Exhibit G

Updated Traffic Impact Analysis Report

Copper River Ranch

Located on the Northwest Quadrant of Willow Avenue and Copper Avenue

In the City of Fresno, California

Prepared for:

Granville Homes
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August 22, 2023

Project No. 004-197

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This Updated Traffic Impact Analysis Report has been prepared under the direction of a licensed Traffic Engineer. The licensed Traffic Engineer attests to the technical information contained therein and has judged the qualifications of any technical specialists providing engineering data from which recommendations, conclusions and decisions are based.

Prepared by:

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Introduction and Summary

Introduction

This Report describes the Updated Traffic Impact Analysis (TIA) prepared by JLB Traffic Engineering, Inc. (JLB) for Copper River Ranch (Project) located on the northwest quadrant corner of Willow Avenue at Copper Avenue in the City of Fresno. The original Project EIR No. 10126 was approved in 2003, and the subsequent EIR was approved on December 9, 2021. Figure 1 shows the location of the proposed Project site relative to the surrounding roadway network.

The purpose of this Updated TIA is to determine the traffic operational analysis of five intersections which the City of Fresno conditioned the Project to construct traffic signals at varying trigger points. This updated TIA presents actual LOS operations and warrant analysis for the Year 2023 while considering continued development of the Project and cumulative growth within the last three years as well as the anticipated development for the next two years.

Summary

The potential traffic impacts of the proposed Project were evaluated in accordance with the standards set forth by the Level of Service (LOS) policies of the City of Fresno.

Existing (Year 2023) Traffic Conditions

- At present, all study intersections operate at an acceptable LOS during both peak periods.

Existing plus Project (Year 2025) Traffic Conditions

- In the next two years, the proposed Project is estimated to generate approximately 8,526 daily trips, 554 AM peak hour trips and 723 PM peak hour trips.
- Under this scenario, all study intersections are projected to operate at an acceptable LOS during both peak periods.

Near Term plus Project (Year 2025) Traffic Conditions

- The total trip generation for the Year 2025 Near Term Projects is 27,567 weekday daily trips, 1,770 weekday AM peak hour trips and 2,575 weekday PM peak hour trips.
- Under this scenario, all study intersections are projected to operate at an acceptable LOS during both peak periods.
- It is recommended that the preparation of construction documents for the ultimate signalization of the intersections of Millbrook Avenue at Olympic Avenue, Chestnut Avenue at Behymer Avenue and Sommerville Drive at Chestnut Avenue be completed.
- Assuming that all of the near term projects and the additional Project residential and commercial development as listed in Table IV are fully built, it is recommended that the intersections of Millbrook Avenue at Olympic Avenue and Sommerville Drive at Chestnut Avenue be signalized in early 2026.

Study Facilities

The existing intersection peak hour turning movement and segment volume counts were conducted at the study intersections and segments in April and May 2023 while schools in the vicinity of the Project site were in session. The intersection turning movement counts included pedestrian and bicycle volumes. The traffic counts for the existing study intersections and segments are contained in Appendix A. It should be noted that in the Copper River EIR TIA dated April 30, 2021 the count for the intersection of Sommerville Avenue at Chestnut Avenue was expanded in an effort account for reductions in traffic from the COVID-19 shelter in place. The existing intersection turning movement volumes, intersection geometrics and traffic controls are illustrated in Figure 2.

Study Intersections

1. Willow Avenue / Alicante Drive
2. Millbrook Avenue / Olympic Avenue
3. Cedar Avenue / Olympic Avenue
4. Chestnut Avenue / Behymer Avenue
5. Sommerville Drive / Chestnut Avenue

Study Scenarios

Existing (Year 2023) Traffic Conditions

This scenario evaluates the Existing (Year 2023) Traffic Conditions based on existing traffic volumes and roadway conditions from traffic counts and field surveys conducted in April and May 2023.

Existing plus Project (Year 2025) Traffic Conditions

This scenario evaluates total traffic volumes and roadway conditions based on the Existing plus Project (Year 2025) Traffic Conditions. The Existing plus Project (Year 2025) traffic volumes were obtained by adding the Project Only Trips to the Existing (Year 2023) Traffic Conditions scenario. The Project Only Trips to the study facilities were developed based on existing travel patterns, the Fresno COG ABM Project Select Zone, the surrounding roadway network, engineering judgment, data provided by the developer, knowledge of the study area, existing residential and commercial densities and the *Fresno General Plan* Circulation Element in the vicinity of the Project site. The Project Only Trips account for the construction anticipated to take place in the next two years. The Fresno COG Project Select Zone prepared by Fresno COG can be found in the Copper River EIR TIA dated April 30, 2021.

Near Term plus Project (Year 2025) Traffic Conditions

This scenario evaluates total traffic volumes and roadway conditions based on the Near Term plus Project (Year 2025) Traffic Conditions. The Near Term plus Project (Year 2025) traffic volumes were obtained by adding the Near Term related trips to the Existing plus Project (Year 2025) Traffic Conditions scenario.

LOS Methodology

LOS is a qualitative index of the performance of an element of the transportation system. LOS is a rating scale running from "A" to "F, with "A" indicating no congestion of any kind and "F" indicating unacceptable congestion and delays. LOS in this study describes the operating conditions for signalized and unsignalized intersections.

The *Highway Capacity Manual* (HCM) 6th Edition is the standard reference published by the Transportation Research Board and contains the specific criteria and methods to be used in assessing LOS. U-turn movements were analyzed using HCM 2000 methodologies and would yield more accurate results for the reason that HCM 6 Edition methodologies do not allow the analysis of U-turns. Lane configurations not reflective of existing conditions are a result of software limitations and thus represent a worst-case scenario. Synchro software was used to define LOS in this study. Details regarding these calculations are included in Appendix B.

While LOS is no longer the criteria of significance for traffic impacts in the state of California, the City of Fresno continues to apply congestion-related conditions or requirements for land development projects through planning approval processes outside of CEQA Guidelines in order to continue the implementation of *Fresno General Plan* policies.

LOS Thresholds

The *Fresno General Plan* has established various degrees of acceptable LOS on its major streets, which are dependent on four (4) Traffic Impact Zones (TIZ) within the City (City of Fresno 2014). The standard LOS threshold for TIZ I is LOS F, that for TIZ II is LOS E, that for TIZ III is LOS D and that for TIZ IV is LOS E. Additionally, the 2035 MEIR made findings of overriding consideration to allow a lower LOS threshold than that established by the underlying TIZ's. For those cases in which a LOS criterion for a roadway segment differs from that of the underlying TIZ, such criteria are identified in the roadway description. As all the study facilities fall within TIZ III, LOS D is used to evaluate the potential LOS impacts for the study intersections within the City of Fresno pursuant to the *Fresno General Plan*.

Operational Analysis Assumptions and Defaults

The following operational analysis values, assumptions and defaults were used in this study to ensure a consistent analysis of LOS among the various scenarios.

- At all existing study intersections, the heavy vehicle factor observed for each intersection, or a minimum of 3 percent, were utilized under all scenarios.
- At all future study intersections, the heavy vehicle factor of 3 percent was utilized under all study scenarios.
- The number of observed pedestrians at existing intersections was utilized under all study scenarios.
- At existing study intersections, the observed Peak Hour Factor (PHF) is utilized under all study scenarios.

Existing (Year 2023) Traffic Conditions

Roadway Network

The Project site and surrounding study area are illustrated in Figure 1. Important roadways serving the Project are discussed below.

Willow Avenue is an existing north-south two-lane undivided roadway adjacent to the proposed Project site. In this area, Willow Avenue extends south of Friant Road through the City of Fresno SOI. Willow Avenue is a two-lane super arterial between Friant Road and Copper Avenue, a predominantly four-lane divided super arterial between Copper Avenue and International Avenue and a predominantly six-lane divided super arterial between International Avenue and the City of Clovis SOI. The *Fresno General Plan* Circulation Element designates Willow Avenue as a two-lane super arterial between Friant Road and Copper Avenue, a four-lane super arterial between Copper Avenue and International Avenue, a six-lane super arterial between International Avenue and Herndon Avenue, a four-lane super arterial between Herndon Avenue and Escalon Avenue, and a six-lane super arterial between Escalon Avenue and Beverly Drive.

Furthermore, the *Fresno General Plan* Circulation Element acknowledged that Willow Avenue would exceed LOS D as a two-lane super arterial between Friant Road and Copper Avenue. However, City Council made the appropriate findings to designate LOS F as the LOS threshold for this segment of Willow Avenue. Based on discussions with City staff, it was determined that this segment of Willow Avenue is planned as a four-lane super arterial. As a result, the Project proposes to develop Willow Avenue from Copper Avenue to the Project's northern limits with two (2) southbound lanes along its frontage to Willow Avenue.

Alicante Drive is an existing east-west two-lane divided collector within the proposed Project site. In this area, Alicante Drive exists as a two-lane divided collector between Copper River Drive and Willow Avenue. The *Fresno General Plan* Circulation Element designates Alicante Drive as a two-lane collector between Copper River Drive and Willow Avenue.

Millbrook Avenue is an existing north-south four-lane divided collector in the vicinity of the proposed Project site. In this area, Millbrook Avenue extends north of Copper Avenue for approximately 300 feet and southwest of Copper Avenue toward Liberty Hill Road. Millbrook Avenue is a four-lane collector divided by a two-way left-turn lane between Copper Avenue and Turnberry Avenue, a two-lane undivided collector between Turnberry Avenue and Fort Washington Road and a two-lane undivided local road between Fort Washington Road and Liberty Hill Road. The *Fresno General Plan* Circulation Element designates Millbrook Avenue as a four-lane collector between Copper Avenue and Turnberry Avenue, a two-lane collector between Turnberry Avenue and Fort Washington Road, and a two-lane undivided local road between Fort Washington Road and Liberty Hill Road.

Cedar Avenue is an existing north-south four-lane divided collector in the vicinity of the proposed Project site. In this area, Cedar Avenue extends south of Copper River Drive and curves eastbound onto International Avenue and connects to Maple Avenue. Cedar Avenue is a four-lane collector divided by a two-way left-turn lane between Copper Avenue and Olympic Avenue. The *Fresno General Plan* Circulation Element designates Cedar Avenue as a four-lane collector between Copper River Drive and Olympic Avenue.

Chestnut Avenue is an existing north-south two-lane undivided local roadway adjacent to the proposed Project site. In this area, Chestnut Avenue is a two-lane undivided local roadway north of Copper Avenue, a three- to four-lane collector divided by a two-way left-turn lane between Copper Avenue and International Avenue, a two- to three-lane undivided collector between International Avenue and Behymer Avenue, and a two-lane collector divided by a two-way left-turn lane between Behymer Avenue and Sommerville Drive. The *Fresno General Plan* Circulation Element designates Chestnut Avenue as a two-lane local roadway between Copper River Drive and Copper Avenue, a four-lane collector between Copper Avenue and Behymer Avenue, and a two-lane collector between Behymer Avenue and Sommerville Drive.

Olympic Avenue is an east-west three-lane divided collector in the vicinity of the proposed Project. In this area, Olympic Avenue exists as a three-lane collector divided by a two-way left-turn lane between Millbrook Avenue and Cedar Avenue. The *Fresno General Plan* Circulation Element designates Olympic Avenue as a collector between Millbrook Avenue and Cedar Avenue.

Behymer Avenue is an existing east-west four-lane divided collector in the vicinity of the proposed Project site. In this area, Behymer Avenue is a two-lane collector divided by a two-way left-turn lane between Granville Avenue and Maple Avenue, a three- to four-lane divided arterial between Maple Avenue and Willow Avenue. The *Fresno General Plan* Circulation Element designates Behymer Avenue as a two-lane collector between Granville Avenue and Maple Avenue and a four-lane arterial between Maple Avenue and Willow Avenue.

Sommerville Drive is an existing predominantly north-south four-lane divided arterial in the vicinity of the proposed Project site. In this area, Sommerville Drive exists as a three- to four-lane divided arterial between Behymer Avenue and Shepherd Avenue. Sommerville Drive transitions into Maple Avenue north of Behymer Avenue. South of Shepherd Avenue, Sommerville Drive transitions into Chestnut Avenue. The *Fresno General Plan* Circulation Element designates Sommerville Drive as a four-lane arterial between Behymer Avenue and Shepherd Avenue.

Traffic Signal Warrants

The CA MUTCD indicates that an engineering study of traffic conditions, pedestrian characteristics and physical features of an intersection shall be conducted to determine whether the installation of traffic signal controls are justified. The CA MUTCD provides a total of nine (9) warrants to evaluate the need for traffic signal controls. These warrants include 1) Eight-Hour Vehicular Volume, 2) Four-Hour Vehicular Volume, 3) Peak Hour, 4) Pedestrian Volume, 5) School Crossing, 6) Coordinated Signal System, 7) Crash Experience, 8) Roadway Network and 9) Intersection Near a Grade Crossing. Signalization of an intersection may be appropriate if one or more of the signal warrants are satisfied. However, the CA MUTCD also states that "[t]he satisfaction of a signal warrant or warrants shall not in itself require the installation of a traffic control signal" (Caltrans 2021).

