.7	20.4	24.2	12.3	35.0	23.0	6.4	35.0	22.9	4.8
LOS	C	C	B	C	C	B	D	C	A	D	C	A
Approach Delay		22.0			18.3			24.5			21.0	
Approach LOS		C			B			C			C	
Queue Length 50th (ft)	57	104	58	93	64	81	99	27	0	103	24	0
Queue Length 95th (ft)	m116	143	112	157	87	132	158	60	38	165	54	50
Internal Link Dist (ft)		2544			2544			2554			2582	
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

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.68
Intersection Signal Delay: 21.2 Intersection LOS: C
Intersection Capacity Utilization 47.0% ICU Level of Service A

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 35: Gettysburg Avenue & DeWolf Avenue



TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*Darryl Nelson*	Intersection	*Gettysburg Avenue & Leonard Av*
Agency/Co.	*ATE*	Jurisdiction	*Clovis, California*
Date Performed	*09/17/2001*	Analysis Year	*Existing Conditions*
Analysis Time Period	*A.M. Peak Hour*	Project ID	*Southeast Urban Center Specific Plan - Clovis, California*

East/West Street: *Gettysburg Avenue*	North/South Street: *Leonard Avenue*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*71*	*85*	*0*	*0*	*130*	*2*
Peak-Hour Factor, PHF	*0.92*	*0.92*	*1.00*	*1.00*	*0.92*	*0.92*
Hourly Flow Rate, HFR	*77*	*92*	*0*	*0*	*141*	*2*
Percent Heavy Vehicles	*2*	–	–	*0*	–	–
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*0*	*0*	*0*	*1*	*0*	*79*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.92*	*1.00*	*0.92*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*1*	*0*	*85*
Percent Heavy Vehicles	*0*	*0*	*0*	*2*	*0*	*2*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LR*	
v (vph)	*77*						*86*	
C (m) (vph)	*1440*						*900*	
v/c	*0.05*						*0.10*	
95% queue length	*0.17*						*0.32*	
Control Delay	*7.6*						*9.4*	
LOS	*A*						*A*	
Approach Delay	–	–				*9.4*		
Approach LOS	–	–				*A*		

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*Darryl Nelson*	Intersection	*Gettysburg Avenue & Leonard Av*
Agency/Co.	*ATE*	Jurisdiction	*Clovis, California*
Date Performed	*09/17/2001*	Analysis Year	*Existing Conditions*
Analysis Time Period	*P.M. Peak Hour*	Project ID	*Southeast Urban Center Specific Plan - Clovis, California*

East/West Street: *Gettysburg Avenue*	North/South Street: *Leonard Avenue*
Intersection Orientation: *North-South*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*2*	*42*	*0*	*0*	*23*	*2*
Peak-Hour Factor, PHF	*0.92*	*0.92*	*1.00*	*1.00*	*0.92*	*0.92*
Hourly Flow Rate, HFR	*2*	*45*	*0*	*0*	*24*	*2*
Percent Heavy Vehicles	*2*	–	–	*0*	–	–
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*0*			*0*	

Minor Street	Westbound			Eastbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*0*	*0*	*0*	*6*	*0*	*8*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.92*	*1.00*	*0.92*
Hourly Flow Rate, HFR	*0*	*0*	*0*	*6*	*0*	*8*
Percent Heavy Vehicles	*0*	*0*	*0*	*2*	*0*	*2*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

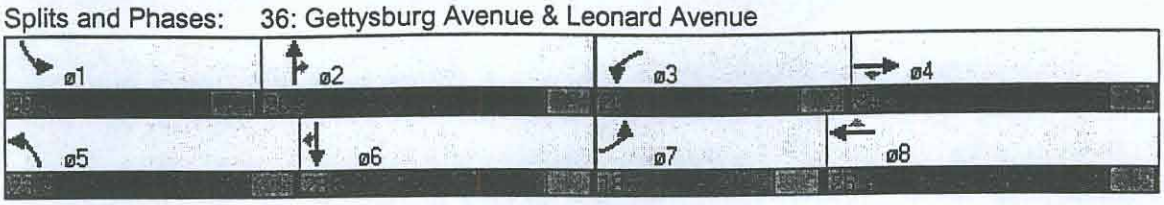
Approach	NB	SB	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LR*	
v (vph)	*2*						*14*	
C (m) (vph)	*1588*						*995*	
v/c	*0.00*						*0.01*	
95% queue length	*0.00*						*0.04*	
Control Delay	*7.3*						*8.7*	
LOS	*A*						*A*	
Approach Delay	--	--					*8.7*	
Approach LOS	--	--					*A*	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	82	110	157	110	330	220	142	169	110	110	260	192
Lane Group Flow (vph)	89	120	171	120	359	239	154	184	120	120	283	209
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phases	7	4	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	4.0
Minimum Split (s)	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0
Total Split (s)	18.0	24.0	24.0	20.0	26.0	26.0	23.0	26.0	26.0	20.0	23.0	23.0
Total Split (%)	20%	27%	27%	22%	29%	29%	26%	29%	29%	22%	26%	26%
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	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	0.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Coord	Coord	None	Coord	Coord
Act Effct Green (s)	9.9	13.3	13.3	11.1	14.5	14.5	13.1	43.1	43.1	10.7	38.6	38.6
Actuated g/C Ratio	0.11	0.15	0.15	0.12	0.16	0.16	0.15	0.48	0.48	0.12	0.43	0.43
v/c Ratio	0.46	0.23	0.45	0.55	0.63	0.53	0.60	0.11	0.15	0.57	0.19	0.26
Uniform Delay, d1	38.7	33.7	0.0	38.3	35.2	0.0	36.0	13.8	0.0	38.8	16.5	0.0
Delay	44.8	51.0	21.7	36.3	34.7	4.5	25.1	20.0	10.2	33.8	16.4	3.0
LOS	D	D	C	D	C	A	C	C	B	C	B	A
Approach Delay		36.4			24.9			19.2			15.2	
Approach LOS		D			C			B			B	
Queue Length 50th (ft)	54	37	0	65	102	0	91	42	21	57	51	0
Queue Length 95th (ft)	m87	m51	m79	114	137	56	m146	77	m0	89	102	38
Internal Link Dist (ft)		2544			5202			2554			2582	
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	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 62 (69%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.63	
Intersection Signal Delay: 23.0	Intersection LOS: C
Intersection Capacity Utilization 44.5%	ICU Level of Service A

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 36: Gettysburg Avenue & Leonard Avenue

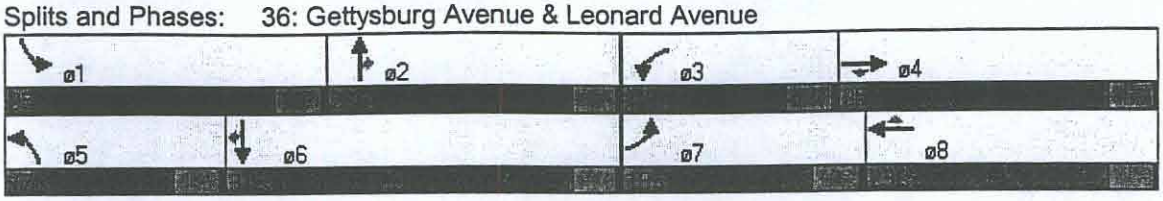


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	110	220	165	88	385	192	82	85	88	192	330	220
Lane Group Flow (vph)	120	239	179	96	418	209	89	92	96	209	359	239
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phases	7	4	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	4.0
Minimum Split (s)	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0
Total Split (s)	19.0	25.0	25.0	17.0	23.0	23.0	17.0	23.0	23.0	25.0	31.0	31.0
Total Split (%)	21%	28%	28%	19%	26%	26%	19%	26%	26%	28%	34%	34%
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	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	0.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Coord	Coord	None	Coord	Coord
Act Effct Green (s)	10.7	16.4	16.4	9.8	15.7	15.7	9.7	34.5	34.5	15.3	42.0	42.0
Actuated g/C Ratio	0.12	0.18	0.18	0.11	0.17	0.17	0.11	0.38	0.38	0.17	0.47	0.47
v/c Ratio	0.57	0.37	0.41	0.49	0.68	0.47	0.47	0.07	0.14	0.69	0.22	0.28
Uniform Delay, d1	38.8	32.3	0.0	38.9	34.8	0.0	38.9	18.1	0.0	35.1	15.1	0.0
Delay	25.4	20.7	11.1	37.1	34.4	4.8	49.8	11.4	1.4	34.9	20.3	5.8
LOS	C	C	B	D	C	A	D	B	A	C	C	A
Approach Delay		18.5			26.2			20.3			19.8	
Approach LOS		B			C			C			B	
Queue Length 50th (ft)	63	72	56	52	117	0	52	9	0	118	65	0
Queue Length 95th (ft)	125	87	89	98	161	55	100	19	0	182	134	72
Internal Link Dist (ft)		2544			5202			2554			2582	
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

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.69
Intersection Signal Delay: 21.5 Intersection LOS: C
Intersection Capacity Utilization 46.4% ICU Level of Service A

Splits and Phases: 36: Gettysburg Avenue & Leonard Avenue

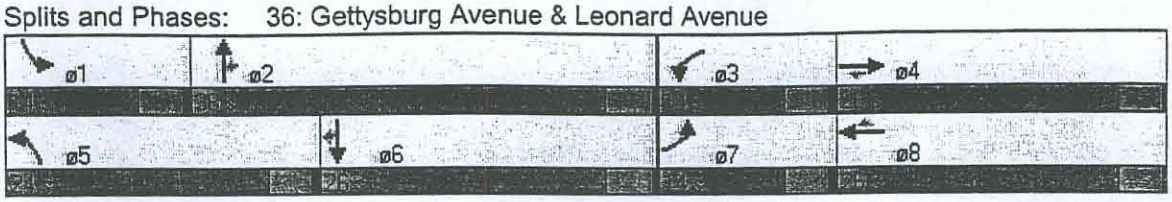


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	60	80	115	80	240	160	104	124	80	80	189	140
Lane Group Flow (vph)	65	87	125	87	261	174	113	135	87	87	205	152
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phases	7	4	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	4.0
Minimum Split (s)	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0
Total Split (s)	14.0	26.0	26.0	14.0	26.0	26.0	24.0	36.0	36.0	14.0	26.0	26.0
Total Split (%)	16%	29%	29%	16%	29%	29%	27%	40%	40%	16%	29%	29%
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	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	0.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Coord	Coord	None	Coord	Coord
Act Effct Green (s)	8.3	11.3	11.3	8.7	11.7	11.7	10.7	49.1	49.1	8.8	47.3	47.3
Actuated g/C Ratio	0.09	0.13	0.13	0.10	0.13	0.13	0.12	0.55	0.55	0.10	0.53	0.53
v/c Ratio	0.40	0.19	0.40	0.51	0.57	0.49	0.54	0.07	0.10	0.51	0.11	0.17
Uniform Delay, d1	39.5	35.1	0.0	39.6	36.7	0.0	38.5	10.5	0.0	39.6	11.6	0.0
Delay	48.0	55.0	26.2	38.5	36.3	5.8	36.6	12.9	3.7	36.1	11.7	2.4
LOS	D	D	C	D	D	A	D	B	A	D	B	A
Approach Delay		40.3			26.5			18.5			13.3	
Approach LOS		D			C			B			B	
Queue Length 50th (ft)	39	27	0	47	74	0	62	20	0	47	32	0
Queue Length 95th (ft)	82	48	73	94	108	49	109	41	26	76	61	24
Internal Link Dist (ft)		2544			5202			2554			2582	
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

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 62 (69%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.57
Intersection Signal Delay: 23.5 Intersection LOS: C
Intersection Capacity Utilization 36.1% ICU Level of Service A

Splits and Phases: 36: Gettysburg Avenue & Leonard Avenue



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	80	160	120	64	280	140	60	62	64	140	240	160
Lane Group Flow (vph)	87	174	130	70	304	152	65	67	70	152	261	174
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phases	7	4	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	4.0
Minimum Split (s)	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0
Total Split (s)	9.0	21.0	21.0	9.0	21.0	21.0	9.0	21.0	21.0	9.0	21.0	21.0
Total Split (%)	15%	35%	35%	15%	35%	35%	15%	35%	35%	15%	35%	35%
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	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	0.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Coord	Coord	None	Coord	Coord
Act Effct Green (s)	5.0	13.1	13.1	5.0	11.3	11.3	5.0	24.5	24.5	5.0	28.1	28.1
Actuated g/C Ratio	0.08	0.22	0.22	0.08	0.19	0.19	0.08	0.41	0.41	0.08	0.47	0.47
v/c Ratio	0.59	0.22	0.29	0.47	0.46	0.36	0.44	0.05	0.10	1.03	0.16	0.21
Uniform Delay, d1	27.4	19.3	0.0	28.2	20.9	0.0	28.1	11.7	0.0	27.5	11.1	0.0
Delay	44.2	16.1	4.8	28.4	21.0	4.2	27.7	23.3	15.3	93.5	12.3	3.1
LOS	D	B	A	C	C	A	C	C	B	F	B	A
Approach Delay		18.6			17.1			21.9			30.6	
Approach LOS		B			B			C			C	
Queue Length 50th (ft)	35	15	0	25	51	0	24	11	0	~59	33	0
Queue Length 95th (ft)	m#73	m27	m0	#66	78	36	m46	m19	m0	#159	60	35
Internal Link Dist (ft)		2544			5202			2554			2582	
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

Cycle Length: 60
Actuated Cycle Length: 60
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.03
Intersection Signal Delay: 22.7 Intersection LOS: C
Intersection Capacity Utilization 38.3% ICU Level of Service A

~ 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.