If traffic signal warrants are satisfied when a LOS threshold impact is identified at an unsignalized intersection, then installation of a traffic signal control may serve as an improvement measure. For instances where traffic signal warrants are satisfied, a traffic signal control is not considered to be the default improvement measure. Since the installation of a traffic signal control typically requires the construction of additional lanes, an attempt is made to improve the intersection approach lane geometrics in order to improve its LOS while maintaining the existing intersection controls. If the additional lanes did not result in acceptable LOS at the intersection, then in those cases implementation of a traffic signal control would be considered.

Warrants 1, 2 and 3 were prepared for the unsignalized intersections under the Existing (Year 2023) Traffic Conditions scenario. These warrants are contained in Appendix F. At present, Warrant 1 is not met for any unsignalized study intersections. Warrant 2 is met for the study intersection of Sommerville Drive at Chestnut Avenue. Warrant 3 is met for the study intersections of Millbrook Avenue at Olympic Avenue, Chestnut Avenue at Behymer Avenue and Sommerville Drive at Chestnut Avenue during the AM peak period. Based on operational analysis and engineering judgment, signalization is not recommended for any study intersection under this scenario. However, it is recommended that preparation of construction documents for the ultimate signalization of these.

Results of Existing (Year 2023) Level of Service Analysis

Figure 2 illustrates the Existing (Year 2023) Traffic Conditions turning movement volumes, intersection geometrics and traffic controls. LOS worksheets for the Existing (Year 2023) Traffic Conditions scenario are provided in Appendix C. Table I presents a summary of the Existing (Year 2023) peak hour LOS at the study intersections.

At present, all study intersections operate at an acceptable LOS during both peak periods.

In the Copper River EIR TIA dated April 30, 2021, the intersection of Chestnut Avenue at Behymer Avenue exceeded its LOS threshold in the Existing scenario. The prior TIA was analyzed using Synchro 10 which only allowed for two (2) lanes per approach for an all-way stop intersection. This analysis was completed using Synchro 11, which allows for three (3) lanes per approach for an all-way stop intersection. Thus, this analysis presents a more realistic result than that previously conducted. Furthermore, this intersection contains four (4) lanes on the east and west approaches so the analysis in this TIA is still a more conservative analysis than the operations that currently take place.

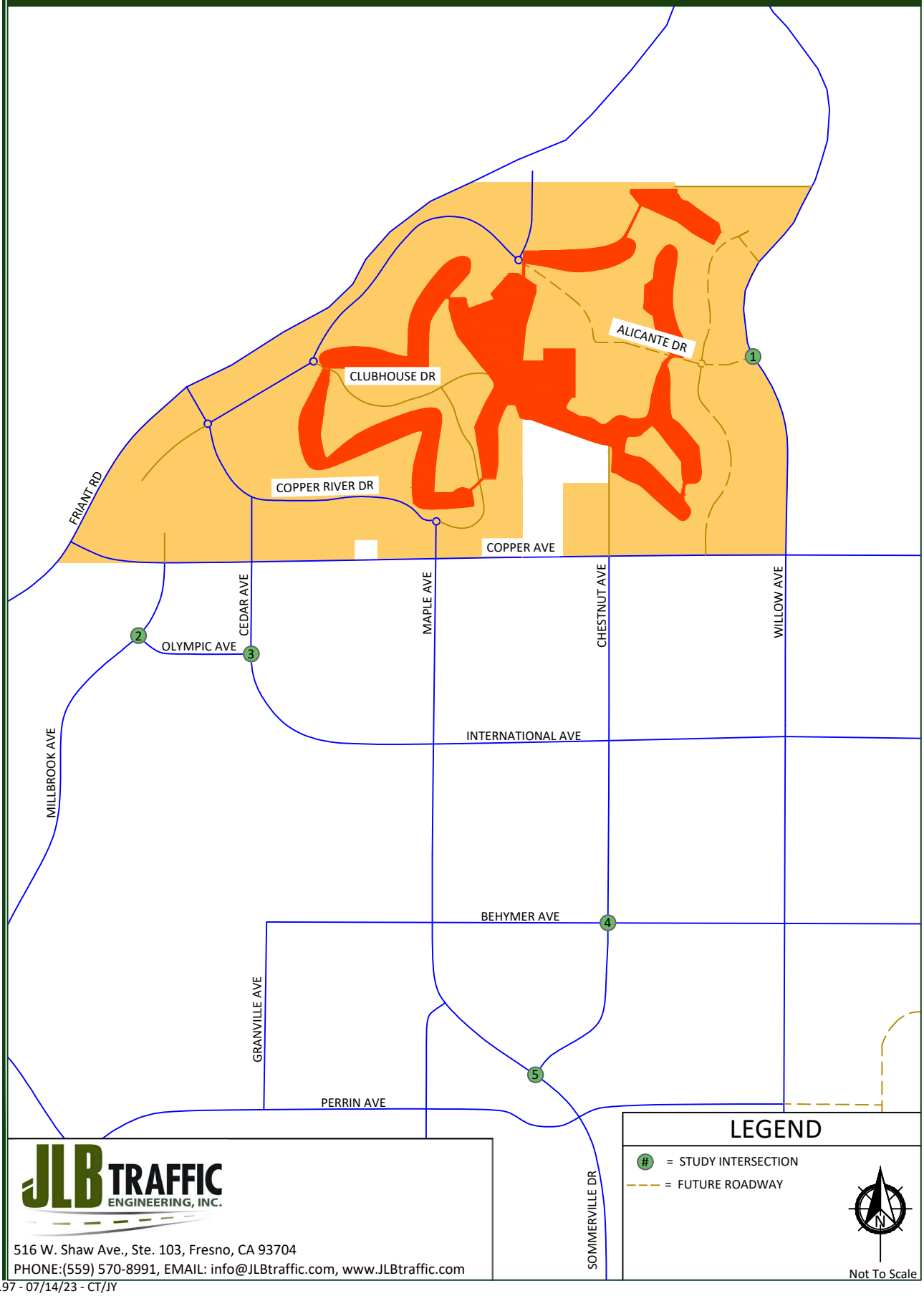
Table I: Existing (Year 2023) Intersection LOS Results

ID	*Intersection*	*Intersection Control*	*AM (7 - 9) Peak Hour*		*PM (4 - 6) Peak Hour*	
			Average Delay (sec/veh)	*LOS*	*Average Delay (sec/veh)*	*LOS*
1	Willow Avenue / Alicante Drive	Does Not Exist	-	-	-	-
2	Millbrook Avenue / Olympic Avenue	All-Way Stop	20.5	C	8.8	A
3	Cedar Avenue / Olympic Avenue	All-Way Stop	12.2	B	8.6	A
4	Chestnut Avenue / Behymer Avenue	All-Way Stop	19.6	C	10.6	B
5	Sommerville Drive / Chestnut Avenue	All-Way Stop	21.2	C	12.4	B

Note: LOS = Level of Service based on average delay on signalized intersections and All-Way STOP Controls
LOS for two-way and one-way STOP controlled intersections are based on the worst approach/movement of the minor street.

Copper River Ranch - City of Fresno
Vicinity Map

Figure 1



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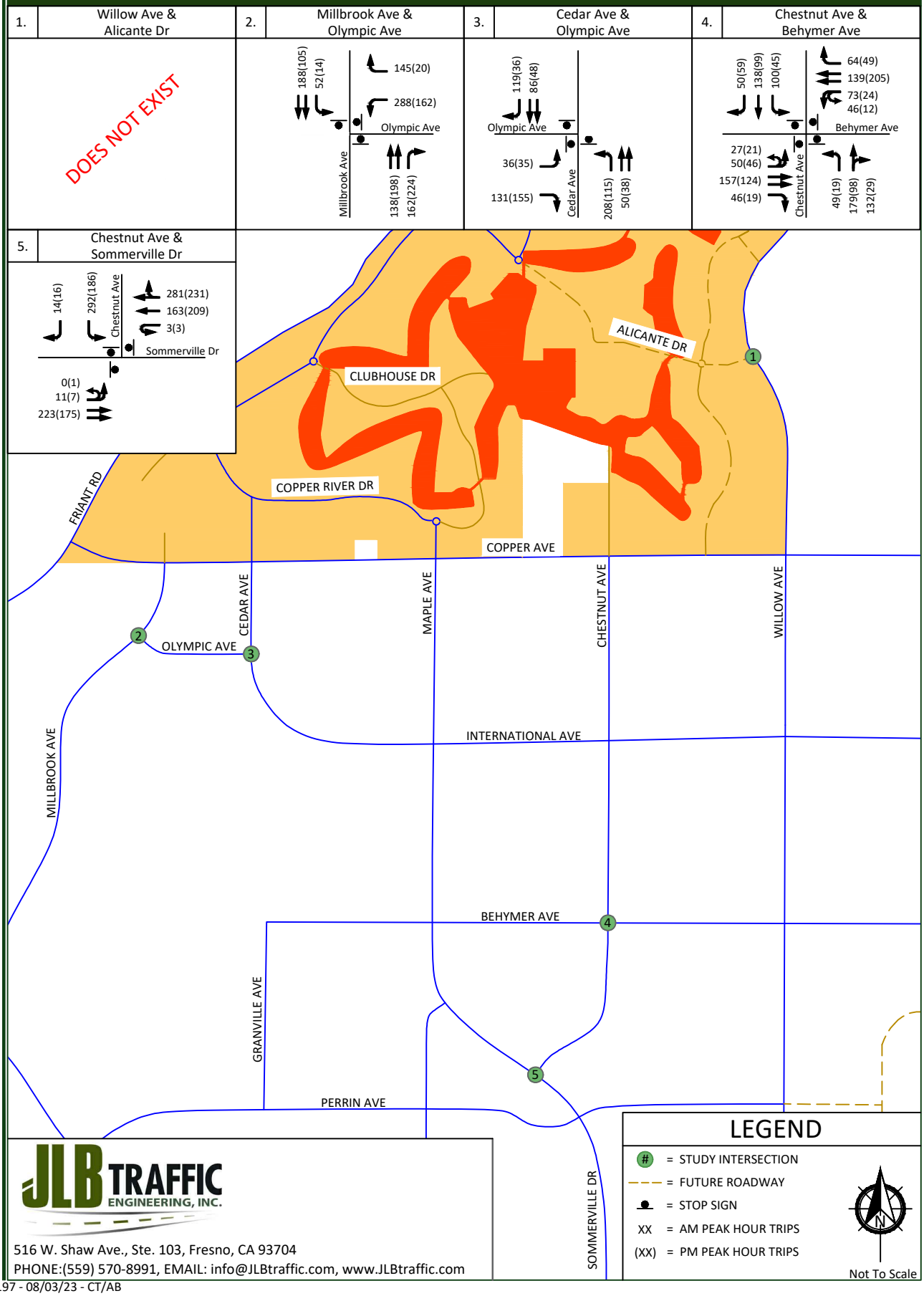
Copper River Ranch - City of Fresno
Existing (Year 2023) - Traffic Volumes, Geometrics and Controls

Figure 2



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Existing plus Project (Year 2025) Traffic Conditions

Project Description

At buildout, the entire Project proposed to construct a total of 3,278 residential units (2,429 single-family and 849 multi-family residential units), develop 254,423 square feet of mixed-use commercial land uses in addition to a park-n-ride lot (27 parking spaces), 28.80 acres of park space and a 3.30-acre wastewater treatment plant.

Project Trip Generation

In the Copper River EIR TIA dated April 30, 2021, there were a total of 1,270 units of Single-Family Detached Housing, 849 units of Multifamily Housing, 25.30 acres of City Park and 192,273 square feet of Commercial that remained to be built. Table II presents a summary of the anticipated trip generation of the Project components that remained to be built as of September 2020, the date of the counts for the Copper River EIR dated April 20, 2021. This trip generation is approximately 32,452 daily, 2,173 AM peak hour and 2,858 PM peak hour total driveway trips.

Table II: Project Trip Generation - Remain to be Built (2020)

Land Use	*Size*	*Unit*	*Daily Trips*	*AM (7-9) Peak Hour*			*PM (4-6) Peak Hour*		
				In	*Out*	*Total*	*In*	*Out*	*Total*
Single-Family Detached Housing	1,270	d.u.	11,987	233	705	938	792	466	1,258
Apartments	849	d.u.	6,215	89	301	390	299	176	475
City Park	25.30	ac.	20	1	0	1	2	1	3
Commercial	192.273	k.s.f.	14,230	464	380	844	539	583	1,122
Total			**32,452**	**787**	**1,386**	**2,173**	**1,632**	**1,226**	**2,858**

Note: d.u. = dwelling unit
ac. = acre
k.s.f. = thousand square feet

Since the Project has been in a state of development since its approval, Table III presents a summary of the anticipated trip generation of the Project components that have been built between September 2020 as of May 2023. The trip generation of the Project components that were built include 254 units of Single-Family Detached Housing, 216 units of Multifamily Housing, 0.00 acres of City Park and 22,500 square feet of Commercial. Between September 2020 and May 2023, the proposed Project which was built is estimated to generate 5,899 daily, 405 AM peak hour and 515 PM peak hour total driveway trips.