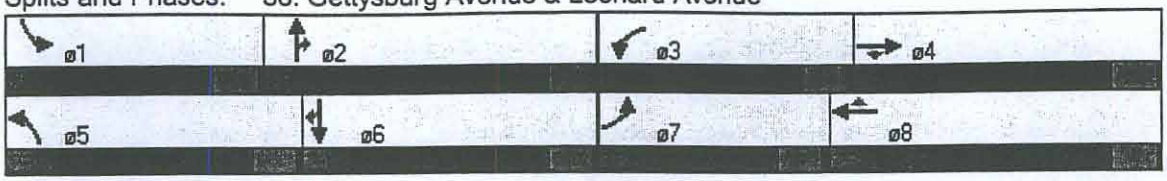
Splits and Phases: 36: Gettysburg Avenue & Leonard Avenue

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	82	110	157	110	330	220	142	169	110	110	260	192
Lane Group Flow (vph)	89	120	171	120	359	239	154	184	120	120	283	209
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phases	7	4	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	4.0
Minimum Split (s)	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0
Total Split (s)	18.0	24.0	24.0	20.0	26.0	26.0	23.0	26.0	26.0	20.0	23.0	23.0
Total Split (%)	20%	27%	27%	22%	29%	29%	26%	29%	29%	22%	26%	26%
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	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	0.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Coord	Coord	None	Coord	Coord
Act Effct Green (s)	9.9	13.3	13.3	11.1	14.5	14.5	13.1	43.1	43.1	10.7	38.6	38.6
Actuated g/C Ratio	0.11	0.15	0.15	0.12	0.16	0.16	0.15	0.48	0.48	0.12	0.43	0.43
v/c Ratio	0.46	0.23	0.45	0.55	0.63	0.53	0.60	0.11	0.15	0.57	0.19	0.26
Uniform Delay, d1	38.7	33.7	0.0	38.3	35.2	0.0	36.0	13.8	0.0	38.8	16.5	0.0
Delay	44.8	51.0	21.7	36.3	34.7	4.5	25.1	20.0	10.2	33.8	16.4	3.0
LOS	D	D	C	D	C	A	C	C	B	C	B	A
Approach Delay		36.4			24.9			19.2			15.2	
Approach LOS		D			C			B			B	
Queue Length 50th (ft)	54	37	0	65	102	0	91	42	21	57	51	0
Queue Length 95th (ft)	m87	m51	m79	114	137	56	m146	77	m0	89	102	38
Internal Link Dist (ft)		2544			5202			2554			2582	
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		
Cycle Length: 90		
Actuated Cycle Length: 90		
Offset: 62 (69%), Referenced to phase 2:NBT and 6:SBT, Start of Green		
Natural Cycle: 60		
Control Type: Actuated-Coordinated		
Maximum v/c Ratio: 0.63		
Intersection Signal Delay: 23.0	Intersection LOS: C	
Intersection Capacity Utilization 44.5%	ICU Level of Service A	

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 36: Gettysburg Avenue & Leonard Avenue



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	110	220	165	88	385	192	82	85	88	192	330	220
Lane Group Flow (vph)	120	239	179	96	418	209	89	92	96	209	359	239
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phases	7	4	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	4.0
Minimum Split (s)	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0
Total Split (s)	19.0	25.0	25.0	17.0	23.0	23.0	17.0	23.0	23.0	25.0	31.0	31.0
Total Split (%)	21%	28%	28%	19%	26%	26%	19%	26%	26%	28%	34%	34%
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	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	0.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Coord	Coord	None	Coord	Coord
Act Effct Green (s)	10.7	16.4	16.4	9.8	15.7	15.7	9.7	34.5	34.5	15.3	42.0	42.0
Actuated g/C Ratio	0.12	0.18	0.18	0.11	0.17	0.17	0.11	0.38	0.38	0.17	0.47	0.47
v/c Ratio	0.57	0.37	0.41	0.49	0.68	0.47	0.47	0.07	0.14	0.69	0.22	0.28
Uniform Delay, d1	38.8	32.3	0.0	38.9	34.8	0.0	38.9	18.1	0.0	35.1	15.1	0.0
Delay	25.4	20.7	11.1	37.1	34.4	4.8	49.8	11.4	1.4	34.9	20.3	5.8
LOS	C	C	B	D	C	A	D	B	A	C	C	A
Approach Delay		18.5			26.2			20.3			19.8	
Approach LOS		B			C			C			B	
Queue Length 50th (ft)	63	72	56	52	117	0	52	9	0	118	65	0
Queue Length 95th (ft)	125	87	89	98	161	55	100	19	0	182	134	72
Internal Link Dist (ft)		2544			5202			2554			2582	
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

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.69
Intersection Signal Delay: 21.5 Intersection LOS: C
Intersection Capacity Utilization 46.4% ICU Level of Service A

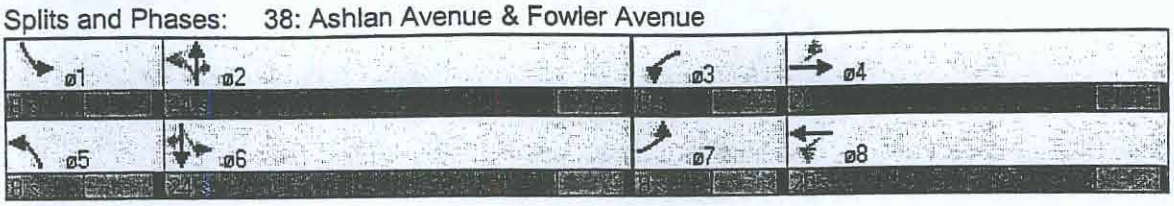
Splits and Phases: 36: Gettysburg Avenue & Leonard Avenue

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Volume (vph)	155	348	89	386	85	328	57	59	389	117
Lane Group Flow (vph)	168	445	97	465	92	357	62	64	423	127
Turn Type	pm+pt		pm+pt		pm+pt		Perm	pm+pt		Perm
Protected Phases	7	4	3	8	5	2		1	6	
Permitted Phases	4		8		2		2	6		6
Detector Phases	7	4	3	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
Minimum Split (s)	8.0	20.0	8.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0
Total Split (s)	8.0	20.0	8.0	20.0	8.0	24.0	24.0	8.0	24.0	24.0
Total Split (%)	13%	33%	13%	33%	13%	40%	40%	13%	40%	40%
Yellow Time (s)	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
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Coord	Coord	None	Coord	Coord
Act Effct Green (s)	16.5	12.5	16.5	12.5	30.7	28.3	28.3	29.9	26.7	26.7
Actuated g/C Ratio	0.28	0.21	0.28	0.21	0.51	0.47	0.47	0.50	0.45	0.45
v/c Ratio	0.62	0.60	0.35	0.63	0.25	0.41	0.08	0.15	0.51	0.16
Uniform Delay, d1	16.1	19.8	14.5	20.7	6.8	12.0	0.0	6.8	13.1	0.0
Delay	15.4	19.4	13.3	20.4	8.4	13.6	4.6	8.3	15.3	3.4
LOS	B	B	B	C	A	B	A	A	B	A
Approach Delay		18.3		19.2		11.6			12.1	
Approach LOS		B		B		B			B	
Queue Length 50th (ft)	43	71	24	78	15	93	0	10	115	0
Queue Length 95th (ft)	75	103	47	111	39	179	0	29	218	28
Internal Link Dist (ft)		952		2576		2553			2552	
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

Cycle Length: 60
Actuated Cycle Length: 60
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.63
Intersection Signal Delay: 15.4 Intersection LOS: B
Intersection Capacity Utilization 63.1% ICU Level of Service B

Splits and Phases: 38: Ashlan Avenue & Fowler Avenue

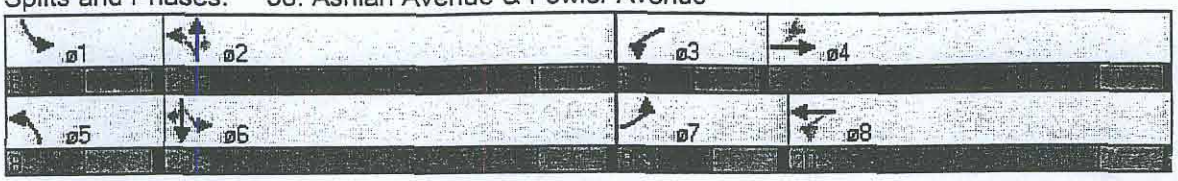


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Volume (vph)	240	489	97	297	121	479	63	109	355	92
Lane Group Flow (vph)	261	622	105	371	132	521	68	118	386	100
Turn Type	pm+pt		pm+pt		pm+pt		Perm	pm+pt		Perm
Protected Phases	7	4	3	8	5	2		1	6	
Permitted Phases	4		8		2		2	6		6
Detector Phases	7	4	3	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
Minimum Split (s)	8.0	20.0	8.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0
Total Split (s)	9.0	21.0	8.0	20.0	8.0	23.0	23.0	8.0	23.0	23.0
Total Split (%)	15%	35%	13%	33%	13%	38%	38%	13%	38%	38%
Yellow Time (s)	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
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Coord	Coord	None	Coord	Coord
Act Effct Green (s)	19.9	15.9	17.3	13.3	26.5	23.3	23.3	26.5	23.3	23.3
Actuated g/C Ratio	0.33	0.27	0.29	0.22	0.44	0.39	0.39	0.44	0.39	0.39
v/c Ratio	0.72	0.66	0.44	0.47	0.38	0.72	0.10	0.45	0.53	0.15
Uniform Delay, d1	13.9	18.5	12.4	18.1	8.9	16.9	0.0	8.8	15.4	0.0
Delay	17.9	18.8	12.2	18.1	10.2	28.4	4.8	10.2	16.7	4.2
LOS	B	B	B	B	B	C	A	B	B	A
Approach Delay		18.5		16.8		22.8			13.4	
Approach LOS		B		B		C			B	
Queue Length 50th (ft)	64	99	23	54	26	170	0	23	115	0
Queue Length 95th (ft)	#125	144	49	86	55	#339	0	50	201	25
Internal Link Dist (ft)		952		2576		2553			2552	
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

Cycle Length: 60
Actuated Cycle Length: 60
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.73
Intersection Signal Delay: 18.2 Intersection LOS: B
Intersection Capacity Utilization 72.2% ICU Level of Service C
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 38: Ashlan Avenue & Fowler Avenue

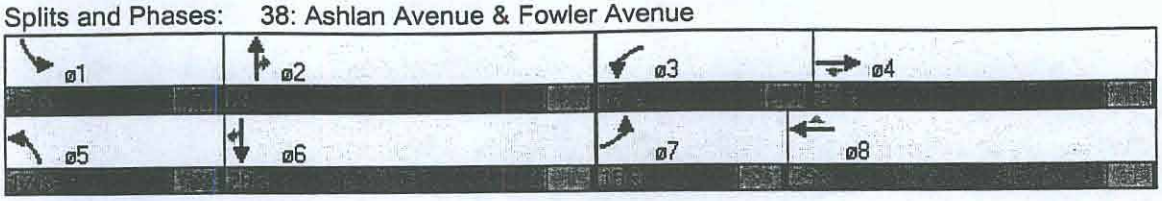


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	309	693	124	178	769	95	169	653	114	118	776	233
Lane Group Flow (vph)	336	753	135	193	836	103	184	710	124	128	843	253
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phases	7	4	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	4.0
Minimum Split (s)	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0
Total Split (s)	15.0	27.0	27.0	17.0	29.0	29.0	17.0	29.0	29.0	17.0	29.0	29.0
Total Split (%)	17%	30%	30%	19%	32%	32%	19%	32%	32%	19%	32%	32%
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	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	0.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Coord	Coord	None	Coord	Coord
Act Effct Green (s)	10.9	22.8	22.8	12.3	24.2	24.2	12.2	28.0	28.0	10.9	26.7	26.7
Actuated g/C Ratio	0.12	0.25	0.25	0.14	0.27	0.27	0.14	0.31	0.31	0.12	0.30	0.30
v/c Ratio	0.81	0.84	0.27	0.79	0.88	0.21	0.76	0.65	0.21	0.60	0.80	0.39
Uniform Delay, d1	38.5	31.9	0.0	37.5	31.5	0.0	37.5	26.7	0.0	37.4	29.2	0.0
Delay	45.0	34.9	5.2	46.2	34.8	5.5	43.8	27.9	5.1	37.2	33.7	3.7
LOS	D	C	A	D	C	A	D	C	A	D	C	A
Approach Delay		34.4			34.1			28.0			27.8	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)	97	213	0	107	236	0	101	186	0	69	238	0
Queue Length 95th (ft)	#162	#303	42	#211	#334	36	#197	255	38	125	#339	52
Internal Link Dist (ft)		952			2576			2553			2552	
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

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.88
Intersection Signal Delay: 31.2 Intersection LOS: C
Intersection Capacity Utilization 79.5% ICU Level of Service C
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 38: Ashlan Avenue & Fowler Avenue



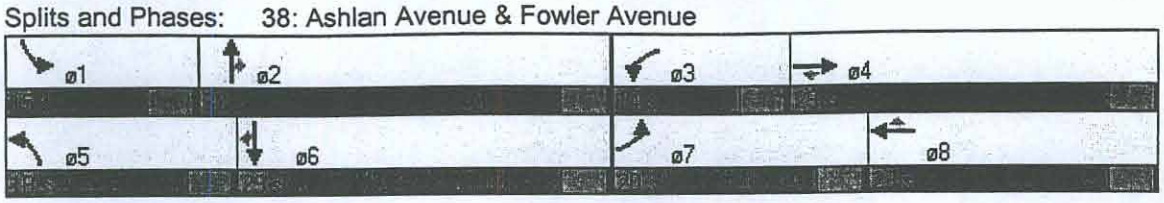
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	478	975	166	194	592	88	241	954	125	218	707	184
Lane Group Flow (vph)	520	1060	180	211	643	96	262	1037	136	237	768	200
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phases	7	4	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	4.0
Minimum Split (s)	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0
Total Split (s)	20.0	29.0	29.0	14.0	23.0	23.0	18.0	32.0	32.0	15.0	29.0	29.0
Total Split (%)	22%	32%	32%	16%	26%	26%	20%	36%	36%	17%	32%	32%
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	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	0.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Coord	Coord	None	Coord	Coord
Act Effct Green (s)	15.7	25.0	25.0	10.0	19.3	19.3	14.0	28.0	28.0	11.0	25.0	25.0
Actuated g/C Ratio	0.17	0.28	0.28	0.11	0.21	0.21	0.16	0.31	0.31	0.12	0.28	0.28
v/c Ratio	0.87	1.08	0.32	1.07	0.85	0.23	0.95	0.94	0.23	1.10	0.78	0.34
Uniform Delay, d1	36.1	32.5	0.0	40.0	33.9	0.0	37.7	30.2	0.0	39.5	30.0	0.0
Delay	42.7	77.4	4.3	108.8	39.8	6.8	72.7	41.1	4.4	111.7	30.7	4.1
LOS	D	E	A	F	D	A	E	D	A	F	C	A
Approach Delay		59.7			51.8			43.4			42.2	
Approach LOS		E			D			D			D	
Queue Length 50th (ft)	148	~357	0	~135	186	0	150	300	0	~154	211	0
Queue Length 95th (ft)	#231	#482	47	#272	#278	39	#298	#430	39	#297	280	47
Internal Link Dist (ft)		952			2576			2553			2552	
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

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.10
Intersection Signal Delay: 50.0 Intersection LOS: D
Intersection Capacity Utilization 96.1% ICU Level of Service E

~ 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.

Splits and Phases: 38: Ashlan Avenue & Fowler Avenue

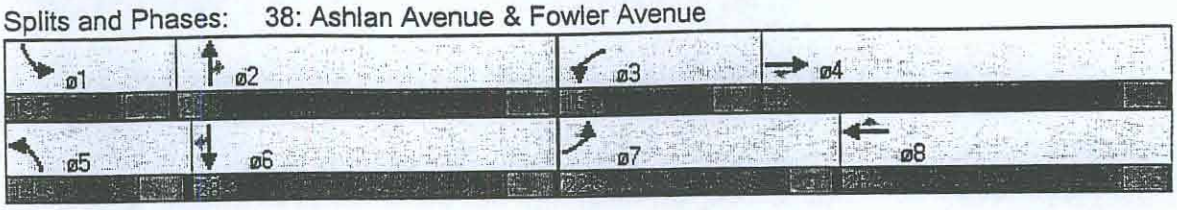


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	225	504	91	130	560	69	124	476	84	86	564	170
Lane Group Flow (vph)	245	548	99	141	609	75	135	517	91	93	613	185
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phases	7	4	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	4.0
Minimum Split (s)	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0
Total Split (s)	22.0	32.0	32.0	16.0	26.0	26.0	14.0	29.0	29.0	13.0	28.0	28.0
Total Split (%)	24%	36%	36%	18%	29%	29%	16%	32%	32%	14%	31%	31%
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	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	0.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Coord	Coord	None	Coord	Coord
Act Effct Green (s)	16.0	24.8	24.8	10.8	19.7	19.7	9.6	32.1	32.1	8.3	28.8	28.8
Actuated g/C Ratio	0.18	0.28	0.28	0.12	0.22	0.22	0.11	0.36	0.36	0.09	0.32	0.32
v/c Ratio	0.78	0.56	0.19	0.67	0.79	0.19	0.72	0.41	0.15	0.57	0.54	0.29
Uniform Delay, d1	35.3	27.8	0.0	37.8	33.2	0.0	38.9	22.5	0.0	40.2	25.2	0.0
Delay	37.2	27.5	5.1	38.2	33.0	7.0	46.3	24.4	5.9	39.3	26.9	4.3
LOS	D	C	A	D	C	A	D	C	A	D	C	A
Approach Delay		27.7			31.5			26.1			23.5	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)	131	135	0	77	169	0	75	127	0	51	159	0
Queue Length 95th (ft)	#227	182	34	#140	226	33	#157	181	34	101	221	47
Internal Link Dist (ft)		952			2576			2553			2552	
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

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.79
Intersection Signal Delay: 27.2 Intersection LOS: C
Intersection Capacity Utilization 68.1% ICU Level of Service B
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 38: Ashlan Avenue & Fowler Avenue

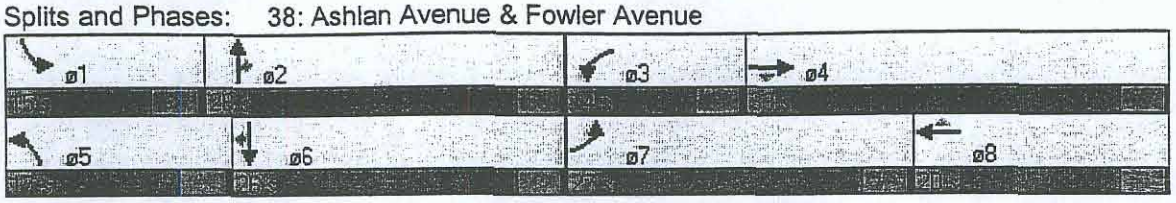


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	348	709	121	141	431	64	176	694	92	159	515	134
Lane Group Flow (vph)	378	771	132	153	468	70	191	754	100	173	560	146
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phases	7	4	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	4.0
Minimum Split (s)	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0
Total Split (s)	27.0	33.0	33.0	14.0	20.0	20.0	17.0	28.0	28.0	15.0	26.0	26.0
Total Split (%)	30%	37%	37%	16%	22%	22%	19%	31%	31%	17%	29%	29%
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	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	0.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Coord	Coord	None	Coord	Coord
Act Effct Green (s)	21.6	27.0	27.0	9.8	15.2	15.2	12.3	26.5	26.5	10.7	24.9	24.9
Actuated g/C Ratio	0.24	0.30	0.30	0.11	0.17	0.17	0.14	0.29	0.29	0.12	0.28	0.28
v/c Ratio	0.89	0.73	0.23	0.79	0.79	0.22	0.79	0.72	0.19	0.82	0.57	0.27
Uniform Delay, d1	33.0	28.2	0.0	39.1	35.8	0.0	37.5	28.5	0.0	38.6	28.0	0.0
Delay	41.1	28.1	4.3	53.2	36.8	8.7	45.5	30.8	5.8	53.7	29.3	5.1
LOS	D	C	A	D	D	A	D	C	A	D	C	A
Approach Delay		29.5			37.5			31.1			30.1	
Approach LOS		C			D			C			C	
Queue Length 50th (ft)	204	198	0	86	134	0	106	210	0	97	150	0
Queue Length 95th (ft)	#354	262	38	#186	188	35	#208	279	37	#204	206	44
Internal Link Dist (ft)		952			2576			2553			2552	
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

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.89
Intersection Signal Delay: 31.5 Intersection LOS: C
Intersection Capacity Utilization 77.7% ICU Level of Service C
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 38: Ashlan Avenue & Fowler Avenue

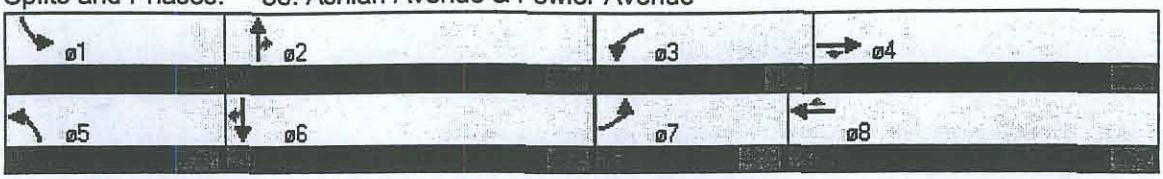


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	309	693	124	178	769	95	169	653	114	118	776	233
Lane Group Flow (vph)	336	753	135	193	836	103	184	710	124	128	843	253
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phases	7	4	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	4.0
Minimum Split (s)	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0
Total Split (s)	15.0	27.0	27.0	17.0	29.0	29.0	17.0	29.0	29.0	17.0	29.0	29.0
Total Split (%)	17%	30%	30%	19%	32%	32%	19%	32%	32%	19%	32%	32%
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	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	0.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Coord	Coord	None	Coord	Coord
Act Effct Green (s)	10.9	22.8	22.8	12.3	24.2	24.2	12.2	28.0	28.0	10.9	26.7	26.7
Actuated g/C Ratio	0.12	0.25	0.25	0.14	0.27	0.27	0.14	0.31	0.31	0.12	0.30	0.30
v/c Ratio	0.81	0.84	0.27	0.79	0.88	0.21	0.76	0.65	0.21	0.60	0.80	0.39
Uniform Delay, d1	38.5	31.9	0.0	37.5	31.5	0.0	37.5	26.7	0.0	37.4	29.2	0.0
Delay	45.0	34.9	5.2	46.2	34.8	5.5	43.8	27.9	5.1	37.2	33.7	3.7
LOS	D	C	A	D	C	A	D	C	A	D	C	A
Approach Delay		34.4			34.1			28.0			27.8	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)	97	213	0	107	236	0	101	186	0	69	238	0
Queue Length 95th (ft)	#162	#303	42	#211	#334	36	#197	255	38	125	#339	52
Internal Link Dist (ft)		952			2576			2553			2552	
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

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.88
Intersection Signal Delay: 31.2 Intersection LOS: C
Intersection Capacity Utilization 79.5% ICU Level of Service C
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 38: Ashlan Avenue & Fowler Avenue



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	478	975	166	194	592	88	241	954	125	218	707	184
Lane Group Flow (vph)	520	1060	180	211	643	96	262	1037	136	237	768	200
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phases	7	4	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	4.0
Minimum Split (s)	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0
Total Split (s)	20.0	29.0	29.0	14.0	23.0	23.0	18.0	32.0	32.0	15.0	29.0	29.0
Total Split (%)	22%	32%	32%	16%	26%	26%	20%	36%	36%	17%	32%	32%
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	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	0.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Coord	Coord	None	Coord	Coord
Act Effct Green (s)	15.7	25.0	25.0	10.0	19.3	19.3	14.0	28.0	28.0	11.0	25.0	25.0
Actuated g/C Ratio	0.17	0.28	0.28	0.11	0.21	0.21	0.16	0.31	0.31	0.12	0.28	0.28
v/c Ratio	0.87	1.08	0.32	1.07	0.85	0.23	0.95	0.94	0.23	1.10	0.78	0.34
Uniform Delay, d1	36.1	32.5	0.0	40.0	33.9	0.0	37.7	30.2	0.0	39.5	30.0	0.0
Delay	42.7	77.4	4.3	108.8	39.8	6.8	72.7	41.1	4.4	111.7	30.7	4.1
LOS	D	E	A	F	D	A	E	D	A	F	C	A
Approach Delay		59.7			51.8			43.4			42.2	
Approach LOS		E			D			D			D	
Queue Length 50th (ft)	148	~357	0	~135	186	0	150	300	0	~154	211	0
Queue Length 95th (ft)	#231	#482	47	#272	#278	39	#298	#430	39	#297	280	47
Internal Link Dist (ft)		952			2576			2553			2552	
50th Up Block Time (%)												
95th Up Block Time (%)												
Turn Bay Length (ft)												
50th Bay Block Time %												
95th Bay Block Time %												
Queuing Penalty (veh)												

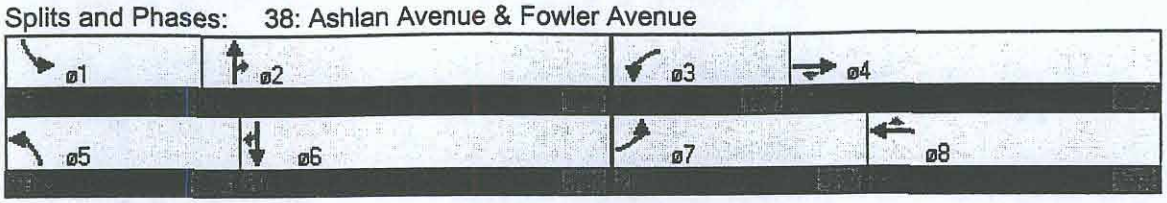
Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.10
Intersection Signal Delay: 50.0 Intersection LOS: D
Intersection Capacity Utilization 96.1% ICU Level of Service E

~ 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.