Table III: Project Trip Generation - Built (2020 – 2023)

Land Use	*Size*	*Unit*	*Daily Trips*	*AM (7-9) Peak Hour*			*PM (4-6) Peak Hour*		
				In	*Out*	*Total*	*In*	*Out*	*Total*
Single-Family Detached Housing	254	d.u.	2,397	48	138	186	155	96	251
Apartments	216	d.u.	1,581	23	76	99	76	45	121
City Park	0	ac.	0	0	0	0	0	0	0
Commercial	22.500	k.s.f.	1,921	68	52	120	67	76	143
Total			**5,899**	**139**	**266**	**405**	**298**	**217**	**515**

Note: d.u. = dwelling unit
ac. = acre
k.s.f. = thousand square feet

The counts that were collected in April 2023 for this Report include the traffic generated listed in Table III. This Report assumes that a rate of construction that is twenty five percent (25%) greater than that experienced between 2020 and April 2023, or more in specific cases, continues for the next two years. Table IV presents a summary of the trip generation of the Project components that are anticipated to be built in the next two (2) years. These include 240 Single-Family Detached Housing units, 276 Multifamily Housing units and 38,400 square feet of Commercial. Through May of 2025, the proposed Project is estimated to generate an additional 8,526 daily, 554 AM peak hour and 723 PM peak hour total driveway trips.

Table IV: Project Trip Generation – Build Projections (2023 – 2025)

Land Use	*Size*	*Unit*	*Daily Trips*	*AM (7-9) Peak Hour*			*PM (4-6) Peak Hour*		
				In	*Out*	*Total*	*In*	*Out*	*Total*
Single-Family Detached Housing (210)	240	d.u.	2,265	41	135	176	152	87	239
Apartments (220)	276	d.u.	2,020	29	98	127	98	57	155
Commercial (820, 934 and 945)	38.400	k.s.f.	4,241	132	119	251	165	164	329
Total			**8,526**	**202**	**352**	**554**	**415**	**308**	**723**

Note: d.u. = dwelling unit
ac. = acre
k.s.f. = thousand square feet

It is worth noting that this TIA does not consider reductions in the Project's anticipated trip generation as a result of internal capture or pass-by trips. Internal capture trip reductions are typically applied to account for the interaction between various individual land uses included as part of the Project. For example, in a mixed-use development containing offices and shops, trips made by the office workers to the shops within the site are defined as internal, or captured, trips within the site. Pass-by trip reductions are typically applied to account for those vehicles already on the road that the Project may attract. Typically, internally captured trips are deducted from the total number of driveway trips that leave the Project site while pass-by are those which are already on the street adjacent to the Project site. Since internal capture and pass-by trips are not deducted from the Project's estimated maximum trip generation, this TIA represents a worst-case scenario.

Trip Distribution

The trip distribution assumptions were developed based on existing travel patterns, the Fresno COG Project Select Zone, the existing roadway network, engineering judgment, data provided by the developer, knowledge of the study area, existing residential and commercial densities and the *Fresno General Plan* Circulation Element in the vicinity of the Project. The Project's trip generation data was provided to Fresno COG in order to conduct a Project-specific Select Zone analysis using the Fresno COG ABM (Base Year 2019 and Cumulative Year 2035). The Fresno COG Project Select Zone prepared by Fresno COG can be found in the Copper River EIR TIA dated April 30, 2021. Figure 3 illustrates the Project Only Trips at the study intersections of those components projected to be built in the next two (2) years.

Roadway Network

The Existing plus Project (Year 2025) Traffic Conditions scenario assumes that the existing roadway geometrics and traffic controls will remain in place with one exception. By this scenario, Alicante Drive will be constructed to Willow Avenue. Figure 4 illustrates the assumed intersection geometrics and traffic controls under the Existing plus Project (Year 2025) scenario.

Traffic Signal Warrants

Warrant 3 was prepared for the unsignalized intersections under the Existing plus Project (Year 2025) Traffic Conditions scenario. These warrants are contained in Appendix F. Under this scenario, the study intersections of Millbrook Avenue at Olympic Avenue, Chestnut Avenue at Behymer Avenue and Sommerville Drive at Chestnut Avenue are projected to satisfy the peak hour signal warrant during one or both peak periods. Based on operational analysis and engineering judgment, signalization is not recommended for any of the study intersections under this scenario. However, it is recommended that preparation of construction documents for the ultimate signalization of these three (3) intersections be completed.

Results of Existing plus Project (Year 2025) Level of Service Analysis

Figure 4 illustrates the Existing plus Project (Year 2025) turning movement volumes, intersection geometrics and traffic controls. LOS worksheets for the Existing plus Project (Year 2025) Traffic Conditions scenario are provided in Appendix D. Table V presents a summary of the Existing plus Project (Year 2025) peak hour LOS at the study intersections.

Under this scenario, all study intersections are projected to operate at an acceptable LOS during both peak periods.

Table V: Existing plus Project (Year 2025) Intersection LOS Results

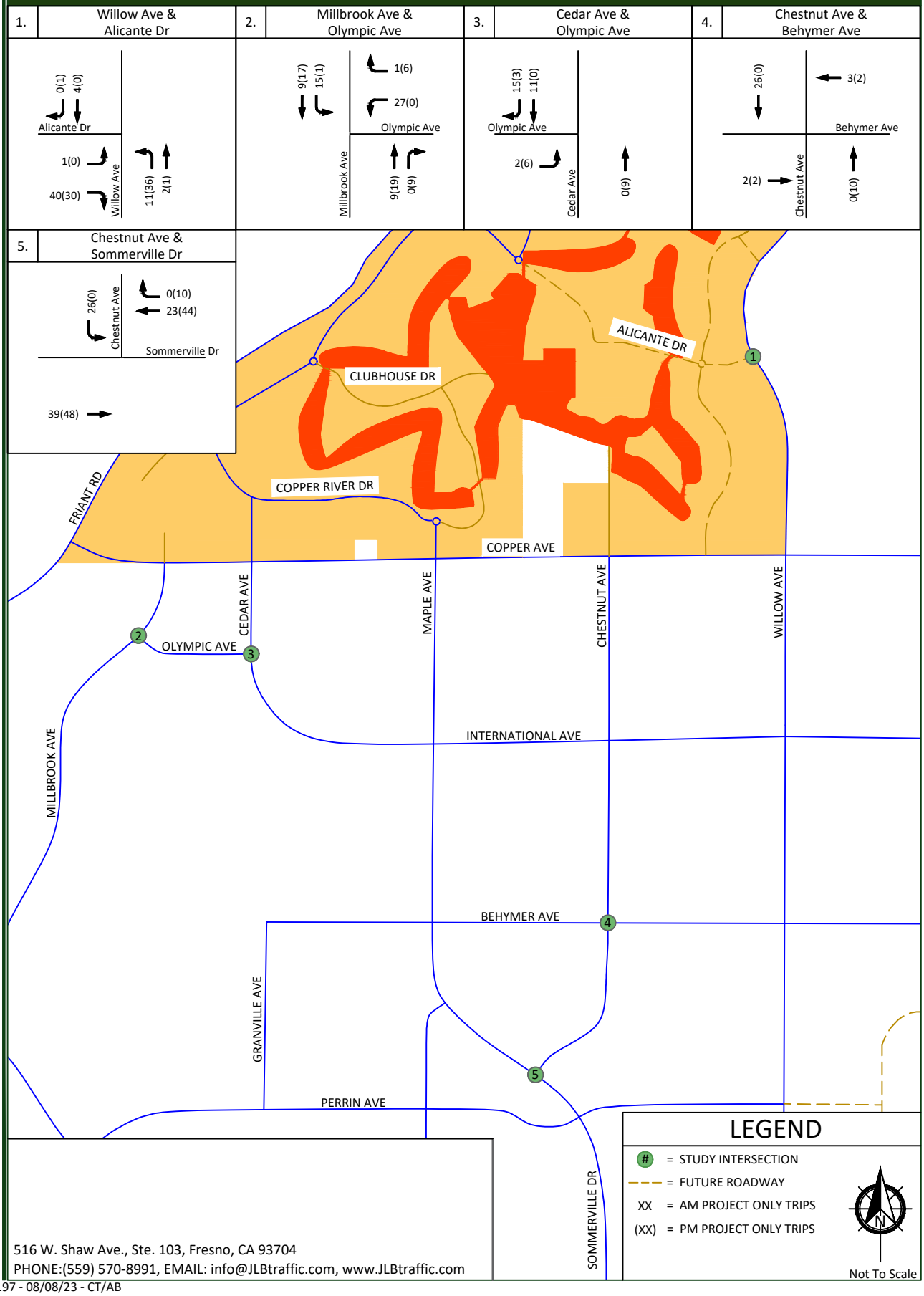
ID	*Intersection*	*Intersection Control*	*AM (7 - 9) Peak Hour*		*PM (4 - 6) Peak Hour*	
			Average Delay (sec/veh)	*LOS*	*Average Delay (sec/veh)*	*LOS*
1	Willow Avenue / Alicante Drive	One-Way Stop	9.8	A	9.3	A
2	Millbrook Avenue / Olympic Avenue	All-Way Stop	27.1	D	9.0	A
3	Cedar Avenue / Olympic Avenue	All-Way Stop	12.3	B	8.6	A
4	Chestnut Avenue / Behymer Avenue	All-Way Stop	20.4	C	10.8	B
5	Sommerville Drive / Chestnut Avenue	All-Way Stop	26.4	D	13.5	B

Note: LOS = Level of Service based on average delay on signalized intersections and All-Way STOP Controls
LOS for two-way and one-way STOP controlled intersections are based on the worst approach/movement of the minor street.

In the Copper River EIR TIA dated April 30, 2021, the intersection of Chestnut Avenue at Behymer Avenue exceeded its LOS threshold in the Existing plus Project scenario. This TIA does not consider the Project to be fully built in the Existing plus Project in contrast to the prior TIA. Furthermore, the prior TIA was analyzed using Synchro 10 which only allowed for two (2) lanes per approach for an all-way stop intersection. This analysis was completed using Synchro 11, which allows for three (3) lanes per approach for an all-way stop intersection. Thus, this analysis presents a more realistic result than that previously conducted. Currently, this intersection contains four (4) lanes on the east and west approaches so the analysis in this TIA is a more conservative analysis than the operations that currently take place.

Copper River Ranch - City of Fresno
2023 Through 2025 Project Only Trips

Figure 3



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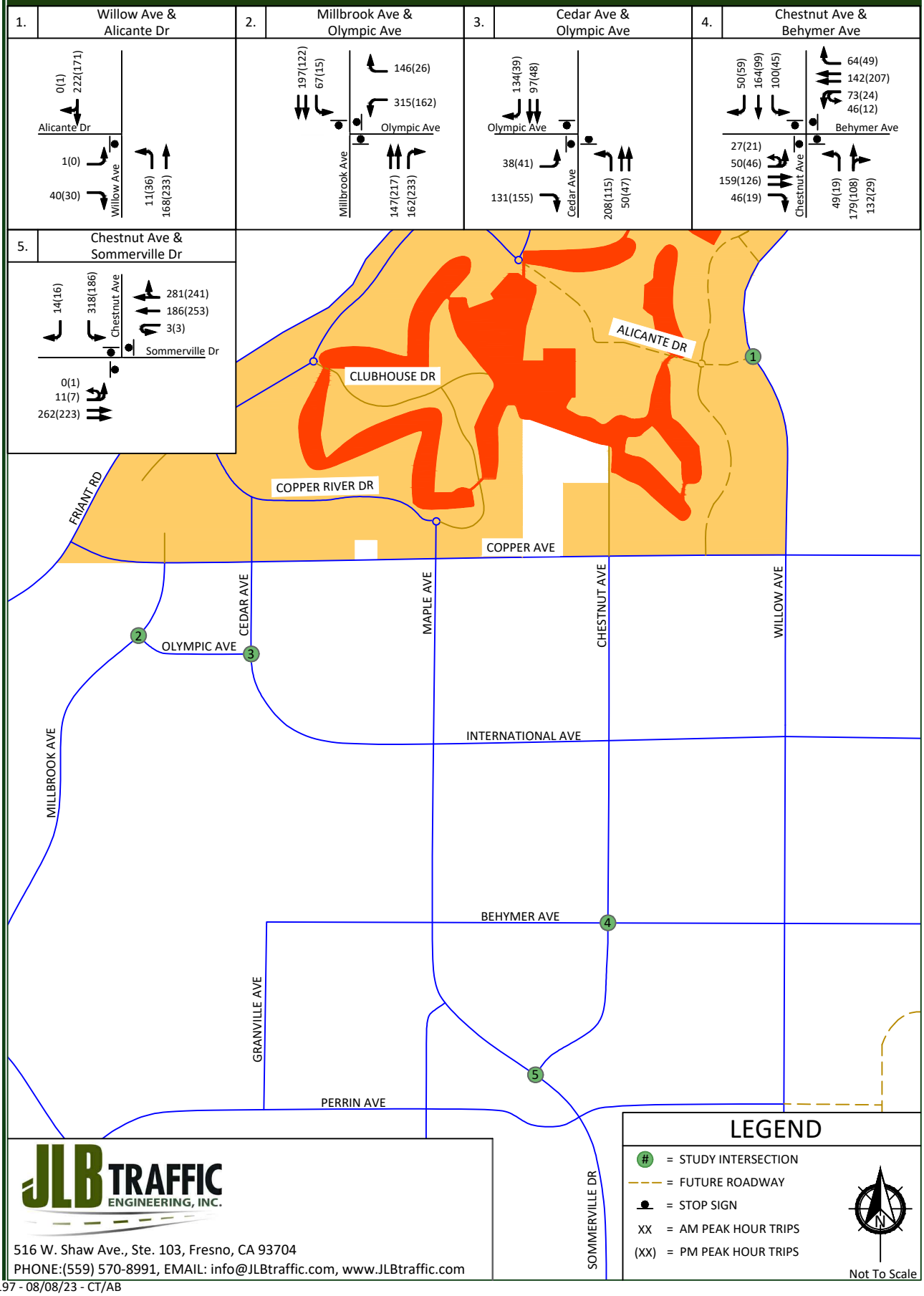
Copper River Ranch - City of Fresno
Existing plus Project (Year 2025) - Traffic Volumes, Geometrics and Controls

Figure 4



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Near Term plus Project (Year 2025) Traffic Conditions

Description of Near Term Projects

Near Term Projects consist of developments that are either under construction, built but not fully occupied, are not built but have final site development review (SDR) approval, or for which the lead agency or responsible agencies have knowledge of. The City of Fresno, County of Fresno and Caltrans staff were consulted throughout the preparation of the prior TIA regarding Near Term Projects that could potentially impact the study intersections. JLB staff conducted a reconnaissance of the surrounding area to confirm the Near Term Projects. Therefore, the Near Term Projects listed in Table VI were within proximity of the Project site.