Splits and Phases: 38: Ashlan Avenue & Fowler Avenue



TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*Darryl Nelson*	Intersection	*Ashlan Avenue & Locan Avenue*
Agency/Co.	*ATE*	Jurisdiction	*Clovis, California*
Date Performed	*09/17/2001*	Analysis Year	*Existing Conditions*
Analysis Time Period	*A.M. Peak Hour*	Project ID	*Southeast Urban Center Specific Plan - Clovis, California*

East/West Street: *Ashlan Avenue*	North/South Street: *Locan Avenue*
Intersection Orientation: *East-West*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*44*	*395*	*9*	*19*	*357*	*14*
Peak-Hour Factor, PHF	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*
Hourly Flow Rate, HFR	*47*	*429*	*9*	*20*	*388*	*15*
Percent Heavy Vehicles	*2*	–	–	*2*	–	–
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*1*	*1*	*1*	*0*
Configuration	*L*	*T*	*R*	*L*		*TR*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*11*	*8*	*16*	*3*	*8*	*24*
Peak-Hour Factor, PHF	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*
Hourly Flow Rate, HFR	*11*	*8*	*17*	*3*	*8*	*26*
Percent Heavy Vehicles	*2*	*2*	*2*	*2*	*2*	*2*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*1*	*1*	*0*
Configuration	*L*		*TR*	*L*		*TR*

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*L*	*L*		*TR*	*L*		*TR*
v (vph)	*47*	*20*	*11*		*25*	*3*		*34*
C (m) (vph)	*1156*	*1122*	*207*		*413*	*208*		*464*
v/c	*0.04*	*0.02*	*0.05*		*0.06*	*0.01*		*0.07*
95% queue length	*0.13*	*0.05*	*0.17*		*0.19*	*0.04*		*0.24*
Control Delay	*8.2*	*8.3*	*23.4*		*14.3*	*22.6*		*13.4*
LOS	*A*	*A*	*C*		*B*	*C*		*B*
Approach Delay	–	–	*17.1*			*14.1*		
Approach LOS	–	–	*C*			*B*		

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*Darryl Nelson*	Intersection	*Ashlan Avenue & Locan Avenue*
Agency/Co.	*ATE*	Jurisdiction	*Clovis, California*
Date Performed	*09/17/2001*	Analysis Year	*Existing Conditions*
Analysis Time Period	*P.M. Peak Hour*	Project ID	*Southeast Urban Center Specific Plan - Clovis, California*

East/West Street: *Ashlan Avenue*	North/South Street: *Locan Avenue*
Intersection Orientation: *East-West*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	*19*	*236*	*24*	*5*	*183*	*0*
Peak-Hour Factor, PHF	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*
Hourly Flow Rate, HFR	*20*	*256*	*26*	*5*	*198*	*0*
Percent Heavy Vehicles	*2*	–	–	*2*	–	–
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*1*	*1*	*1*	*0*
Configuration	*L*	*T*	*R*	*L*		*TR*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	*15*	*10*	*7*	*4*	*1*	*10*
Peak-Hour Factor, PHF	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*	*0.92*
Hourly Flow Rate, HFR	*16*	*10*	*7*	*4*	*1*	*10*
Percent Heavy Vehicles	*2*	*2*	*2*	*2*	*2*	*2*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*1*	*1*	*0*	*1*	*1*	*0*
Configuration	*L*		*TR*	*L*		*TR*

Delay, Queue Length, and Level of Service

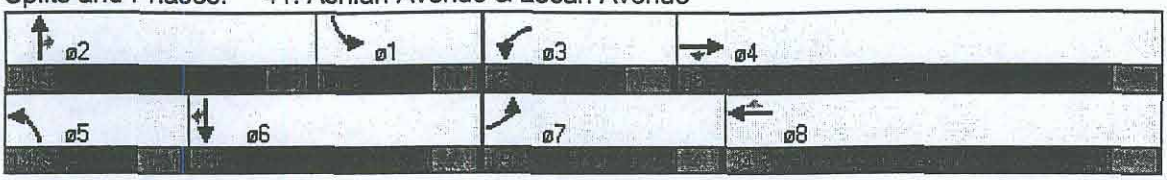
Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*L*	*L*	*L*		*TR*	*L*		*TR*
v (vph)	*20*	*5*	*16*		*17*	*4*		*11*
C (m) (vph)	*1375*	*1280*	*461*		*555*	*444*		*780*
v/c	*0.01*	*0.00*	*0.03*		*0.03*	*0.01*		*0.01*
95% queue length	*0.04*	*0.01*	*0.11*		*0.09*	*0.03*		*0.04*
Control Delay	*7.7*	*7.8*	*13.1*		*11.7*	*13.2*		*9.7*
LOS	*A*	*A*	*B*		*B*	*B*		*A*
Approach Delay	–	–	*12.4*			*10.6*		
Approach LOS	–	–	*B*			*B*		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	88	786	19	38	712	66	55	165	88	55	55	82
Lane Group Flow (vph)	96	854	21	41	774	72	60	179	96	60	60	89
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phases	7	4	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	4.0
Minimum Split (s)	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0
Total Split (s)	19.0	38.0	38.0	15.0	34.0	34.0	14.0	24.0	24.0	13.0	23.0	23.0
Total Split (%)	21%	42%	42%	17%	38%	38%	16%	27%	27%	14%	26%	26%
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	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	0.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Coord	Coord	None	Coord	Coord
Act Effct Green (s)	10.0	29.7	29.7	7.5	25.3	25.3	8.1	34.4	34.4	9.0	34.5	34.5
Actuated g/C Ratio	0.11	0.33	0.33	0.08	0.28	0.28	0.09	0.38	0.38	0.10	0.38	0.38
v/c Ratio	0.49	0.73	0.04	0.28	0.78	0.15	0.38	0.13	0.14	0.34	0.04	0.13
Uniform Delay, d1	38.7	26.6	0.0	40.9	29.0	0.0	39.6	19.7	0.0	39.4	18.9	0.0
Delay	36.8	26.5	7.9	38.2	29.5	5.7	38.1	22.7	6.2	27.6	13.6	6.5
LOS	D	C	A	D	C	A	D	C	A	C	B	A
Approach Delay		27.1			28.0			20.7			14.6	
Approach LOS		C			C			C			B	
Queue Length 50th (ft)	52	229	0	22	211	0	33	37	0	35	11	2
Queue Length 95th (ft)	96	270	14	53	258	27	70	71	38	m68	m22	m0
Internal Link Dist (ft)		2544			2544			5116			2553	
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

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 85 (94%), Referenced to phase 2:NBT and 6:SBT, *Start of Green*
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.78
Intersection Signal Delay: 25.4 Intersection LOS: C
Intersection Capacity Utilization 42.9% ICU Level of Service A
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 41: Ashlan Avenue & Locan Avenue



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	38	471	48	11	365	110	82	209	143	110	88	110
Lane Group Flow (vph)	41	512	52	12	397	120	89	227	155	120	96	120
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phases	7	4	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	4.0
Minimum Split (s)	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0
Total Split (s)	16.0	29.0	29.0	14.0	27.0	27.0	20.0	25.0	25.0	22.0	27.0	27.0
Total Split (%)	18%	32%	32%	16%	30%	30%	22%	28%	28%	24%	30%	30%
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	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	0.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Coord	Coord	None	Coord	Coord
Act Effct Green (s)	7.5	21.5	21.5	6.1	16.2	16.2	9.6	45.2	45.2	11.2	46.5	46.5
Actuated g/C Ratio	0.08	0.24	0.24	0.07	0.18	0.18	0.11	0.50	0.50	0.12	0.52	0.52
v/c Ratio	0.28	0.61	0.12	0.10	0.62	0.31	0.47	0.13	0.18	0.55	0.05	0.14
Uniform Delay, d1	41.0	30.4	0.0	43.8	32.5	0.0	38.9	14.1	0.0	38.3	12.9	0.0
Delay	38.2	29.9	7.5	39.2	33.7	6.0	37.0	16.1	3.9	33.9	9.9	5.8
LOS	D	C	A	D	C	A	D	B	A	C	A	A
Approach Delay		28.5			27.6			16.0			17.0	
Approach LOS		C			C			B			B	
Queue Length 50th (ft)	22	126	0	7	113	0	48	38	0	70	13	0
Queue Length 95th (ft)	53	185	26	23	149	42	91	78	43	96	34	0
Internal Link Dist (ft)		2544			2544			5116			2553	
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

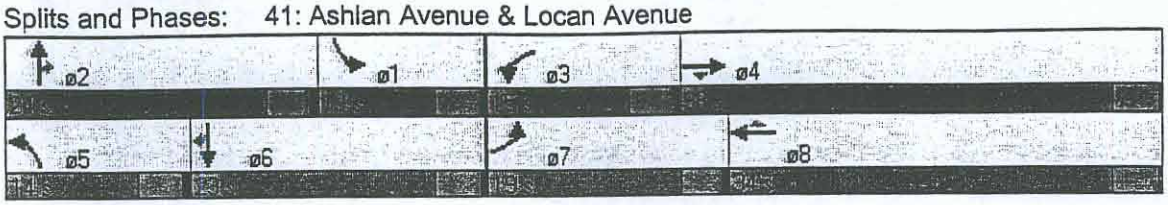
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.62
Intersection Signal Delay: 23.2 Intersection LOS: C
Intersection Capacity Utilization 40.4% ICU Level of Service A

Splits and Phases: 41: Ashlan Avenue & Locan Avenue

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	64	572	14	28	518	48	50	120	100	40	40	60
Lane Group Flow (vph)	70	622	15	30	563	52	54	130	109	43	43	65
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phases	7	4	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	4.0
Minimum Split (s)	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0
Total Split (s)	19.0	38.0	38.0	15.0	34.0	34.0	14.0	24.0	24.0	13.0	23.0	23.0
Total Split (%)	21%	42%	42%	17%	38%	38%	16%	27%	27%	14%	26%	26%
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	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	0.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Coord	Coord	None	Coord	Coord
Act Effct Green (s)	8.7	25.3	25.3	6.9	19.4	19.4	7.8	43.9	43.9	9.0	43.8	43.8
Actuated g/C Ratio	0.10	0.28	0.28	0.08	0.22	0.22	0.09	0.49	0.49	0.10	0.49	0.49
v/c Ratio	0.41	0.62	0.03	0.22	0.74	0.14	0.35	0.08	0.13	0.24	0.02	0.08
Uniform Delay, d1	39.1	28.1	0.0	42.4	31.4	0.0	40.9	14.5	0.0	40.7	14.2	0.0
Delay	37.5	27.9	10.9	38.6	32.4	7.7	38.2	17.1	4.7	35.2	16.3	5.7
LOS	D	C	B	D	C	A	D	B	A	D	B	A
Approach Delay		28.5			30.7			16.4			17.1	
Approach LOS		C			C			B			B	
Queue Length 50th (ft)	38	143	0	16	158	0	29	23	0	24	6	0
Queue Length 95th (ft)	77	208	13	43	197	25	64	48	36	59	20	0
Internal Link Dist (ft)		2544			2544			5116			2553	
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	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 85 (94%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.74	
Intersection Signal Delay: 26.4	Intersection LOS: C
Intersection Capacity Utilization 37.3%	ICU Level of Service A

Splits and Phases: 41: Ashlan Avenue & Locan Avenue

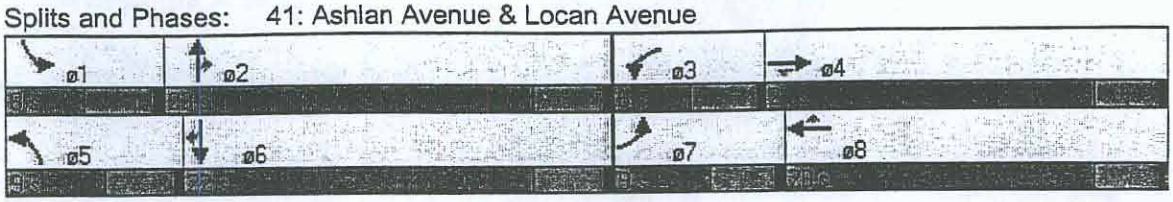


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	28	343	36	18	266	80	65	150	100	80	64	80
Lane Group Flow (vph)	30	373	39	20	289	87	71	163	109	87	70	87
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phases	7	4	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	4.0
Minimum Split (s)	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0
Total Split (s)	9.0	21.0	21.0	8.0	20.0	20.0	9.0	23.0	23.0	8.0	22.0	22.0
Total Split (%)	15%	35%	35%	13%	33%	33%	15%	38%	38%	13%	37%	37%
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	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	0.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Coord	Coord	None	Coord	Coord
Act Effct Green (s)	5.0	12.9	12.9	4.0	10.9	10.9	5.0	31.1	31.1	4.0	32.1	32.1
Actuated g/C Ratio	0.08	0.22	0.22	0.07	0.18	0.18	0.08	0.52	0.52	0.07	0.54	0.54
v/c Ratio	0.20	0.49	0.11	0.17	0.45	0.24	0.48	0.09	0.12	0.74	0.04	0.10
Uniform Delay, d1	28.5	20.6	0.0	29.5	21.1	0.0	28.2	9.4	0.0	28.3	9.1	0.0
Delay	26.1	20.1	6.5	26.8	21.5	5.7	29.0	10.1	3.5	52.7	10.8	4.0
LOS	C	C	A	C	C	A	C	B	A	D	B	A
Approach Delay		19.3			18.3			11.9			23.3	
Approach LOS		B			B			B			C	
Queue Length 50th (ft)	10	65	0	7	49	0	25	13	0	32	5	0
Queue Length 95th (ft)	32	94	18	25	76	28	#67	38	27	#98	20	24
Internal Link Dist (ft)		2544			2544			5116			2553	
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

Cycle Length: 60
Actuated Cycle Length: 60
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.74
Intersection Signal Delay: 17.9 Intersection LOS: B
Intersection Capacity Utilization 31.9% ICU Level of Service A
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 41: Ashlan Avenue & Locan Avenue

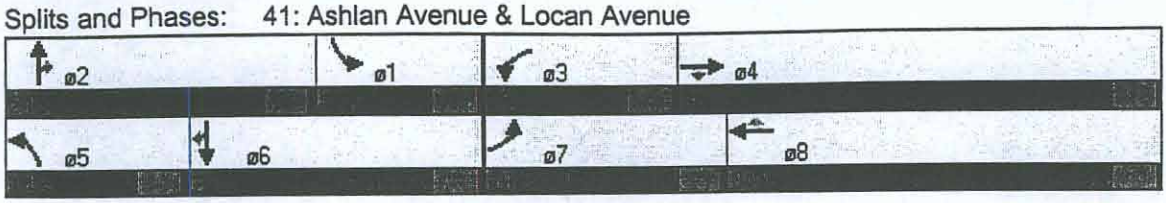


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	88	786	19	38	712	66	55	165	88	55	55	82
Lane Group Flow (vph)	96	854	21	41	774	72	60	179	96	60	60	89
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phases	7	4	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	4.0
Minimum Split (s)	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0
Total Split (s)	19.0	38.0	38.0	15.0	34.0	34.0	14.0	24.0	24.0	13.0	23.0	23.0
Total Split (%)	21%	42%	42%	17%	38%	38%	16%	27%	27%	14%	26%	26%
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	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	0.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Coord	Coord	None	Coord	Coord
Act Effct Green (s)	10.0	29.7	29.7	7.5	25.3	25.3	8.1	34.4	34.4	9.0	34.5	34.5
Actuated g/C Ratio	0.11	0.33	0.33	0.08	0.28	0.28	0.09	0.38	0.38	0.10	0.38	0.38
v/c Ratio	0.49	0.73	0.04	0.28	0.78	0.15	0.38	0.13	0.14	0.34	0.04	0.13
Uniform Delay, d1	38.7	26.6	0.0	40.9	29.0	0.0	39.6	19.7	0.0	39.4	18.9	0.0
Delay	36.8	26.5	7.9	38.2	29.5	5.7	38.1	22.7	6.2	27.6	13.6	6.5
LOS	D	C	A	D	C	A	D	C	A	C	B	A
Approach Delay		27.1			28.0			20.7			14.6	
Approach LOS		C			C			C			B	
Queue Length 50th (ft)	52	229	0	22	211	0	33	37	0	35	11	2
Queue Length 95th (ft)	96	270	14	53	258	27	70	71	38	m68	m22	m0
Internal Link Dist (ft)		2544			2544			5116			2553	
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	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 85 (94%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.78	
Intersection Signal Delay: 25.4	Intersection LOS: C
Intersection Capacity Utilization 42.9%	ICU Level of Service A

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 41: Ashlan Avenue & Locan Avenue

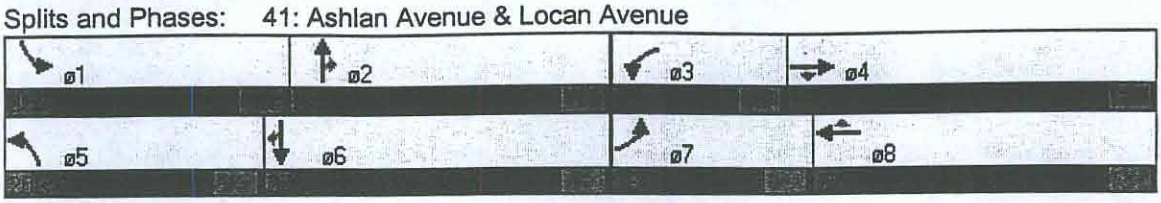


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	38	471	48	11	365	110	82	209	143	110	88	110
Lane Group Flow (vph)	41	512	52	12	397	120	89	227	155	120	96	120
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phases	7	4	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	4.0
Minimum Split (s)	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0
Total Split (s)	16.0	29.0	29.0	14.0	27.0	27.0	20.0	25.0	25.0	22.0	27.0	27.0
Total Split (%)	18%	32%	32%	16%	30%	30%	22%	28%	28%	24%	30%	30%
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	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	0.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Coord	Coord	None	Coord	Coord
Act Effct Green (s)	7.5	21.5	21.5	6.1	16.2	16.2	9.6	45.2	45.2	11.2	46.5	46.5
Actuated g/C Ratio	0.08	0.24	0.24	0.07	0.18	0.18	0.11	0.50	0.50	0.12	0.52	0.52
v/c Ratio	0.28	0.61	0.12	0.10	0.62	0.31	0.47	0.13	0.18	0.55	0.05	0.14
Uniform Delay, d1	41.0	30.4	0.0	43.8	32.5	0.0	38.9	14.1	0.0	38.3	12.9	0.0
Delay	38.2	29.9	7.5	39.2	33.7	6.1	37.0	16.1	3.9	33.9	9.9	5.8
LOS	D	C	A	D	C	A	D	B	A	C	A	A
Approach Delay		28.5			27.6			16.0			17.0	
Approach LOS		C			C			B			B	
Queue Length 50th (ft)	22	126	0	7	113	0	48	38	0	70	13	0
Queue Length 95th (ft)	53	185	26	23	149	42	91	78	43	96	34	0
Internal Link Dist (ft)		2544			2544			5116			2553	
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

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.62
Intersection Signal Delay: 23.2 Intersection LOS: C
Intersection Capacity Utilization 40.4% ICU Level of Service A

Splits and Phases: 41: Ashlan Avenue & Locan Avenue

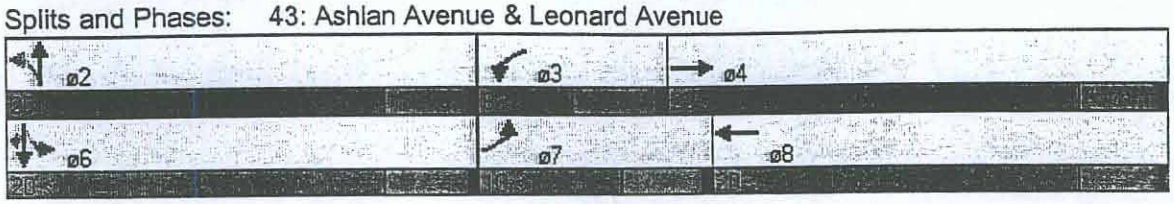


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Configurations									
Volume (vph)	138	85	1	129	4	68	35	92	198
Lane Group Flow (vph)	150	99	1	182	0	87	38	100	215
Turn Type	Prot		Prot		Perm		Perm		Perm
Protected Phases	7	4	3	8		2		6	
Permitted Phases					2		6		6
Detector Phases	7	4	3	8	2	2	6	6	6
Minimum Initial (s)	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	20.0	20.0	20.0	20.0
Total Split (s)	10.0	22.0	8.0	20.0	20.0	20.0	20.0	20.0	20.0
Total Split (%)	20%	44%	16%	40%	40%	40%	40%	40%	40%
Yellow Time (s)	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
Lead/Lag	Lead	Lag	Lead	Lag					
Lead-Lag Optimize?	Yes	Yes	Yes	Yes					
Recall Mode	None	None	None	None	Coord	Coord	Coord	Coord	Coord
Act Effct Green (s)	6.0	15.6	4.0	9.2		27.5	27.5	27.5	27.5
Actuated g/C Ratio	0.12	0.31	0.08	0.18		0.55	0.55	0.55	0.55
v/c Ratio	0.71	0.17	0.01	0.51		0.09	0.05	0.10	0.22
Uniform Delay, d1	22.3	12.3	24.0	14.0		7.0	7.7	7.9	0.0
Delay	34.0	10.8	21.0	14.4		8.4	9.2	9.2	2.1
LOS	C	B	C	B		A	A	A	A
Approach Delay		24.8		14.4		8.4		4.9	
Approach LOS		C		B		A		A	
Queue Length 50th (ft)	43	16	0	39		12	6	16	0
Queue Length 95th (ft)	#117	47	4	79		36	21	42	31
Internal Link Dist (ft)		2544		2544		5182		2554	
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

Cycle Length: 50
Actuated Cycle Length: 50
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.71
Intersection Signal Delay: 12.9 Intersection LOS: B
Intersection Capacity Utilization 37.9% ICU Level of Service A
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 43: Ashlan Avenue & Leonard Avenue

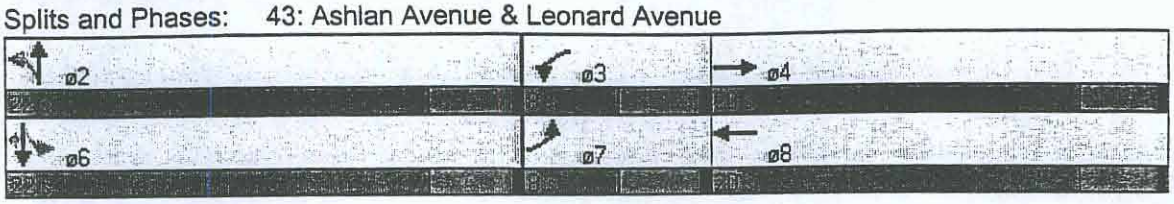


Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT	SBR	03
Lane Configurations									
Volume (vph)	16	148	126	3	19	15	11	19	
Lane Group Flow (vph)	17	165	152	0	24	16	12	21	
Turn Type	Prot			Perm		Perm		Perm	
Protected Phases	7	4	8		2		6		3
Permitted Phases				2		6		6	
Detector Phases	7	4	8	2	2	6	6	6	
Minimum Initial (s)	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	20.0	20.0	20.0	20.0	20.0	20.0	8.0
Total Split (s)	8.0	20.0	20.0	22.0	22.0	22.0	22.0	22.0	8.0
Total Split (%)	16%	40%	40%	44%	44%	44%	44%	44%	16%
Yellow Time (s)	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
Lead/Lag	Lead	Lag	Lag						Lead
Lead-Lag Optimize?	Yes	Yes	Yes						Yes
Recall Mode	None	None	None	Coord	Coord	Min	Min	Min	None
Act Effct Green (s)	4.0	10.8	9.1		34.0	34.0	34.0	34.0	
Actuated g/C Ratio	0.08	0.22	0.18		0.68	0.68	0.68	0.68	
v/c Ratio	0.12	0.41	0.44		0.02	0.02	0.01	0.02	
Uniform Delay, d1	24.4	14.9	17.6		4.4	4.4	4.3	0.0	
Delay	21.8	15.0	16.0		6.0	6.1	6.1	3.6	
LOS	C	B	B		A	A	A	A	
Approach Delay		15.6	16.0		6.0		5.1		
Approach LOS		B	B		A		A		
Queue Length 50th (ft)	5	42	36		2	1	1	0	
Queue Length 95th (ft)	20	60	73		14	11	9	9	
Internal Link Dist (ft)		2544	2544		5182		2554		
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

Cycle Length: 50
Actuated Cycle Length: 50
Offset: 0 (0%), Referenced to phase 2:NBTL, Start of Green
Natural Cycle: 50
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.44
Intersection Signal Delay: 13.9 Intersection LOS: B
Intersection Capacity Utilization 24.8% ICU Level of Service A

Splits and Phases: 43: Ashlan Avenue & Leonard Avenue

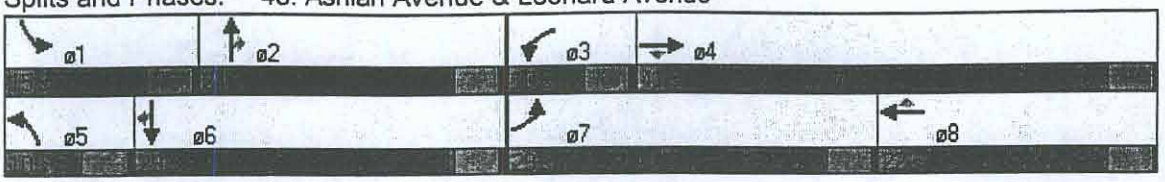


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	275	279	55	11	257	78	22	136	16	70	184	395
Lane Group Flow (vph)	299	303	60	12	279	85	24	148	17	76	200	429
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phases	7	4	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	4.0
Minimum Split (s)	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0
Total Split (s)	29.0	41.0	41.0	10.0	22.0	22.0	10.0	24.0	24.0	15.0	29.0	29.0
Total Split (%)	32%	46%	46%	11%	24%	24%	11%	27%	27%	17%	32%	32%
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	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	0.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Coord	Coord	None	Min	Min
Act Effct Green (s)	19.4	33.4	33.4	5.8	12.1	12.1	5.9	35.6	35.6	8.9	42.6	42.6
Actuated g/C Ratio	0.22	0.37	0.37	0.06	0.13	0.13	0.07	0.40	0.40	0.10	0.47	0.47
v/c Ratio	0.78	0.23	0.10	0.11	0.59	0.30	0.21	0.11	0.03	0.43	0.12	0.44
Uniform Delay, d1	33.3	19.4	0.0	44.1	33.6	0.0	43.2	19.8	0.0	39.2	16.6	0.0
Delay	32.7	18.9	4.9	39.9	36.2	8.2	40.3	21.3	11.4	45.6	14.8	3.8
LOS	C	B	A	D	D	A	D	C	B	D	B	A
Approach Delay		23.9			30.0			22.8			11.4	
Approach LOS		C			C			C			B	
Queue Length 50th (ft)	160	58	0	7	79	0	13	28	0	45	26	0
Queue Length 95th (ft)	234	90	24	24	115	39	38	60	13	91	54	9
Internal Link Dist (ft)		2544			2544			5182			2554	
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