Table VI: Year 2025 Near Term Projects' Trip Generation

Near Term Project ID	*Near Term Project Name*	*Daily Trips*	*AM Peak Hour*	*PM Peak Hour*
A	TT 5903 (portion of)[1]	28	2	3
B	TT 6135[1]	57	4	6
C	18 acres[1]	850	67	89
D	6 acres[1]	1,010	63	77
E	TT 5261 (portion of)[1]	28	2	3
F	TT 5029 (portion of)[1]	47	4	5
G	SWQ Willow-Copper MFR	113	9	12
H	Willow-Shepherd Mixed-Use[3]	512	11	44
I	CEMEX Rockfield Modification Project[4]	1,076	250	260
J	Alluvial Professional Offices[5]	2,199	262	40
K	Extended Stay Hotel[1]	491	37	152
L	Fresno-Nees Mixed-Use[1]	1,948	134	632
M	Friant-Audubon Mixed-Use[1]	5,806	400	632
N	Villages at the Ranch[1]	286	23	30
O	Heritage Crossing Care Facility[1]	140	10	14
P	Willow-Alluvial Apartments[1]	1,940	122	148
Q	Willow-Herndon Commercial[1]	8,284	206	836
R	Sam's Club Fuel Station[1]	2,752	164	224
Total Near Term Project Trips		**27,567**	**1,770**	**2,575**

Note: 1 = Trip Generation prepared by JLB Traffic Engineering, Inc. based on readily available information
2 = Trip Generation based on JLB Traffic Engineering, Inc. Traffic Impact Analysis Report
3 = Trip Generation based on a Traffic Impact Analysis Report by another Traffic Engineering Firm

The trip generation listed in Table VI is that which is anticipated to be added to the streets and highways by Near Term Projects by the year 2025. As shown in Table VI, the total trip generation for the Near Term Projects is 27,567 weekday daily trips, 1,770 weekday AM peak hour trips and 2,575 weekday PM peak hour trips. Figure 5 illustrates the location of the Year 2025 Near Term Projects and their combined trip assignment to the study intersections under the Near Term plus Project (Year 2025) Traffic Conditions scenario.

Roadway Network

The Near Term plus Project (Year 2025) Traffic Conditions scenario assumes that the Existing plus Project (Year 2025) Traffic Conditions roadway geometrics and traffic controls will remain in place. Figure 6 illustrates the assumed intersection geometrics and traffic controls for these intersections under this scenario.

Traffic Signal Warrants

Warrant 3 was prepared for the unsignalized intersections under the Near Term plus Project (Year 2025) Traffic Conditions scenario. These warrants are contained in Appendix F. Under this scenario, the study intersections of Millbrook Avenue at Olympic Avenue, Chestnut Avenue at Behymer Avenue and Sommerville Drive at Chestnut Avenue are projected to satisfy the peak hour signal warrant during one or both peak periods. Based on operational analysis and engineering judgment, signalization is not recommended for any study intersections under this scenario. However, it is recommended that preparation of construction documents for the ultimate signalization of these three (3) intersections be completed.

Assuming that all of the near term projects and the additional Project residential and commercial development as listed in Table IV are fully built, it is estimated that the intersections of Millbrook Avenue at Olympic Avenue and Sommerville Drive at Chestnut Avenue would need to have fully operational traffic signals by the Year 2026. As a result, it is recommended that these two intersections be signalized by early 2026.

Results of the Near Term plus Project (Year 2025) Level of Service Analysis

Figure 6 illustrates the Near Term plus Project (Year 2025) turning movement volumes, intersection geometrics and traffic controls. LOS worksheets for the Near Term plus Project (Year 2025) Traffic Conditions scenario are provided in Appendix E. Table VII presents a summary of the Near Term plus Project (Year 2025) peak hour LOS at the study intersections.

Under this scenario, all study intersections are projected to operate at an acceptable LOS during both peak periods.

In the Copper River EIR TIA dated April 30, 2021, the intersection of Chestnut Avenue at Behymer Avenue exceeded its LOS threshold in the Near Term plus Project scenario. This TIA does not consider the Project to be fully built in the Near Term plus Project in contrast to the prior TIA. Furthermore, the prior TIA was analyzed using Synchro 10 which only allowed for two (2) lanes per approach for an all-way stop intersection. This analysis was completed using Synchro 11, which allows for three (3) lanes per approach for an all-way stop intersection. Thus, this analysis presents a more realistic result than that previously conducted. Currently, this intersection contains four (4) lanes on the east and west approaches so the analysis in this TIA is a more conservative analysis than the operations that currently take place.

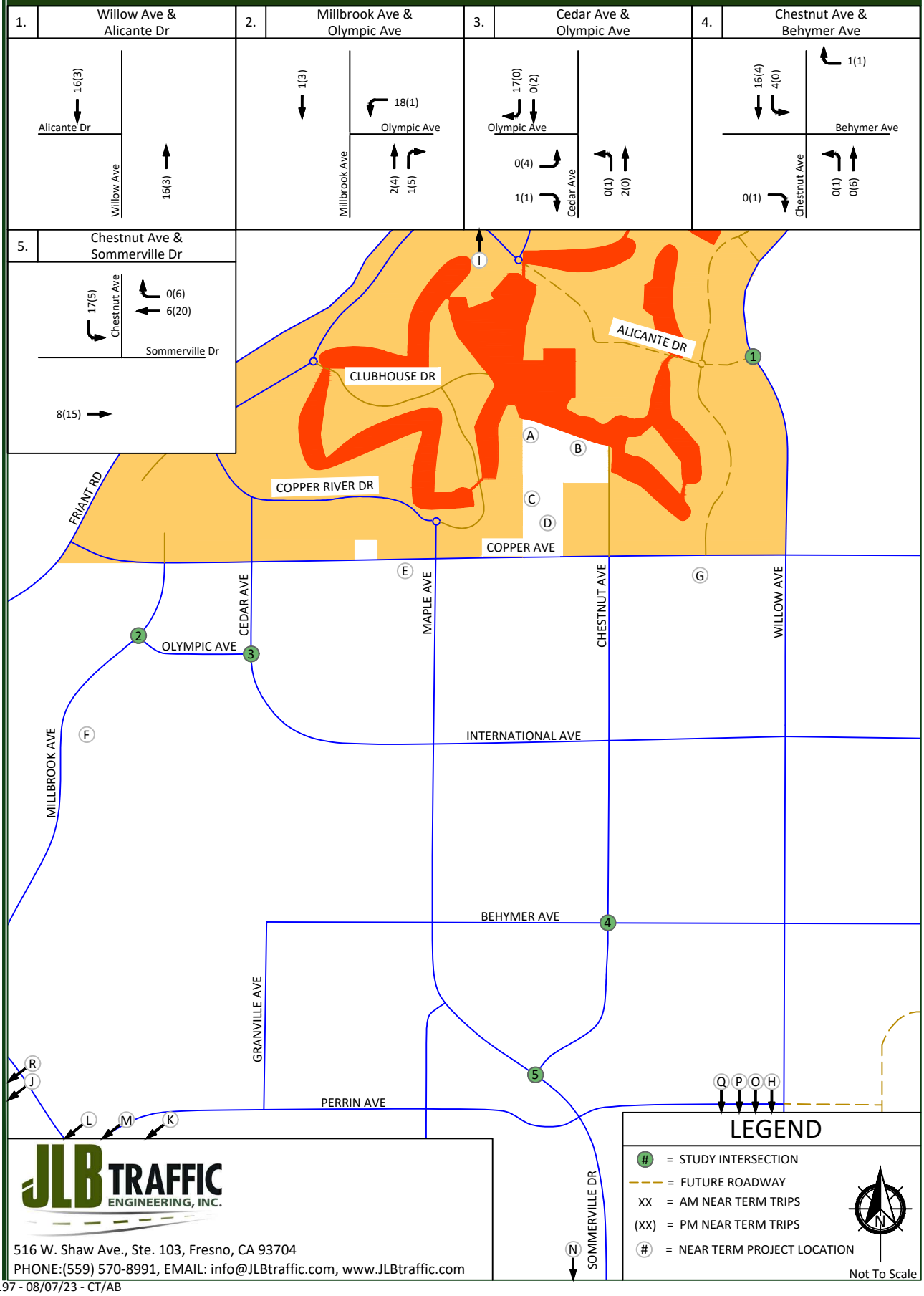
Table VII: Near Term plus Project (Year 2025) Intersection LOS Results

ID	Intersection	Intersection Control	AM (7 - 9) Peak Hour		PM (4 - 6) Peak Hour	
			Average Delay (sec/veh)	LOS	Average Delay (sec/veh)	LOS
1	Willow Avenue / Alicante Drive	One-Way Stop	9.9	A	9.3	A
2	Millbrook Avenue / Olympic Avenue	All-Way Stop	32.5	D	9.0	A
3	Cedar Avenue / Olympic Avenue	All-Way Stop	12.3	B	8.7	A
4	Chestnut Avenue / Behymer Avenue	All-Way Stop	21.1	C	10.9	B
5	Sommerville Drive / Chestnut Avenue	All-Way Stop	30.2	D	14.1	B

Note: LOS = Level of Service based on average delay on signalized intersections and All-Way STOP Controls
LOS for two-way and one-way STOP controlled intersections are based on the worst approach/movement of the minor street.

Copper River Ranch - City of Fresno
Year 2025 Near Term Projects' Trip Assignment

Figure 5



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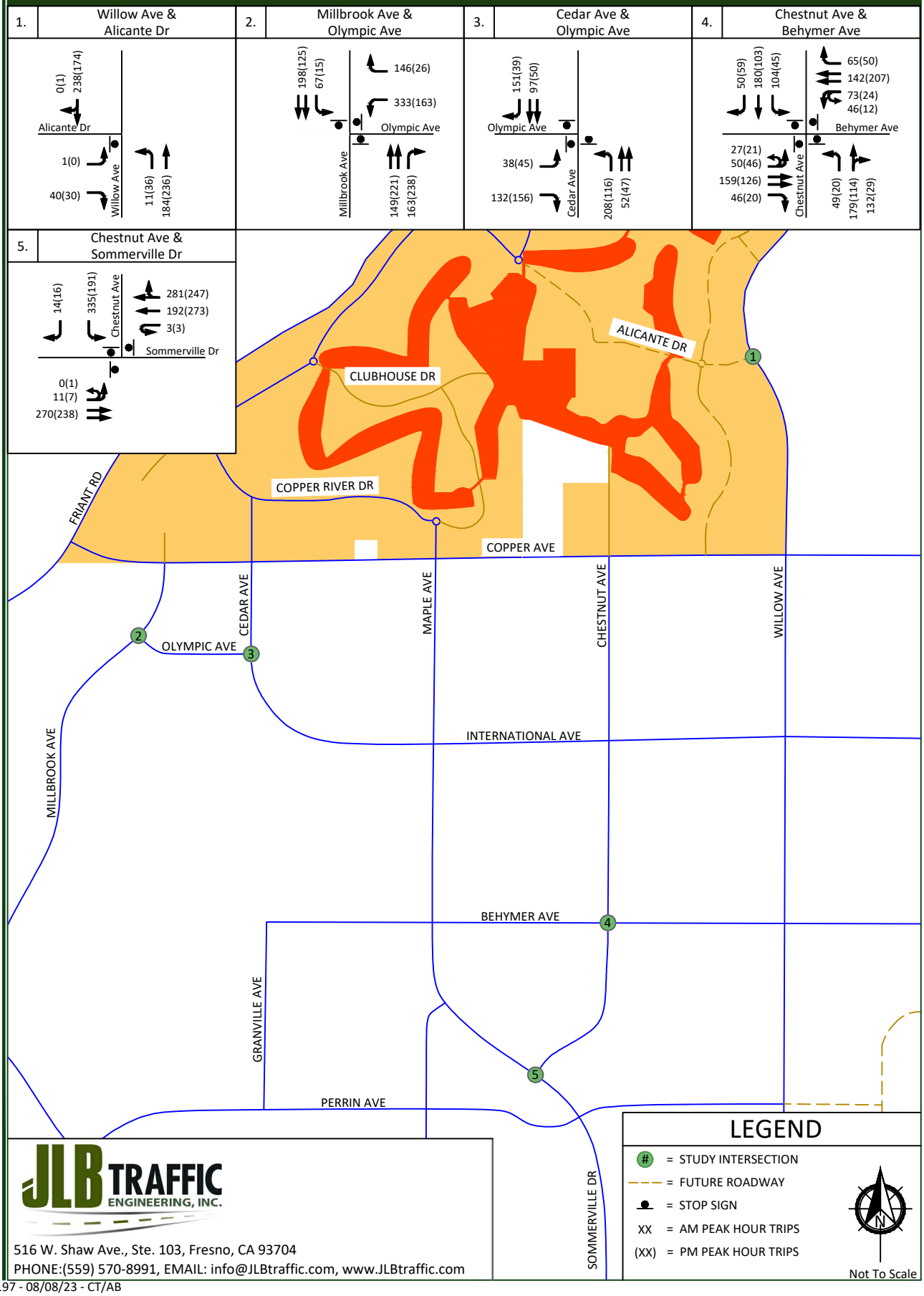
Copper River Ranch - City of Fresno
Near Term plus Project (Year 2025) - Traffic Volumes, Geometrics and Controls

Figure 6



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Queuing Analysis

Table VIII provides a queue length summary for left-turn and right-turn lanes at the study intersections under all study scenarios. The queuing analyses for the study intersections are contained in the LOS worksheets for the respective scenarios. Appendix B contains the methodologies used to evaluate these intersections. Queuing analyses were completed using SimTraffic output information. Synchro provides both 50th and 95th percentile maximum queue lengths (in feet). According to the *Synchro Studio 11 User Guide*, "the 50th percentile maximum queue is the maximum back of queue on a typical cycle and the 95th percentile queue is the maximum back of queue with 95th percentile volumes" (Cubic ITS, Inc., 2019). The queues shown in Table VIII are the 95th percentile queue lengths for the respective lane movements.

The *California Highway Design Manual* (CA HDM) provides guidance for determining deceleration lengths for the left-turn and right-turn lanes based on design speeds. According to the CA HDM, tapers for right-turn lanes are "usually unnecessary since main line traffic need not be shifted laterally to provide space for the right-turn lane. If, in some rare instances, a lateral shift were needed, the approach taper would use the same formula as for a left-turn lane" (Caltrans, 2019). Therefore, a bay taper length pursuant to the CA HDM would need to be added, as necessary, to the recommended storage lengths presented in Table VIII.

The storage capacity for the Near Term plus Project (Year 2025) Traffic Conditions shall be based on the SimTraffic output files and engineering judgment. The values in bold presented in Table VIII are the projected queue lengths that will likely need to be accommodated by the Near Term plus Project (Year 2025) Traffic Conditions scenario. At the remaining approaches of the study intersections, the existing storage capacity will be sufficient to accommodate the maximum queue.

Table VIII: Queuing Analysis

ID	Intersection	Existing Queue Storage Length (ft.)		Existing (Year 2023)		Existing plus Project (Year 2025)		Near Term plus Project (Year 2025)	
				AM	PM	AM	PM	AM	PM
1	Willow Avenue / Alicante Drive	Eastbound Left	*	*	*	0	0	0	0
		Eastbound Right	*	*	*	56	48	52	45
		Northbound Left	*	*	*	**24**	24	12	10
		Northbound Through	*	*	*	0	0	0	0
		Southbound Through-Right	*	*	*	0	0	0	0
2	Millbrook Avenue / Olympic Avenue	Westbound Left	>300	87	67	106	77	129	64
		Westbound Right	>300	47	16	51	30	46	34
		Northbound Through	>500	59	50	48	61	58	51
		Northbound Through	>500	47	49	51	55	49	51
		Northbound Right	160	70	65	56	69	59	74
		Southbound Left	100	53	38	43	33	49	31
		Southbound Through	>500	53	48	60	72	80	43
		Southbound Through	>500	50	47	47	39	44	40
3	Cedar Avenue / Olympic Avenue	Eastbound Left	200	41	40	37	35	34	37
		Eastbound Right	>300	53	54	48	50	35	52
		Northbound Left	200	81	55	83	55	93	61
		Northbound Through	>500	42	44	43	46	45	44
		Northbound Through	>500	42	28	51	42	40	43
		Southbound Through	>500	43	47	49	44	60	55
		Southbound Through	>500	26	0	38	23	32	18
		Southbound Right	100	55	50	60	45	54	43

Note: * = Does not exist or is not projected to exist

Table VIII: Queuing Analysis (Continued)

ID	Intersection	Existing Queue Storage Length (ft.)		Existing (Year 2023)		Existing plus Project (Year 2025)		Near Term plus Project (Year 2025)	
				AM	PM	AM	PM	AM	PM
4	Chestnut Avenue / Behymer Avenue	Eastbound Left	200	44	47	49	43	58	42
		Eastbound Through	>500	43	38	40	40	45	41
		Eastbound Through-Right	>500	52	42	58	34	60	34
		Westbound Left	230	62	47	72	44	77	47
		Westbound Through	>500	64	62	74	78	71	75
		Westbound Through-Right	>500	60	55	60	55	66	44
		Northbound Left	100	52	43	52	38	50	39
		Northbound Through-Right	>500	106	71	117	67	125	71
		Southbound Left	120	63	48	85	44	73	46
		Southbound Through	>500	72	60	83	70	86	68
		Southbound Right	120	56	57	54	51	55	59
5	Sommerville Drive / Chestnut Avenue	Eastbound Left	150	31	31	38	33	27	26
		Eastbound Through	>500	49	53	60	53	53	62
		Eastbound Through	>500	51	48	58	53	60	67
		Westbound Left	150	9	0	16	15	19	16
		Westbound Through	>500	56	60	59	52	54	69
		Westbound Through-Right	>500	71	85	94	73	87	83
		Southbound Left	140	83	75	102	69	103	80
		Southbound Right	>300	26	35	33	38	27	37

Note: * = Does not exist or is not projected to exist

Conclusions and Recommendations

Conclusions and recommendations regarding the proposed Project are presented below.

Existing (Year 2023) Traffic Conditions

- At present, all study intersections operate at an acceptable LOS during both peak periods.

Existing plus Project (Year 2025) Traffic Conditions

- At buildout, the proposed Project is estimated to generate approximately 8,526 daily trips, 554 AM peak hour trips and 723 PM peak hour trips.
- Under this scenario, all study intersections are projected to operate at an acceptable LOS during both peak periods.

Near Term plus Project (Year 2025) Traffic Conditions

- The total trip generation for the Near Term Projects is 27,567 weekday daily trips, 1,770 weekday AM peak hour trips and 2,575 weekday PM peak hour trips.
- Under this scenario, all study intersections are projected to operate at an acceptable LOS during both peak periods.
- It is recommended that preparation of construction documents for the ultimate signalization of the intersections of Millbrook Avenue at Olympic Avenue, Chestnut Avenue at Behymer Avenue and Sommerville Drive at Chestnut Avenue be completed.
- Assuming that all of the near term projects and the additional Project residential and commercial development as listed in Table IV are fully built, it is recommended that the intersections of Millbrook Avenue at Olympic Avenue and Sommerville Drive at Chestnut Avenue be signalized in early 2026.

Study Participants

JLB Traffic Engineering, Inc. Personnel:

Jose Luis Benavides, PE, TE	Project Manager
Matthew Arndt, EIT	Engineer I/II
Christian Sanchez	Engineer I/II
John Yang	CADD Technician
Adrian Benavides	Engineering Aide
Carlos Topete	Engineering Aide

Persons Consulted:

Drew Phelps	Granville Homes
Harmanjit Dhaliwal, PE	City of Fresno
Jill Gormley	City of Fresno

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Appendix A: Traffic Counts

JLB Traffic Engineering, Inc.

516 W. Shaw Ave., Ste. 103
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www.JLBtraffic.com

File Name : Millbrook at Olympic
Site Code : 00000000
Start Date : 4/18/2023
Page No : 1

Groups Printed- Unshifted - Turns

	OLYMPIC Eastbound				OLYMPIC Westbound				MILLBROOK Northbound				MILLBROOK Southbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
07:00 AM	0	0	0	0	46	0	0	0	0	20	25	0	3	17	0	0	111
07:15 AM	0	0	0	0	40	0	7	0	0	12	27	1	5	26	0	0	118
07:30 AM	0	0	0	0	84	0	51	1	0	28	43	0	25	49	0	0	281
07:45 AM	0	0	0	0	106	0	83	1	0	34	46	0	22	62	0	0	354
Total	0	0	0	0	276	0	141	2	0	94	141	1	55	154	0	0	864
08:00 AM	0	0	0	0	48	0	7	1	0	44	43	0	4	40	0	0	187
08:15 AM	0	0	0	0	50	0	4	0	0	32	30	0	1	37	0	0	154
08:30 AM	0	0	0	0	59	0	5	0	0	20	22	1	1	29	0	0	137
08:45 AM	0	0	0	0	26	0	2	0	0	21	22	1	2	21	0	0	95
Total	0	0	0	0	183	0	18	1	0	117	117	2	8	127	0	0	573
*** BREAK ***																	
04:00 PM	0	0	0	0	45	0	15	0	0	43	41	0	2	26	0	0	172
04:15 PM	0	0	0	0	35	0	3	0	0	44	34	0	4	31	0	0	151
04:30 PM	0	0	0	0	26	0	8	0	0	36	42	0	4	34	0	0	150
04:45 PM	0	0	0	0	39	0	7	1	0	37	45	0	3	29	0	0	161
Total	0	0	0	0	145	0	33	1	0	160	162	0	13	120	0	0	634
05:00 PM	0	0	0	0	46	0	3	6	0	50	51	0	2	19	0	0	177
05:15 PM	0	0	0	0	40	0	7	1	0	35	56	2	8	24	0	0	173
05:30 PM	0	0	0	0	37	0	6	6	1	57	50	0	3	30	0	0	190
05:45 PM	0	0	0	0	39	0	4	1	0	55	67	1	1	31	0	0	199
Total	0	0	0	0	162	0	20	14	1	197	224	3	14	104	0	0	739
Grand Total	0	0	0	0	766	0	212	18	1	568	644	6	90	505	0	0	2810
Apprch %	0	0	0	0	76.9	0	21.3	1.8	0.1	46.6	52.8	0.5	15.1	84.9	0	0	
Total %	0	0	0	0	27.3	0	7.5	0.6	0	20.2	22.9	0.2	3.2	18	0	0	
Unshifted	0	0	0	0	766	0	212	18	0	568	644	6	90	505	0	0	2809
% Unshifted	0	0	0	0	100	0	100	100	0	100	100	100	100	100	0	0	100
U-Turns	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
% U-Turns	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0	0	0