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 20 (22%), Referenced to phase 2:NBT, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.78
Intersection Signal Delay: 20.4 Intersection LOS: C
Intersection Capacity Utilization 47.6% ICU Level of Service A

Splits and Phases: 43: Ashlan Avenue & Leonard Avenue



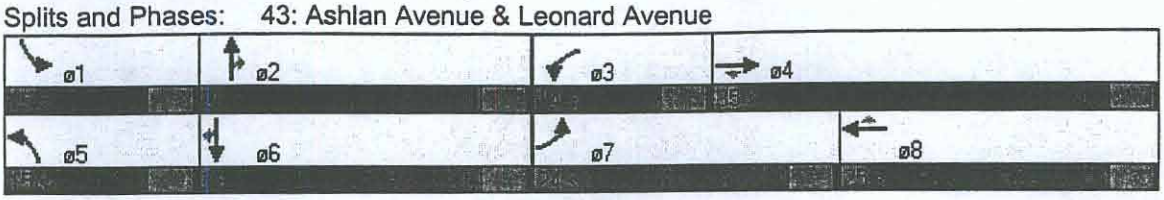
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	142	295	154	22	252	29	38	38	33	31	22	38
Lane Group Flow (vph)	154	321	167	24	274	32	41	41	36	34	24	41
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phases	7	4	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	4.0
Minimum Split (s)	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0
Total Split (s)	24.0	35.0	35.0	14.0	25.0	25.0	15.0	26.0	26.0	15.0	26.0	26.0
Total Split (%)	27%	39%	39%	16%	28%	28%	17%	29%	29%	17%	29%	29%
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	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	0.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Coord	Coord	None	Min	Min
Act Effct Green (s)	12.8	23.9	23.9	6.6	11.9	11.9	7.5	46.0	46.0	7.3	45.8	45.8
Actuated g/C Ratio	0.14	0.27	0.27	0.07	0.13	0.13	0.08	0.51	0.51	0.08	0.51	0.51
v/c Ratio	0.61	0.34	0.31	0.18	0.59	0.14	0.28	0.02	0.04	0.24	0.01	0.05
Uniform Delay, d1	36.2	26.7	0.0	42.4	34.5	0.0	40.9	12.9	0.0	41.0	13.0	0.0
Delay	35.6	26.9	4.7	38.7	36.4	12.1	38.2	15.7	6.5	37.0	12.1	8.1
LOS	D	C	A	D	D	B	D	B	A	D	B	A
Approach Delay		23.2			34.2			20.7			19.0	
Approach LOS		C			C			C			B	
Queue Length 50th (ft)	84	71	0	13	78	0	22	6	0	20	3	0
Queue Length 95th (ft)	137	114	45	37	113	24	53	18	20	51	m13	0
Internal Link Dist (ft)		2544			2544			5182			2554	
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

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.61
Intersection Signal Delay: 25.6 Intersection LOS: C
Intersection Capacity Utilization 29.5% ICU Level of Service A

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 43: Ashlan Avenue & Leonard Avenue

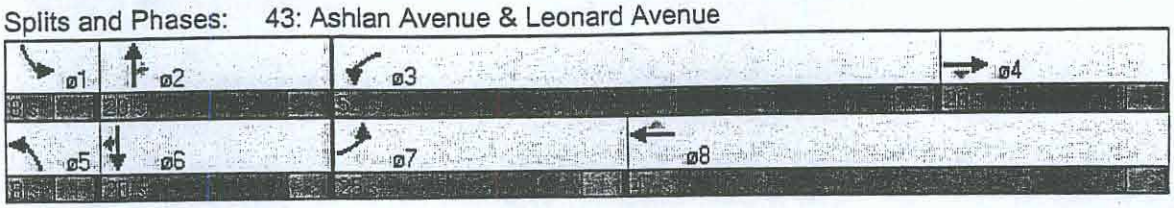


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	200	204	40	30	188	57	16	100	12	52	134	288
Lane Group Flow (vph)	217	222	43	33	204	62	17	109	13	57	146	313
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phases	7	4	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	4.0
Minimum Split (s)	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0
Total Split (s)	25.0	20.0	20.0	52.0	47.0	47.0	8.0	20.0	20.0	8.0	20.0	20.0
Total Split (%)	25%	20%	20%	52%	47%	47%	8%	20%	20%	8%	20%	20%
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	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	0.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Coord	Coord	None	Min	Min
Act Effct Green (s)	16.6	25.9	25.9	6.9	10.2	10.2	4.0	54.8	54.8	4.0	58.0	58.0
Actuated g/C Ratio	0.17	0.26	0.26	0.07	0.10	0.10	0.04	0.55	0.55	0.04	0.58	0.58
v/c Ratio	0.74	0.24	0.10	0.27	0.57	0.29	0.24	0.06	0.01	0.80	0.07	0.30
Uniform Delay, d1	39.6	29.3	0.0	47.6	40.5	0.0	48.9	12.1	0.0	48.4	11.4	0.0
Delay	39.1	29.5	9.4	43.8	42.5	11.0	47.0	12.7	6.9	91.7	11.4	1.9
LOS	D	C	A	D	D	B	D	B	A	F	B	A
Approach Delay		32.0			36.1			16.4			14.5	
Approach LOS		C			D			B			B	
Queue Length 50th (ft)	132	54	0	20	66	0	11	16	0	37	18	0
Queue Length 95th (ft)	203	92	25	50	101	37	34	35	10	#112	44	45
Internal Link Dist (ft)		2544			2544			5182			2554	
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

Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 2:NBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.80
Intersection Signal Delay: 25.1 Intersection LOS: C
Intersection Capacity Utilization 38.4% ICU Level of Service A
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 43: Ashlan Avenue & Leonard Avenue

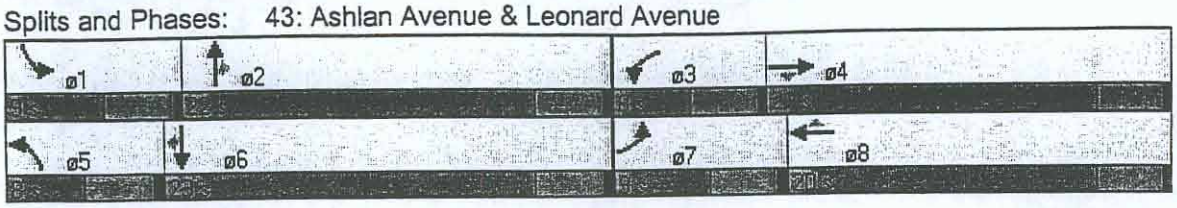


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	104	215	112	16	184	21	28	28	24	23	16	28
Lane Group Flow (vph)	113	234	122	17	200	23	30	30	26	25	17	30
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phases	7	4	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	4.0
Minimum Split (s)	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0
Total Split (s)	9.0	21.0	21.0	8.0	20.0	20.0	8.0	22.0	22.0	9.0	23.0	23.0
Total Split (%)	15%	35%	35%	13%	33%	33%	13%	37%	37%	15%	38%	38%
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	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	0.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Coord	Coord	None	Min	Min
Act Effct Green (s)	5.0	14.3	14.3	4.0	8.7	8.7	4.0	32.5	32.5	5.0	32.9	32.9
Actuated g/C Ratio	0.08	0.24	0.24	0.07	0.15	0.15	0.07	0.54	0.54	0.08	0.55	0.55
v/c Ratio	0.76	0.28	0.26	0.14	0.39	0.09	0.25	0.02	0.03	0.17	0.01	0.03
Uniform Delay, d1	27.9	18.6	0.0	29.5	21.1	0.0	28.9	9.2	0.0	28.4	8.9	0.0
Delay	49.2	18.3	4.8	26.8	22.9	10.0	27.0	10.1	5.4	34.5	8.3	3.9
LOS	D	B	A	C	C	B	C	B	A	C	A	A
Approach Delay		22.3			21.9			14.6			15.5	
Approach LOS		C			C			B			B	
Queue Length 50th (ft)	41	33	0	6	35	0	11	2	0	10	1	1
Queue Length 95th (ft)	#116	66	35	23	58	16	33	10	13	m31	m4	m0
Internal Link Dist (ft)		2544			2544			5182			2554	
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

Cycle Length: 60
Actuated Cycle Length: 60
Offset: 0 (0%), Referenced to phase 2:NBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.76
Intersection Signal Delay: 20.8 Intersection LOS: C
Intersection Capacity Utilization 25.1% ICU Level of Service A
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: 43: Ashlan Avenue & Leonard Avenue

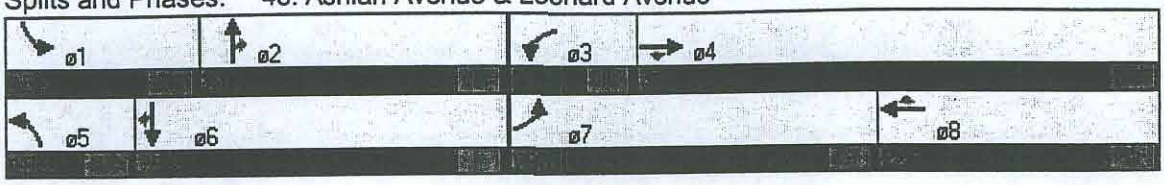


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	275	279	55	11	257	78	22	136	16	70	184	395
Lane Group Flow (vph)	299	303	60	12	279	85	24	148	17	76	200	429
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phases	7	4	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	4.0
Minimum Split (s)	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0
Total Split (s)	29.0	41.0	41.0	10.0	22.0	22.0	10.0	24.0	24.0	15.0	29.0	29.0
Total Split (%)	32%	46%	46%	11%	24%	24%	11%	27%	27%	17%	32%	32%
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	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	0.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Coord	Coord	None	Min	Min
Act Effct Green (s)	19.4	33.4	33.4	5.8	12.1	12.1	5.9	35.6	35.6	8.9	42.6	42.6
Actuated g/C Ratio	0.22	0.37	0.37	0.06	0.13	0.13	0.07	0.40	0.40	0.10	0.47	0.47
v/c Ratio	0.78	0.23	0.10	0.11	0.59	0.30	0.21	0.11	0.03	0.43	0.12	0.44
Uniform Delay, d1	33.3	19.4	0.0	44.1	33.6	0.0	43.2	19.8	0.0	39.2	16.6	0.0
Delay	32.7	18.9	4.9	39.9	36.2	8.2	40.3	21.3	11.4	45.6	14.8	3.8
LOS	C	B	A	D	D	A	D	C	B	D	B	A
Approach Delay		23.9			30.0			22.8			11.4	
Approach LOS		C			C			C			B	
Queue Length 50th (ft)	160	58	0	7	79	0	13	28	0	45	26	0
Queue Length 95th (ft)	234	90	24	24	115	39	38	60	13	91	54	9
Internal Link Dist (ft)		2544			2544			5182			2554	
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

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 20 (22%), Referenced to phase 2:NBT, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.78
Intersection Signal Delay: 20.4 Intersection LOS: C
Intersection Capacity Utilization 47.6% ICU Level of Service A

Splits and Phases: 43: Ashlan Avenue & Leonard Avenue

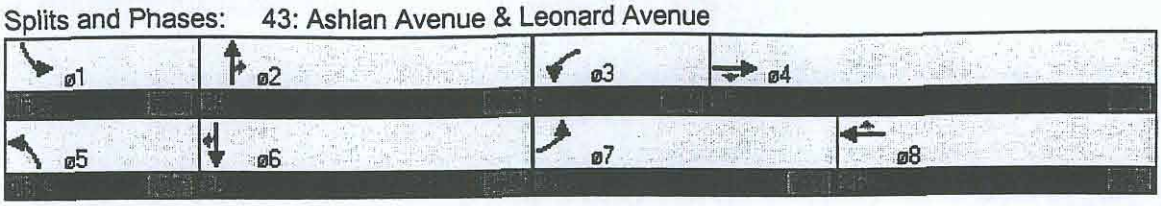


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	142	295	154	22	252	29	38	38	33	31	22	38
Lane Group Flow (vph)	154	321	167	24	274	32	41	41	36	34	24	41
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Detector Phases	7	4	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	4.0
Minimum Split (s)	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0
Total Split (s)	24.0	35.0	35.0	14.0	25.0	25.0	15.0	26.0	26.0	15.0	26.0	26.0
Total Split (%)	27%	39%	39%	16%	28%	28%	17%	29%	29%	17%	29%	29%
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	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	0.5
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Coord	Coord	None	Min	Min
Act Effct Green (s)	12.8	23.9	23.9	6.6	11.9	11.9	7.5	46.0	46.0	7.3	45.8	45.8
Actuated g/C Ratio	0.14	0.27	0.27	0.07	0.13	0.13	0.08	0.51	0.51	0.08	0.51	0.51
v/c Ratio	0.61	0.34	0.31	0.18	0.59	0.14	0.28	0.02	0.04	0.24	0.01	0.05
Uniform Delay, d1	36.2	26.7	0.0	42.4	34.5	0.0	40.9	12.9	0.0	41.0	13.0	0.0
Delay	35.6	26.9	4.7	38.7	36.4	12.1	38.2	15.7	6.5	37.0	12.1	8.1
LOS	D	C	A	D	D	B	D	B	A	D	B	A
Approach Delay		23.2			34.2			20.7			19.0	
Approach LOS		C			C			C			B	
Queue Length 50th (ft)	84	71	0	13	78	0	22	6	0	20	3	0
Queue Length 95th (ft)	137	114	45	37	113	24	53	18	20	51	m13	0
Internal Link Dist (ft)		2544			2544			5182			2554	
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	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBT, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.61	
Intersection Signal Delay: 25.6	Intersection LOS: C
Intersection Capacity Utilization 29.5%	ICU Level of Service A