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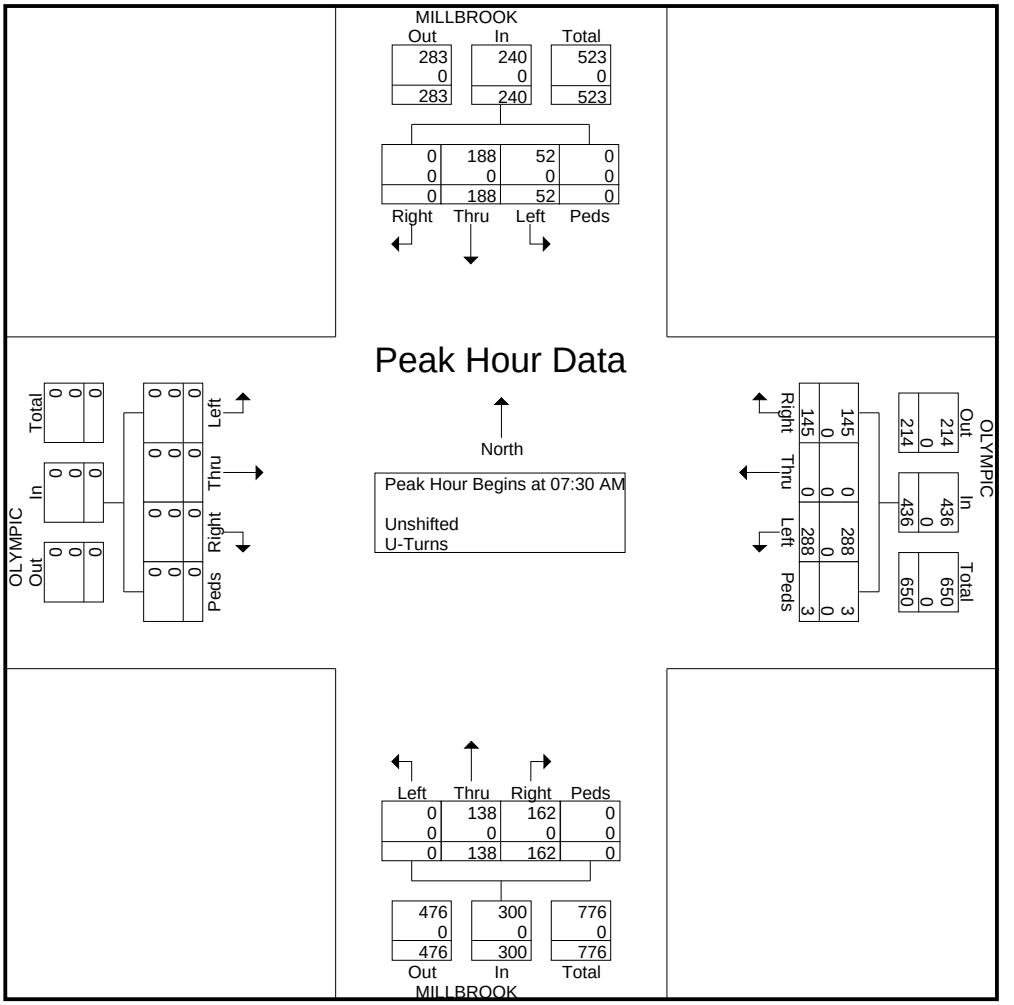
	OLYMPIC Eastbound					OLYMPIC Westbound					MILLBROOK Northbound					MILLBROOK Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	0	0	0	0	0	84	0	51	**1**	136	0	28	43	0	71	**25**	49	0	0	74	281
07:45 AM	0	0	0	0	0	**106**	0	**83**	1	**190**	0	34	**46**	0	80	22	**62**	0	0	**84**	**354**
08:00 AM	0	0	0	0	0	48	0	7	1	56	0	**44**	43	0	**87**	4	40	0	0	44	187
08:15 AM	0	0	0	0	0	50	0	4	0	54	0	32	30	0	62	1	37	0	0	38	154
Total Volume	0	0	0	0	0	288	0	145	3	436	0	138	162	0	300	52	188	0	0	240	976
% App. Total	0	0	0	0		66.1	0	33.3	0.7		0	46	54	0		21.7	78.3	0	0		
PHF	.000	.000	.000	.000	.000	.679	.000	.437	.750	.574	.000	.784	.880	.000	.862	.520	.758	.000	.000	.714	.689
Unshifted	0	0	0	0	0	288	0	145	3	436	0	138	162	0	300	52	188	0	0	240	976
% Unshifted	0	0	0	0	0	100	0	100	100	100	0	100	100	0	100	100	100	0	0	100	100
U-Turns	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% U-Turns	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



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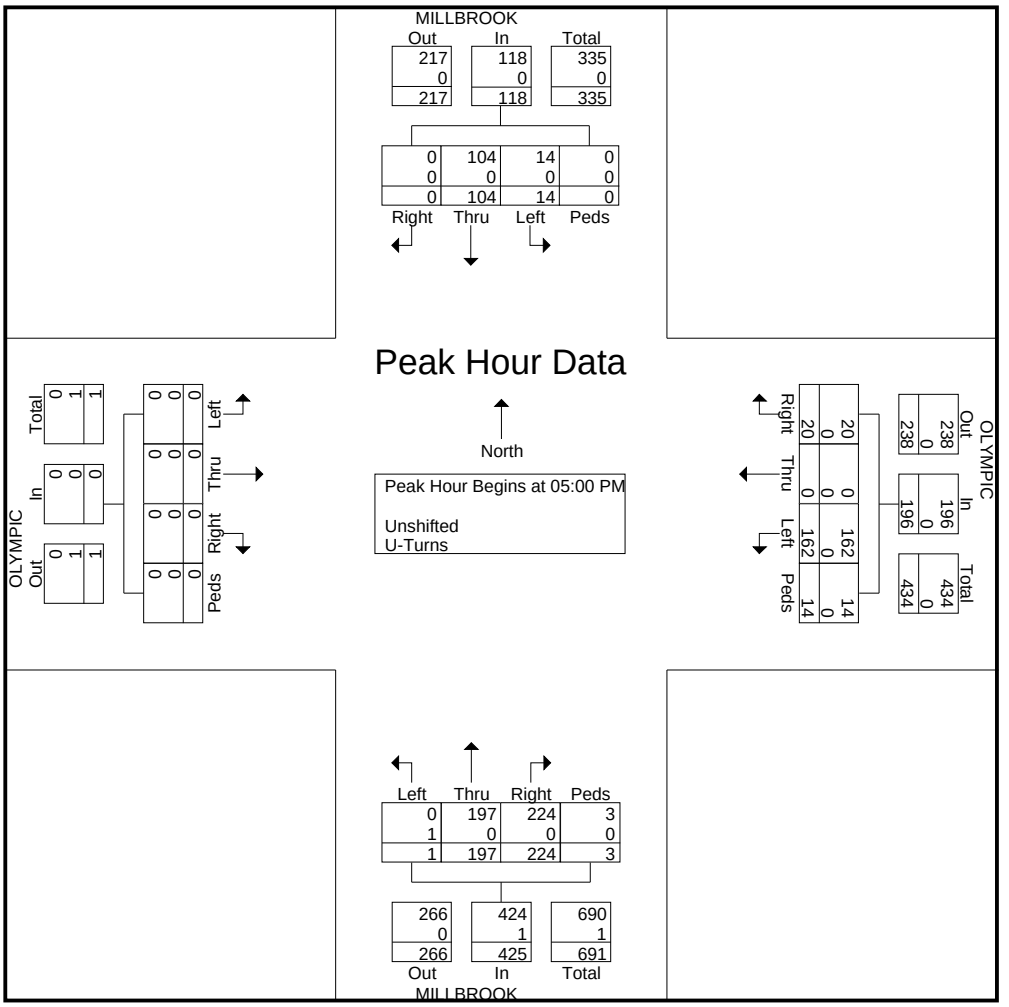
Start Date : 4/18/2023
Page No : 3

	OLYMPIC Eastbound					OLYMPIC Westbound					MILLBROOK Northbound					MILLBROOK Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	0	0	0	0	0	**46**	0	3	**6**	**55**	0	50	51	0	101	2	19	0	0	21	177
05:15 PM	0	0	0	0	0	40	0	**7**	1	48	0	35	56	**2**	93	**8**	24	0	0	32	173
05:30 PM	0	0	0	0	0	37	0	6	6	49	**1**	**57**	50	0	108	3	30	0	0	**33**	190
05:45 PM	0	0	0	0	0	39	0	4	1	44	0	55	**67**	1	**123**	1	**31**	0	0	32	**199**
Total Volume	0	0	0	0	0	162	0	20	14	196	1	197	224	3	425	14	104	0	0	118	739
% App. Total	0	0	0	0		82.7	0	10.2	7.1		0.2	46.4	52.7	0.7		11.9	88.1	0	0		
PHF	.000	.000	.000	.000	.000	.880	.000	.714	.583	.891	.250	.864	.836	.375	.864	.438	.839	.000	.000	.894	.928
Unshifted	0	0	0	0	0	162	0	20	14	196	0	197	224	3	424	14	104	0	0	118	738
% Unshifted	0	0	0	0	0	100	0	100	100	100	0	100	100	100	99.8	100	100	0	0	100	99.9
U-Turns	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1
% U-Turns	0	0	0	0	0	0	0	0	0	0	100	0	0	0	0.2	0	0	0	0	0	0.1



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Start Date : 4/18/2023
Page No : 1

Groups Printed- Bicycles

	OLYMPIC Eastbound				OLYMPIC Westbound				MILLBROOK Northbound				MILLBROOK Southbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
*** BREAK ***																	
08:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
08:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
*** BREAK ***																	
Total	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2
*** BREAK ***																	
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
04:30 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
04:45 PM	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	2
Total	0	0	0	0	1	0	0	0	0	2	0	0	0	1	0	0	4
*** BREAK ***																	
05:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
05:30 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
05:45 PM	0	0	0	0	2	0	0	0	0	0	2	0	0	1	0	0	5
Total	0	0	0	0	3	0	0	0	0	0	3	0	0	1	0	0	7
Grand Total	0	0	0	0	4	0	0	0	0	2	5	0	0	2	0	0	13
Apprch %	0	0	0	0	100	0	0	0	0	28.6	71.4	0	0	100	0	0	
Total %	0	0	0	0	30.8	0	0	0	0	15.4	38.5	0	0	15.4	0	0	

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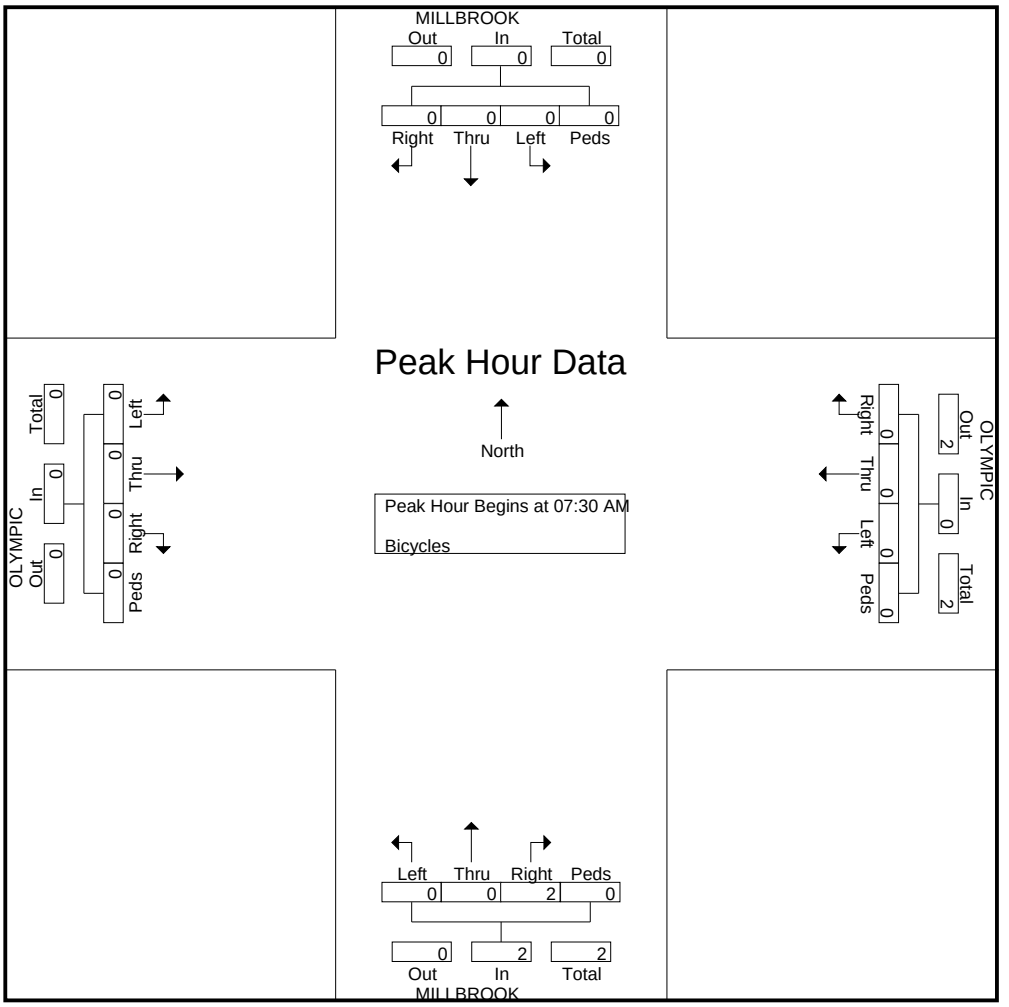
	OLYMPIC Eastbound					OLYMPIC Westbound					MILLBROOK Northbound					MILLBROOK Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	**1**	0	**1**	0	0	0	0	0	**1**
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	2
% App. Total	0	0	0	0		0	0	0	0		0	0	100	0		0	0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.500	.000	.500	.000	.000	.000	.000	.000	.500



JLB Traffic Engineering, Inc.

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File Name : Millbrook at Olympic
Site Code : 00000000
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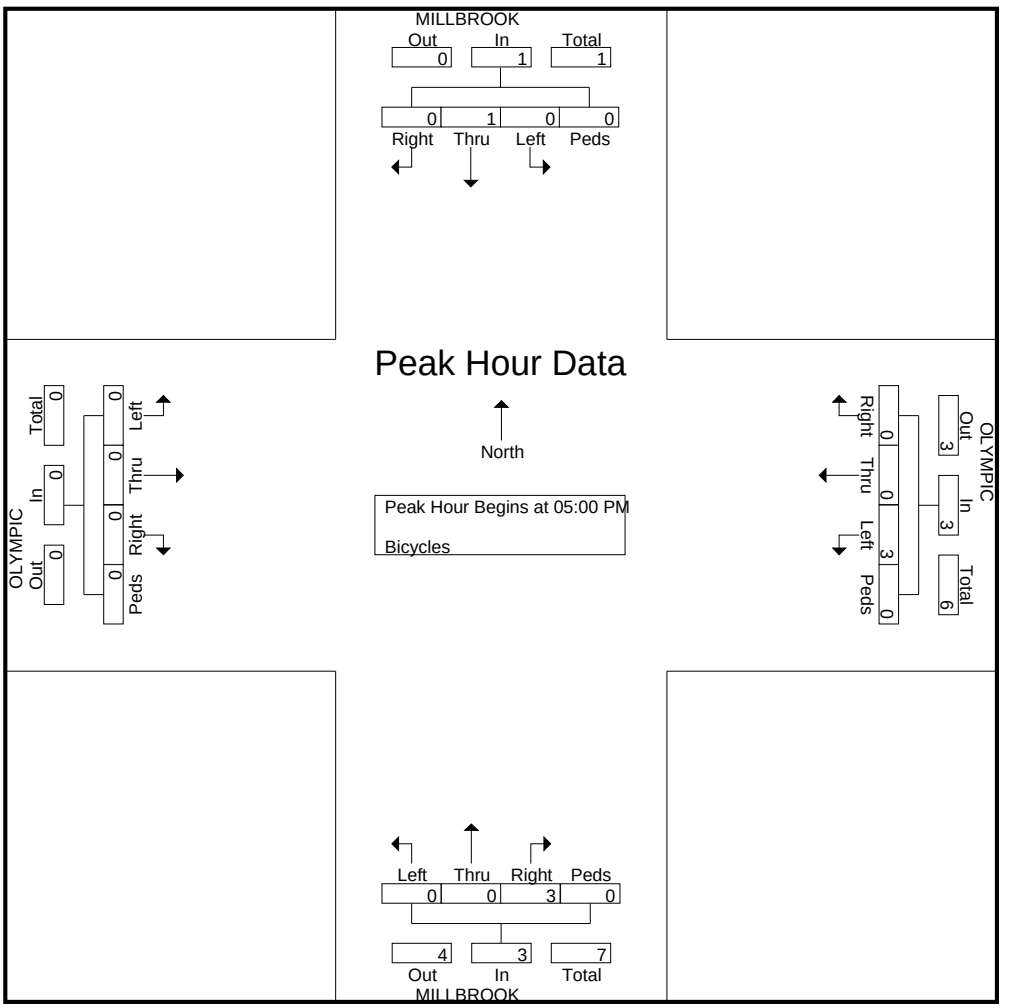
	OLYMPIC Eastbound					OLYMPIC Westbound					MILLBROOK Northbound					MILLBROOK Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1
05:30 PM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
05:45 PM	0	0	0	0	0	**2**	0	0	0	**2**	0	0	**2**	0	**2**	0	**1**	0	0	**1**	**5**
Total Volume	0	0	0	0	0	3	0	0	0	3	0	0	3	0	3	0	1	0	0	1	7
% App. Total	0	0	0	0		100	0	0	0		0	0	100	0		0	100	0	0		
PHF	.000	.000	.000	.000	.000	.375	.000	.000	.000	.375	.000	.000	.375	.000	.375	.000	.250	.000	.000	.250	.350



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File Name : Cedar at Olympic
Site Code : 00000000
Start Date : 4/19/2023
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Groups Printed- Unshifted - Turns

	OLYMPIC Eastbound				OLYMPIC Westbound				CEDAR Northbound				CEDAR Southbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
07:00 AM	1	0	10	2	0	0	0	0	31	4	0	0	0	4	7	0	59
07:15 AM	4	0	13	1	0	0	0	0	32	11	0	0	0	8	13	2	84
07:30 AM	4	0	20	0	0	0	0	13	77	10	0	0	1	28	55	3	211
07:45 AM	22	0	35	0	0	0	0	13	64	20	0	0	0	38	50	13	255
Total	31	0	78	3	0	0	0	26	204	45	0	0	1	78	125	18	609
08:00 AM	7	0	40	0	0	0	0	0	29	9	0	0	0	5	8	0	98
08:15 AM	3	0	36	0	0	0	0	1	38	10	0	0	0	14	6	0	108
08:30 AM	8	0	24	0	0	0	0	0	61	15	0	0	0	13	10	0	131
08:45 AM	0	0	22	2	0	0	0	0	24	8	0	0	0	4	5	1	66
Total	18	0	122	2	0	0	0	1	152	42	0	0	0	36	29	1	403
*** BREAK ***																	
04:00 PM	7	0	25	0	0	0	0	1	23	12	0	0	0	6	9	0	83
04:15 PM	5	0	30	0	0	0	0	1	29	13	0	0	0	5	6	3	92
04:30 PM	10	0	22	0	0	0	0	1	37	10	0	0	0	9	7	0	96
04:45 PM	8	0	38	3	0	0	0	0	29	6	0	0	0	11	9	0	104
Total	30	0	115	3	0	0	0	3	118	41	0	0	0	31	31	3	375
05:00 PM	10	0	33	0	0	0	0	0	33	7	0	3	0	18	13	3	120
05:15 PM	9	0	47	0	0	0	0	0	24	16	0	0	0	12	9	5	122
05:30 PM	8	0	37	0	0	0	0	1	29	9	0	0	0	7	5	1	97
05:45 PM	8	0	42	0	0	0	0	0	22	10	0	0	0	15	3	2	102
Total	35	0	159	0	0	0	0	1	108	42	0	3	0	52	30	11	441
Grand Total	114	0	474	8	0	0	0	31	582	170	0	3	1	197	215	33	1828
Apprch %	19.1	0	79.5	1.3	0	0	0	100	77.1	22.5	0	0.4	0.2	44.2	48.2	7.4	
Total %	6.2	0	25.9	0.4	0	0	0	1.7	31.8	9.3	0	0.2	0.1	10.8	11.8	1.8	
Unshifted	114	0	474	8	0	0	0	31	582	170	0	3	0	197	215	33	1827
% Unshifted	100	0	100	100	0	0	0	100	100	100	0	100	0	100	100	100	99.9
U-Turns	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
% U-Turns	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0	0.1

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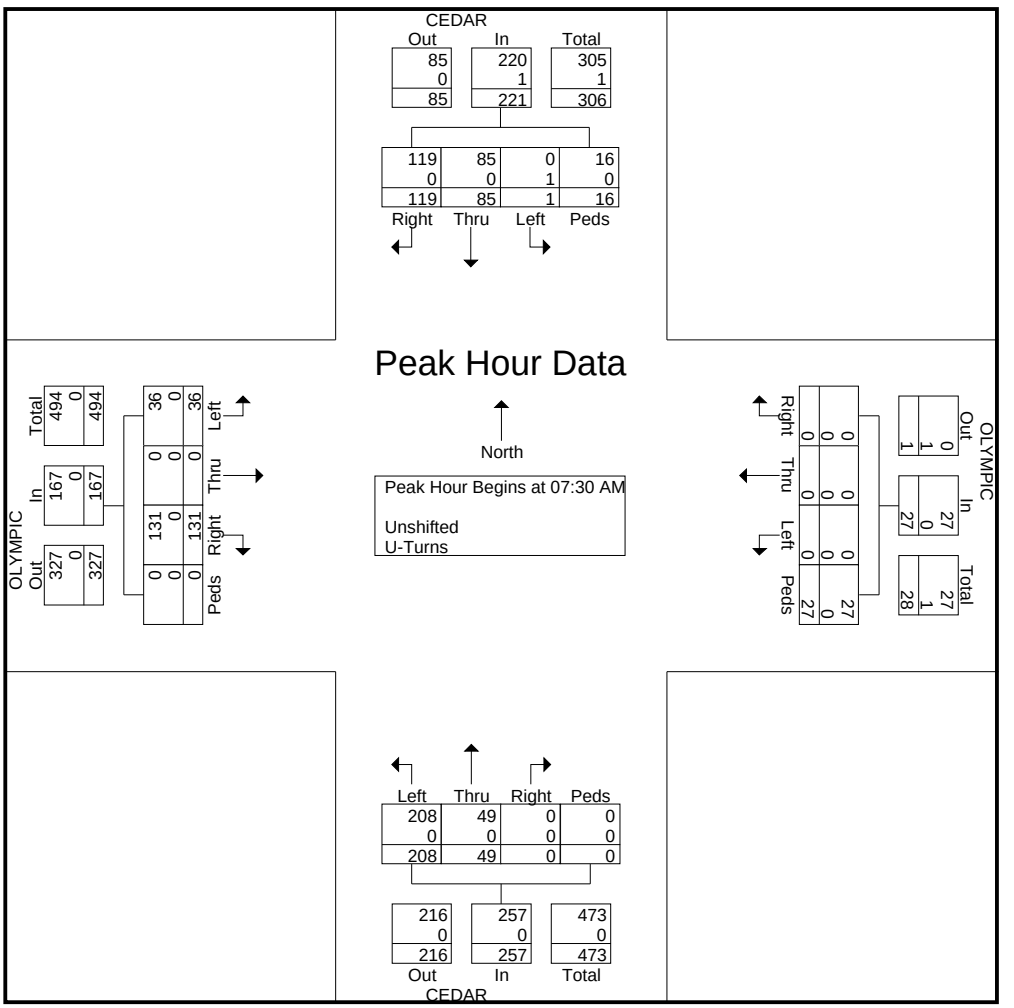
	OLYMPIC Eastbound					OLYMPIC Westbound					CEDAR Northbound					CEDAR Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	4	0	20	0	24	0	0	0	**13**	**13**	**77**	10	0	0	**87**	**1**	28	**55**	3	87	211
07:45 AM	**22**	0	35	0	**57**	0	0	0	13	13	64	**20**	0	0	84	0	**38**	50	**13**	**101**	**255**
08:00 AM	7	0	**40**	0	47	0	0	0	0	0	29	9	0	0	38	0	5	8	0	13	98
08:15 AM	3	0	36	0	39	0	0	0	1	1	38	10	0	0	48	0	14	6	0	20	108
Total Volume	36	0	131	0	167	0	0	0	27	27	208	49	0	0	257	1	85	119	16	221	672
% App. Total	21.6	0	78.4	0		0	0	0	100		80.9	19.1	0	0		0.5	38.5	53.8	7.2		
PHF	.409	.000	.819	.000	.732	.000	.000	.000	.519	.519	.675	.613	.000	.000	.739	.250	.559	.541	.308	.547	.659
Unshifted	36	0	131	0	167	0	0	0	27	27	208	49	0	0	257	0	85	119	16	220	671
% Unshifted	100	0	100	0	100	0	0	0	100	100	100	100	0	0	100	0	100	100	100	99.5	99.9
U-Turns	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
% U-Turns	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0	0.5	0.1



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File Name : Cedar at Olympic
Site Code : 00000000
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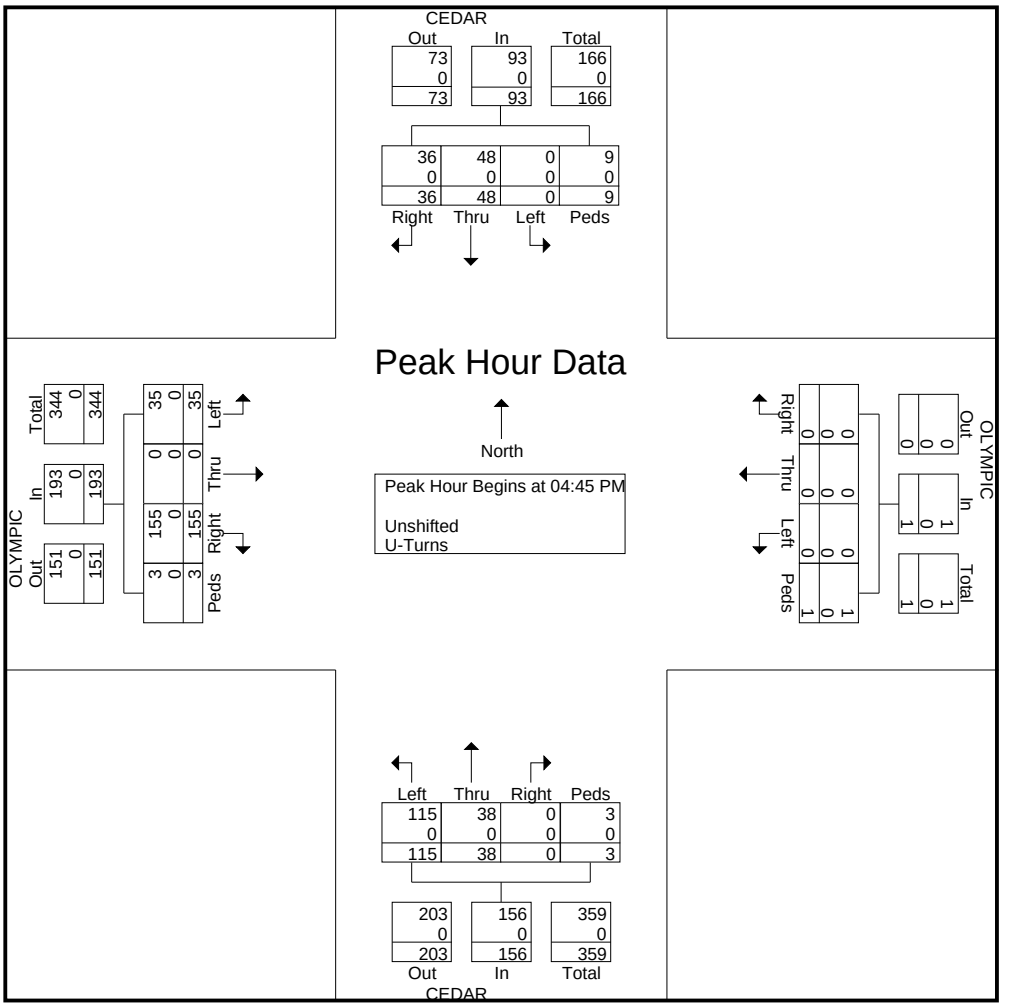
	OLYMPIC Eastbound					OLYMPIC Westbound					CEDAR Northbound					CEDAR Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	8	0	38	**3**	49	0	0	0	0	0	29	6	0	0	35	0	11	9	0	20	104
05:00 PM	**10**	0	33	0	43	0	0	0	0	0	**33**	7	0	**3**	**43**	0	**18**	**13**	3	**34**	120
05:15 PM	9	0	**47**	0	**56**	0	0	0	0	0	24	**16**	0	0	40	0	12	9	**5**	26	**122**
05:30 PM	8	0	37	0	45	0	0	0	**1**	**1**	29	9	0	0	38	0	7	5	1	13	97
Total Volume	35	0	155	3	193	0	0	0	1	1	115	38	0	3	156	0	48	36	9	93	443
% App. Total	18.1	0	80.3	1.6		0	0	0	100		73.7	24.4	0	1.9		0	51.6	38.7	9.7		
PHF	.875	.000	.824	.250	.862	.000	.000	.000	.250	.250	.871	.594	.000	.250	.907	.000	.667	.692	.450	.684	.908
Unshifted	35	0	155	3	193	0	0	0	1	1	115	38	0	3	156	0	48	36	9	93	443
% Unshifted	100	0	100	100	100	0	0	0	100	100	100	100	0	100	100	0	100	100	100	100	100
U-Turns	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% U-Turns	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