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 43: Ashlan Avenue & Leonard Avenue



ALL-WAY STOP CONTROL ANALYSIS

General Information

Analyst	*Darryl Nelson*
Agency/Co.	*ATE*
Date Performed	*09/17/2001*
Analysis Time Period	*A.M. Peak Hour*

Site Information

Intersection	*Ashlan Avenue & McCall Avenue*
Jurisdiction	*Clovis, California*
Analysis Year	*Existing Conditions*
Project ID	*Southeast Urban Center Specific Plan - Clovis, California*

East/West Street: *Ashlan Avenue* | North/South Street: *McCall Avenue*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume	8	73	26	22	151	57
%Thrus Left Lane	50			50		

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume	28	122	14	29	171	30
%Thrus Left Lane	50			50		

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LTR		LTR	
PHF	0.92		0.92		0.92		0.92	
Flow Rate	115		248		177		248	
% Heavy Vehicles	2		2		2		2	
No. Lanes	1		1		1		1	
Geometry Group	1		1		1		1	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.1		0.1		0.2		0.1	
Prop. Right-Turns	0.2		0.2		0.1		0.1	
Prop. Heavy Vehicle	0.0		0.0		0.0		0.0	
hLT-adj	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	5.35		5.35		5.35		5.35	

Departure Headway and Service Time

hd, initial value	3.20		3.20		3.20		3.20	
x, initial	0.10		0.22		0.16		0.22	
hd, final value	5.35		5.35		5.35		5.35	
x, final value	0.17		0.35		0.26		0.35	
Move-up time, m	2.0		2.0		2.0		2.0	
Service Time	3.4		3.4		3.4		3.4	

Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity	365		498		427		498	
Delay	9.45		10.92		10.14		10.95	
LOS	A		B		B		B	
Approach: Delay	9.45		10.92		10.14		10.95	
LOS	A		B		B		B	
Intersection Delay	10.54							
Intersection LOS	B							

ALL-WAY STOP CONTROL ANALYSIS

General Information		Site Information	
Analyst	*Darryl Nelson*	Intersection	*Ashlan Avenue & McCall Avenue*
Agency/Co.	*ATE*	Jurisdiction	*Clovis, California*
Date Performed	*09/17/2001*	Analysis Year	*Existing Conditions*
Analysis Time Period	*P.M. Peak Hour*	Project ID	*Southeast Urban Center Specific Plan - Clovis, California*

East/West Street: *Ashlan Avenue* | North/South Street: *McCall Avenue*

Volume Adjustments and Site Characteristics

Approach	Eastbound			Westbound		
Movement	L	T	R	L	T	R
Volume	23	138	30	8	76	24
%Thrus Left Lane	50			50		

Approach	Northbound			Southbound		
Movement	L	T	R	L	T	R
Volume	32	140	17	46	135	6
%Thrus Left Lane	50			50		

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LTR		LTR	
PHF	0.92		0.92		0.92		0.92	
Flow Rate	205		116		204		201	
% Heavy Vehicles	2		2		2		2	
No. Lanes	1		1		1		1	
Geometry Group	1		1		1		1	
Duration, T	0.25							

Saturation Headway Adjustment Worksheet

Prop. Left-Turns	0.1		0.1		0.2		0.2	
Prop. Right-Turns	0.2		0.2		0.1		0.0	
Prop. Heavy Vehicle	0.0		0.0		0.0		0.0	
hLT-adj	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
hRT-adj	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	5.12		5.12		5.12		5.12	

Departure Headway and Service Time

hd, initial value	3.20		3.20		3.20		3.20	
x, initial	0.18		0.10		0.18		0.18	
hd, final value	5.12		5.12		5.12		5.12	
x, final value	0.29		0.17		0.29		0.29	
Move-up time, m	2.0		2.0		2.0		2.0	
Service Time	3.1		3.1		3.1		3.1	

Capacity and Level of Service

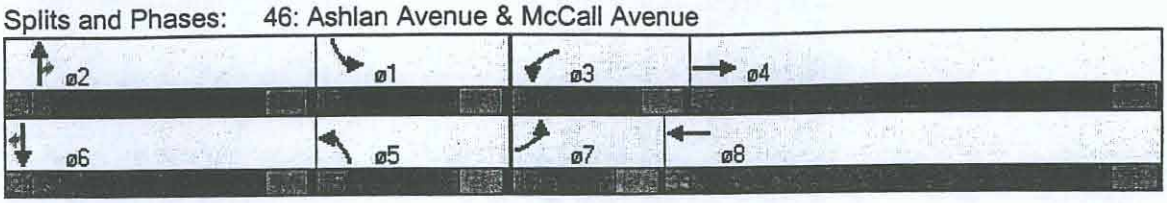
	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity	455		366		454		451	
Delay	10.21		9.26		10.12		10.18	
LOS	B		A		B		B	
Approach: Delay	10.21		9.26		10.12		10.18	
LOS	B		A		B		B	
Intersection Delay	10.02							
Intersection LOS	B							

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Volume (vph)	110	146	55	301	56	243	29	58	341	60
Lane Group Flow (vph)	120	217	60	451	61	264	32	63	371	65
Turn Type	Prot		Prot		Prot		Perm	Prot		Perm
Protected Phases	7	4	3	8	5	2		1	6	
Permitted Phases							2			6
Detector Phases	7	4	3	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
Minimum Split (s)	8.0	20.0	8.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0
Total Split (s)	12.0	37.0	14.0	39.0	15.0	24.0	24.0	15.0	24.0	24.0
Total Split (%)	13%	41%	16%	43%	17%	27%	27%	17%	27%	27%
Yellow Time (s)	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
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Coord	Coord	None	Coord	Coord
Act Effct Green (s)	8.0	27.5	8.1	25.7	8.5	33.7	33.7	8.5	33.7	33.7
Actuated g/C Ratio	0.09	0.31	0.09	0.29	0.09	0.37	0.37	0.09	0.37	0.37
v/c Ratio	0.77	0.39	0.38	0.85	0.37	0.20	0.05	0.38	0.28	0.10
Uniform Delay, d1	40.0	21.8	39.6	27.9	39.2	20.1	0.0	39.3	20.8	0.0
Delay	57.2	21.8	38.1	27.7	37.7	22.6	9.9	37.8	15.7	7.8
LOS	E	C	D	C	D	C	A	D	B	A
Approach Delay		34.4		29.0		24.0			17.4	
Approach LOS		C		C		C			B	
Queue Length 50th (ft)	68	89	33	230	33	54	0	38	68	0
Queue Length 95th (ft)	#158	134	70	297	70	102	15	m71	m106	m22
Internal Link Dist (ft)		2572		4008		2556			5209	
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

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 10 (11%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.85
Intersection Signal Delay: 25.6 Intersection LOS: C
Intersection Capacity Utilization 58.3% ICU Level of Service A
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.

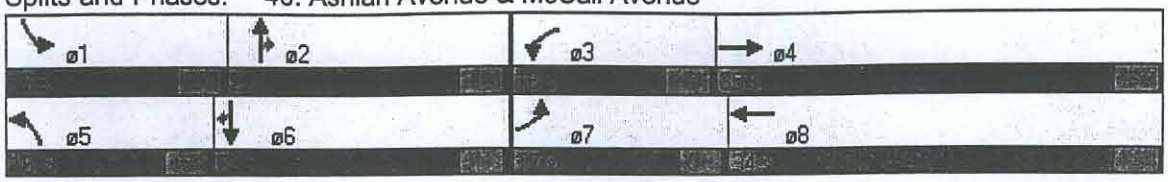
Splits and Phases: 46: Ashlan Avenue & McCall Avenue



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Volume (vph)	88	275	66	152	64	279	34	88	270	110
Lane Group Flow (vph)	96	364	72	217	70	303	37	96	293	120
Turn Type	Prot		Prot		Prot		Perm	Prot		Perm
Protected Phases	7	4	3	8	5	2		1	6	
Permitted Phases							2			6
Detector Phases	7	4	3	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
Minimum Split (s)	8.0	20.0	8.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0
Total Split (s)	17.0	35.0	16.0	34.0	16.0	22.0	22.0	17.0	23.0	23.0
Total Split (%)	19%	39%	18%	38%	18%	24%	24%	19%	26%	26%
Yellow Time (s)	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
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Coord	Coord	None	Coord	Coord
Act Effct Green (s)	9.8	21.7	8.8	20.9	8.8	37.5	37.5	9.9	38.4	38.4
Actuated g/C Ratio	0.11	0.24	0.10	0.23	0.10	0.42	0.42	0.11	0.43	0.43
v/c Ratio	0.49	0.81	0.41	0.50	0.40	0.21	0.05	0.49	0.19	0.16
Uniform Delay, d1	38.9	31.0	39.1	27.2	39.1	17.8	0.0	38.9	17.1	0.0
Delay	37.1	30.2	37.4	26.3	37.4	21.7	9.3	28.7	27.4	14.0
LOS	D	C	D	C	D	C	A	C	C	B
Approach Delay		31.7		29.0		23.3			24.5	
Approach LOS		C		C		C			C	
Queue Length 50th (ft)	52	190	39	99	38	61	0	53	80	4
Queue Length 95th (ft)	98	258	79	148	77	117	24	94	132	72
Internal Link Dist (ft)		2572		4008		2556			5209	
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	
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.81	
Intersection Signal Delay: 27.0	Intersection LOS: C
Intersection Capacity Utilization 50.7%	ICU Level of Service A

Splits and Phases: 46: Ashlan Avenue & McCall Avenue

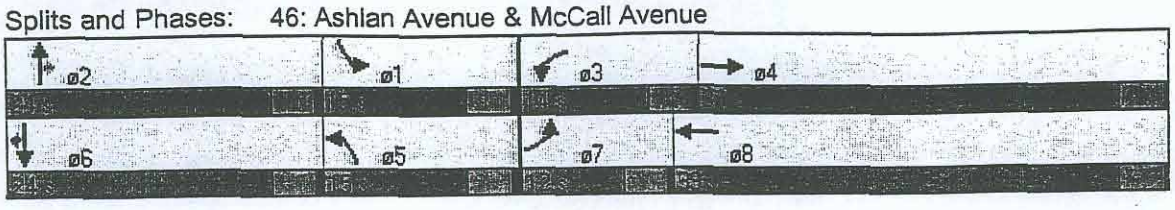


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Volume (vph)	80	107	40	220	41	177	21	43	248	44
Lane Group Flow (vph)	87	158	43	330	45	192	23	47	270	48
Turn Type	Prot		Prot		Prot		Perm	Prot		Perm
Protected Phases	7	4	3	8	5	2		1	6	
Permitted Phases							2			6
Detector Phases	7	4	3	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
Minimum Split (s)	8.0	20.0	8.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0
Total Split (s)	12.0	37.0	14.0	39.0	15.0	24.0	24.0	15.0	24.0	24.0
Total Split (%)	13%	41%	16%	43%	17%	27%	27%	17%	27%	27%
Yellow Time (s)	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
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Coord	Coord	None	Coord	Coord
Act Effct Green (s)	7.6	21.5	7.5	19.5	7.8	45.0	45.0	7.9	45.0	45.0
Actuated g/C Ratio	0.08	0.24	0.08	0.22	0.09	0.50	0.50	0.09	0.50	0.50
v/c Ratio	0.58	0.36	0.29	0.81	0.29	0.11	0.03	0.30	0.15	0.06
Uniform Delay, d1	40.8	24.1	40.9	30.2	40.7	13.6	0.0	40.7	14.0	0.0
Delay	41.9	23.7	38.2	30.1	37.8	16.3	8.6	41.7	13.5	7.7
LOS	D	C	D	C	D	B	A	D	B	A
Approach Delay		30.1		31.0		19.3			16.3	
Approach LOS		C		C		B			B	
Queue Length 50th (ft)	48	65	23	167	24	33	0	28	47	0
Queue Length 95th (ft)	#104	113	55	236	56	67	0	65	83	22
Internal Link Dist (ft)		2572		4008		2556			5209	
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

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 10 (11%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.81
Intersection Signal Delay: 24.1 Intersection LOS: C
Intersection Capacity Utilization 40.4% ICU Level of Service A
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 46: Ashlan Avenue & McCall Avenue

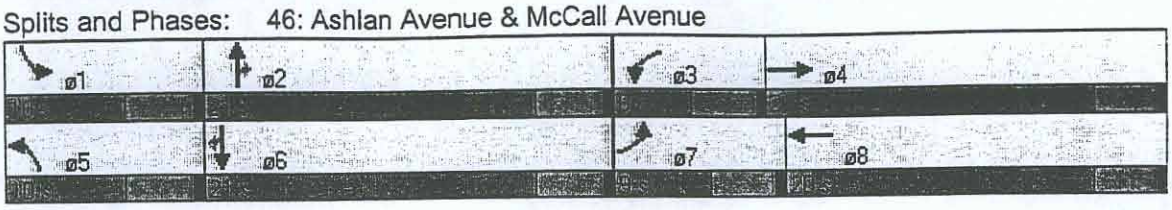


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Volume (vph)	64	200	48	111	47	204	25	64	196	80
Lane Group Flow (vph)	70	265	52	160	51	222	27	70	213	87
Turn Type	Prot		Prot		Prot		Perm	Prot		Perm
Protected Phases	7	4	3	8	5	2		1	6	
Permitted Phases							2			6
Detector Phases	7	4	3	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
Minimum Split (s)	8.0	20.0	8.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0
Total Split (s)	9.0	21.0	8.0	20.0	10.0	21.0	21.0	10.0	21.0	21.0
Total Split (%)	15%	35%	13%	33%	17%	35%	35%	17%	35%	35%
Yellow Time (s)	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
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Coord	Coord	None	Coord	Coord
Act Effct Green (s)	5.0	12.8	4.0	12.2	5.8	28.4	28.4	5.9	28.4	28.4
Actuated g/C Ratio	0.08	0.21	0.07	0.20	0.10	0.47	0.47	0.10	0.47	0.47
v/c Ratio	0.47	0.66	0.44	0.42	0.30	0.13	0.04	0.40	0.13	0.11
Uniform Delay, d1	28.2	20.0	28.5	17.2	27.3	10.8	0.0	27.6	10.7	0.0
Delay	28.4	19.4	29.9	16.6	25.6	12.9	7.0	31.8	14.9	8.3
LOS	C	B	C	B	C	B	A	C	B	A
Approach Delay		21.3		19.8		14.5			16.6	
Approach LOS		C		B		B			B	
Queue Length 50th (ft)	25	81	19	41	18	28	0	27	24	0
Queue Length 95th (ft)	#66	135	#55	82	46	56	0	m54	m42	m0
Internal Link Dist (ft)		2572		4008		2556			5209	
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

Cycle Length: 60
Actuated Cycle Length: 60
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.66
Intersection Signal Delay: 17.9 Intersection LOS: B
Intersection Capacity Utilization 41.0% ICU Level of Service A
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: 46: Ashlan Avenue & McCall Avenue

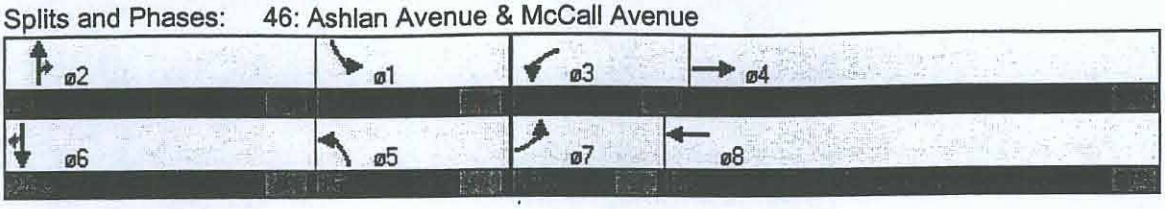


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Volume (vph)	110	146	55	301	56	243	29	58	341	60
Lane Group Flow (vph)	120	217	60	451	61	264	32	63	371	65
Turn Type	Prot		Prot		Prot		Perm	Prot		Perm
Protected Phases	7	4	3	8	5	2		1	6	
Permitted Phases							2			6
Detector Phases	7	4	3	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
Minimum Split (s)	8.0	20.0	8.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0
Total Split (s)	12.0	37.0	14.0	39.0	15.0	24.0	24.0	15.0	24.0	24.0
Total Split (%)	13%	41%	16%	43%	17%	27%	27%	17%	27%	27%
Yellow Time (s)	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
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Coord	Coord	None	Coord	Coord
Act Effct Green (s)	8.0	27.5	8.1	25.7	8.5	33.7	33.7	8.5	33.7	33.7
Actuated g/C Ratio	0.09	0.31	0.09	0.29	0.09	0.37	0.37	0.09	0.37	0.37
v/c Ratio	0.77	0.39	0.38	0.85	0.37	0.20	0.05	0.38	0.28	0.10
Uniform Delay, d1	40.0	21.8	39.6	27.9	39.2	20.1	0.0	39.3	20.8	0.0
Delay	57.2	21.8	38.1	27.7	37.7	22.6	9.9	37.8	15.7	7.8
LOS	E	C	D	C	D	C	A	D	B	A
Approach Delay		34.4		29.0		24.0			17.4	
Approach LOS		C		C		C			B	
Queue Length 50th (ft)	68	89	33	230	33	54	0	38	68	0
Queue Length 95th (ft)	#158	134	70	297	70	102	15	m71	m106	m22
Internal Link Dist (ft)		2572		4008		2556			5209	
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

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 10 (11%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.85
Intersection Signal Delay: 25.6 Intersection LOS: C
Intersection Capacity Utilization 58.3% ICU Level of Service A
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: 46: Ashlan Avenue & McCall Avenue

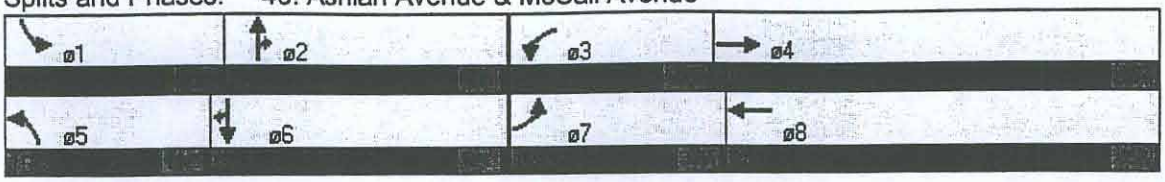


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Volume (vph)	88	275	66	152	64	279	34	88	270	110
Lane Group Flow (vph)	96	364	72	217	70	303	37	96	293	120
Turn Type	Prot		Prot		Prot		Perm	Prot		Perm
Protected Phases	7	4	3	8	5	2		1	6	
Permitted Phases							2			6
Detector Phases	7	4	3	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
Minimum Split (s)	8.0	20.0	8.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0
Total Split (s)	17.0	35.0	16.0	34.0	16.0	22.0	22.0	17.0	23.0	23.0
Total Split (%)	19%	39%	18%	38%	18%	24%	24%	19%	26%	26%
Yellow Time (s)	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
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Coord	Coord	None	Coord	Coord
Act Effct Green (s)	9.8	21.7	8.8	20.9	8.8	37.5	37.5	9.9	38.4	38.4
Actuated g/C Ratio	0.11	0.24	0.10	0.23	0.10	0.42	0.42	0.11	0.43	0.43
v/c Ratio	0.49	0.81	0.41	0.50	0.40	0.21	0.05	0.49	0.19	0.16
Uniform Delay, d1	38.9	31.0	39.1	27.2	39.1	17.8	0.0	38.9	17.1	0.0
Delay	37.1	30.2	37.4	26.3	37.4	21.7	9.3	28.7	27.4	14.0
LOS	D	C	D	C	D	C	A	C	C	B
Approach Delay		31.7		29.0		23.3			24.5	
Approach LOS		C		C		C			C	
Queue Length 50th (ft)	52	190	39	99	38	61	0	53	80	4
Queue Length 95th (ft)	98	258	79	148	77	117	24	94	132	72
Internal Link Dist (ft)		2572		4008		2556			5209	
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

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.81
Intersection Signal Delay: 27.0 Intersection LOS: C
Intersection Capacity Utilization 50.7% ICU Level of Service A

Splits and Phases: 46: Ashlan Avenue & McCall Avenue



SOUTHEAST URBAN CENTER SPECIFIC PLAN TRIP GENERATION

SOUTHEAST URBAN CENTER TRIP GENERATION

Land Use	Size	Factor	ADT Rate	ADT Trips	A.M. Peak Hour Rate	A.M. Trips	A.M. In%	A.M. In Trips	A.M. Out%	A.M. Out Trips	P.M. Peak Hour Rate	P.M. Trips	P.M. In%	P.M. In Trips	P.M. Out%	P.M. Out Trips
Single Family Residential	6,074 DU's	100%	9.59	58,250	0.75	4,556	25%	1,139	75%	3,417	1.01	6,135	64%	3,926	36%	2,209
Multi-Family Residential	4,755 DU's	100%	6.59	31,335	0.47	2,235	20%	447	80%	1,788	0.58	2,758	66%	1,820	34%	938
Elementary School	700 Students	100%	1.02	714	0.29	203	59%	120	41%	83	0.30	210	58%	122	42%	88
Middle School	1,400 Students	100%	1.46	2,030	0.46	644	57%	367	43%	277	0.16	224	47%	105	53%	119
High School	2,600 Students	100%	1.79	4,654	0.46	1,196	70%	837	30%	359	0.15	390	40%	156	60%	234
Commercial	2,001,800 SF	100%	40.67	81,414	1.03	2,062	60%	1,237	40%	825	3.66	7,326	50%	3,663	50%	3,663
Office	550,163 SF	100%	11.01	6,057	1.56	858	88%	755	12%	103	1.49	820	17%	139	83%	681
Business Park	183 Acres	100%	195.11	35,705	25.65	4,694	92%	4,318	8%	376	28.28	5,175	15%	776	85%	4,399
Golf Course	46 Acres	100%	5.04	232	0.21	10	74%	7	26%	3	0.30	14	34%	5	66%	9
Open Space	81 Acres	100%	1.59	129	0.08	6	50%	3	50%	3	0.16	13	50%	7	50%	7
TOTAL TRIPS				220,520		16,464		9,231		7,233		23,065		10,720		12,345

HOUSING INTERNAL/EXTERNAL

Land Use	Size	ADT Rate	ADT Trips	A.M. Peak Hour Rate	A.M. Trips	A.M. In%	A.M. In Trips	A.M. Out%	A.M. Out Trips	P.M. Peak Hour Rate	P.M. Trips	P.M. In%	P.M. In Trips	P.M. Out%	P.M. Out Trips
Single Family Residential	6,074 Dwelling Units	9.59	58,250	0.75	4,556	25%	1,139	75%	3,417	1.01	6,135	64%	3,926	36%	2,209
Multi-Family Residential	4,755 Dwelling Units	6.59	31,335	0.47	2,235	20%	447	80%	1,788	0.58	2,758	66%	1,820	34%	938
Total Residential Trips			89,585		6,791		1,586		5,205		8,893		5,747		3,146
Internal Reductions															
Elementary School (100%)			536		152		90		62		158		92		66
Middle School (100%)			1,522		483		275		208		168		79		89
High School (80%)			2,792		718		502		216		234		94		140
Commercial (60%)			22,836		578		347		231		2,055		1,027		1,028
Office (70%)			1,060		150		132		18		144		24		120
Business Park (70%)			6,248		822		756		66		906		136		770
Golf Course (55%)			64		3		2		1		4		2		2
Open Space (100%)			116		5		2		3		12		6		5
Total Internal Reductions			35,174		2,911		2,106		805		3,881		1,460		2,220
External (Remainder)			54,411		3,880		(520)		4,400		5,212		4,287		926

NON HOUSING INTERNAL/EXTERNAL

Land Use	Size	ADT Rate	ADT Trips	A.M. Peak Hour Rate	A.M. Trips	A.M. In%	A.M. In Trips	A.M. Out%	A.M. Out Trips	P.M. Peak Hour Rate	P.M. Trips	P.M. In%	P.M. In Trips	P.M. Out%	P.M. Out Trips
Elementary School	700 Students	1.02	714	0.29	203	59%	120	41%	83	0.3	210	58%	122	42%	88
Internal (75%)			536		152		90		62		158		92		66
External (25%)			178		51		30		21		52		30		22
Middle School	1,400 Students	1.45	2,030	0.46	644	57%	367	43%	277	0.16	224	47%	105	53%	119
Internal (75%)			1,522		483		275		208		168		79		89
External (25%)			508		161		92		69		56		26		30
High School	2,600 Students	1.79	4,654	0.46	1,196	70%	837	30%	359	0.15	390	40%	156	60%	234
Internal (75%)			3,490		897		628		269		292		117		176
External (25%)			1,164		299		209		90		98		39		58
Commercial	2,001,800 SF	40.67	81,414	1.03	2,062	60%	1,237	40%	825	3.66	7,326	50%	3,663	50%	3,663
Pass-by Trips (15%)			12,212		309		185		124		1,098		549		549
Internal (55% of Primary)			38,061		964		579		385		3,425		1,712		1,712
External (45% of Primary)			31,141		789		473		316		2,803		1,402		1,401
Office	550,163 SF	11.01	6,057	1.56	858	88%	755	12%	103	1.49	820	17%	139	83%	681
Internal (25% of Primary)			1,514		214		189		26		205		35		170
External (75% of Primary)			4,543		644		566		77		615		104		511
Business Park	183 Acres	195.11	35,705	25.65	4,694	92%	4,318	8%	376	28.28	5,175	15%	776	85%	4,399
Internal (25% of Primary)			8,926		1,174		1,080		94		1,294		194		1,100
External (75% of Primary)			26,779		3,520		3,238		282		3,881		582		3,299
Golf Course	46 Acres	5.04	232	0.21	10	74%	7	26%	3	0.3	14	34%	5	66%	9
Internal (50% of Primary)			116		5		4		2		7		3		5
External (50% of Primary)			116		5		3		1		7		2		4
Open Space	81 Acres	1.59	129	0.08	6	50%	3	50%	3	0.16	13	50%	7	50%	6
Internal (90% of Primary)			116		5		2		3		12		6		5
External (10% of Primary)			13		1		1		0		1		1		1
Total Internal (Non Housing)			66,493		4,203		3,032		1,173		6,659		2,787		3,872
Total External (Non Housing)			64,442		5,470		4,612		856		7,513		2,188		5,326
GRAND TOTALS															
INTERNAL TRIPS			101,667		7,114		5,138		1,978		10,340		4,247		6,092
EXTERNAL TRIPS			118,853		9,350		4,092		5,258		12,725		6,473		6,252
TOTAL TRIPS			220,520		16,464		9,230		7,234		23,065		10,720		12,344