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File Name : Cedar at Olympic
Site Code : 00000000
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Groups Printed- Bicycles

	OLYMPIC Eastbound				OLYMPIC Westbound				CEDAR Northbound				CEDAR Southbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
*** BREAK ***																	
08:00 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
*** BREAK ***																	
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
*** BREAK ***																	
Total	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	2
*** BREAK ***																	
04:00 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
04:15 PM	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	2
*** BREAK ***																	
Total	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	3
*** BREAK ***																	
05:15 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
05:45 PM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
Total	0	0	1	0	0	0	0	0	1	0	0	0	0	0	1	0	3
Grand Total	0	0	2	0	0	0	0	0	2	2	0	0	0	1	1	0	8
Apprch %	0	0	100	0	0	0	0	0	50	50	0	0	0	50	50	0	
Total %	0	0	25	0	0	0	0	0	25	25	0	0	0	12.5	12.5	0	

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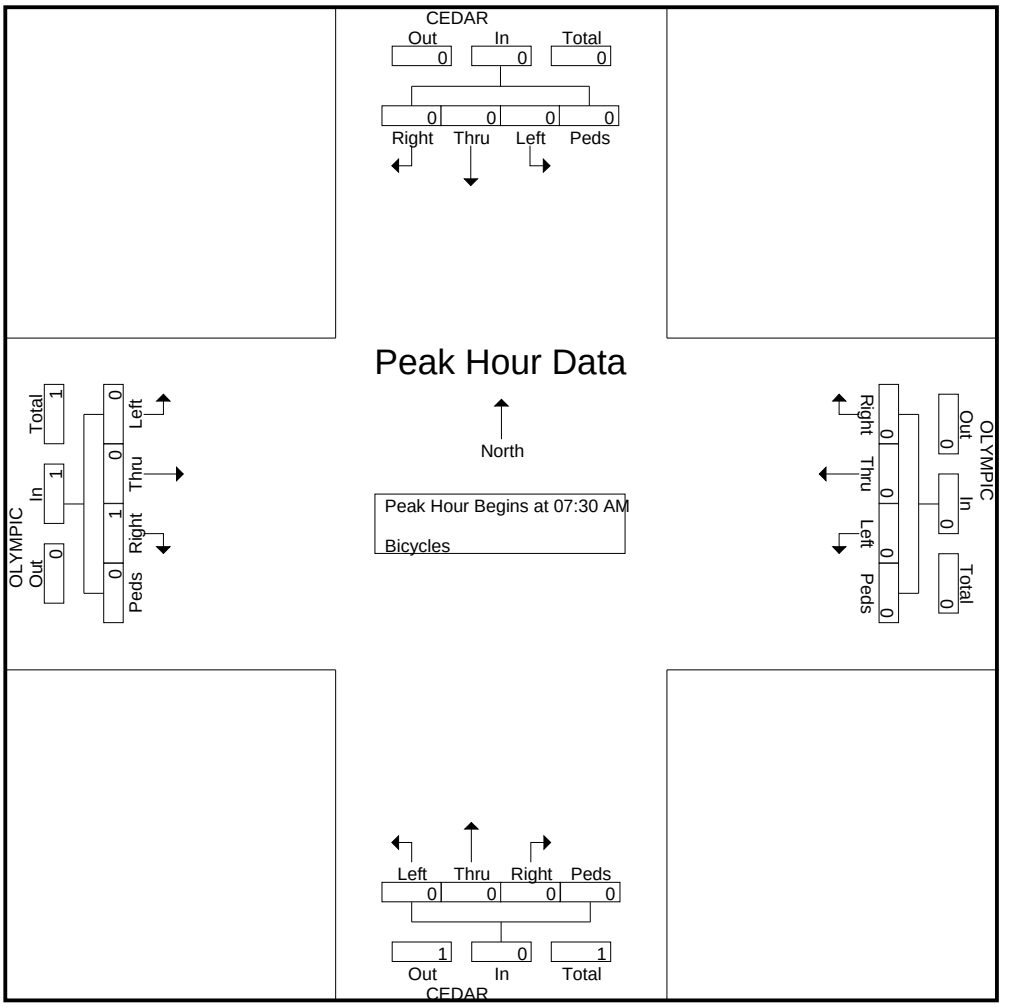
	OLYMPIC Eastbound					OLYMPIC Westbound					CEDAR Northbound					CEDAR Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	**1**	0	**1**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
% App. Total	0	0	100	0		0	0	0	0		0	0	0	0		0	0	0	0	0	
PHF	.000	.000	.250	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250



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File Name : Cedar at Olympic
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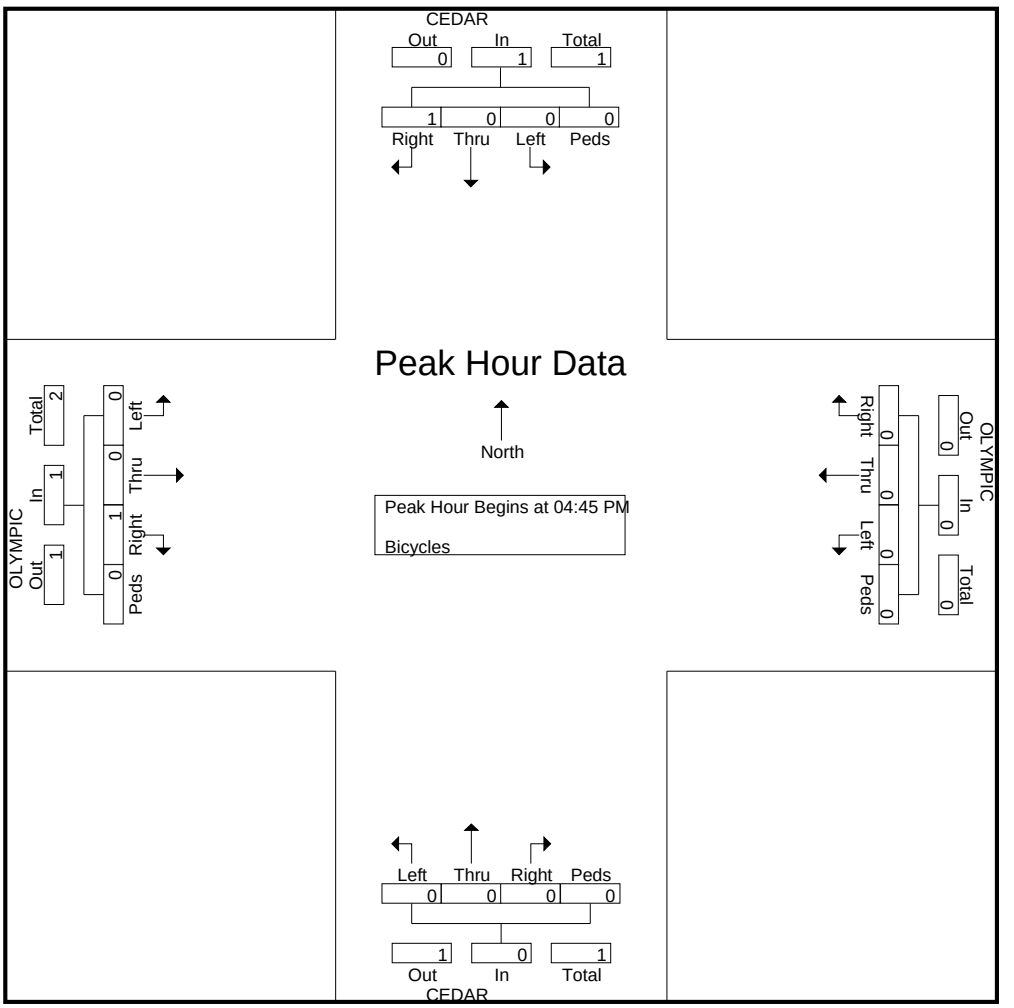
	OLYMPIC Eastbound					OLYMPIC Westbound					CEDAR Northbound					CEDAR Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	**1**	0	**1**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**	0	**1**	1
Total Volume	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2
% App. Total	0	0	100	0		0	0	0	0		0	0	0	0		0	0	100	0		
PHF	.000	.000	.250	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.000	.250	.500



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File Name : Chestnut and Behymer
Site Code : 00000000
Start Date : 4/25/2023
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Groups Printed- Unshifted - Turns

	BEHYMER Eastbound				BEHYMER Westbound				CHESTNUT Northbound				CHESTNUT Southbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
07:00 AM	10	22	4	0	6	14	1	1	5	10	2	2	15	13	3	0	108
07:15 AM	16	29	9	1	15	20	6	0	5	20	9	2	15	29	14	4	194
07:30 AM	11	41	15	5	52	34	8	2	19	21	44	2	13	25	7	1	300
07:45 AM	18	46	24	1	51	39	11	1	20	38	64	1	21	21	7	2	365
Total	55	138	52	7	124	107	26	4	49	89	119	7	64	88	31	7	967
08:00 AM	22	43	6	0	13	42	18	0	4	59	14	0	29	33	14	0	297
08:15 AM	26	27	1	0	3	24	27	0	6	61	10	2	37	59	22	1	306
08:30 AM	10	29	5	1	8	32	8	2	3	21	6	3	38	43	19	0	228
08:45 AM	3	21	5	1	2	16	8	0	5	7	5	0	8	19	3	0	103
Total	61	120	17	2	26	114	61	2	18	148	35	5	112	154	58	1	934
*** BREAK ***																	
04:00 PM	17	31	5	5	15	31	6	0	8	26	25	4	15	15	4	2	209
04:15 PM	16	14	4	0	6	44	5	0	3	14	6	4	17	21	7	0	161
04:30 PM	11	19	4	1	6	45	13	1	1	23	5	0	10	27	11	0	177
04:45 PM	12	18	2	3	5	45	8	0	8	27	5	0	12	24	21	0	190
Total	56	82	15	9	32	165	32	1	20	90	41	8	54	87	43	2	737
05:00 PM	19	31	4	0	3	49	15	0	5	26	8	0	11	28	13	0	212
05:15 PM	13	19	5	1	18	58	14	1	6	28	5	0	14	21	20	0	223
05:30 PM	16	43	7	4	8	52	5	3	3	21	7	2	10	30	14	1	226
05:45 PM	19	31	3	0	7	46	15	0	5	23	9	0	10	20	12	1	201
Total	67	124	19	5	36	205	49	4	19	98	29	2	45	99	59	2	862
Grand Total	239	464	103	23	218	591	168	11	106	425	224	22	275	428	191	12	3500
Apprch %	28.8	56	12.4	2.8	22.1	59.8	17	1.1	13.6	54.7	28.8	2.8	30.4	47.2	21.1	1.3	
Total %	6.8	13.3	2.9	0.7	6.2	16.9	4.8	0.3	3	12.1	6.4	0.6	7.9	12.2	5.5	0.3	
Unshifted	148	464	103	23	152	591	168	11	106	425	224	22	275	428	191	12	3343
% Unshifted	61.9	100	100	100	69.7	100	100	100	100	100	100	100	100	100	100	100	95.5
U-Turns	91	0	0	0	66	0	0	0	0	0	0	0	0	0	0	0	157
% U-Turns	38.1	0	0	0	30.3	0	0	0	0	0	0	0	0	0	0	0	4.5

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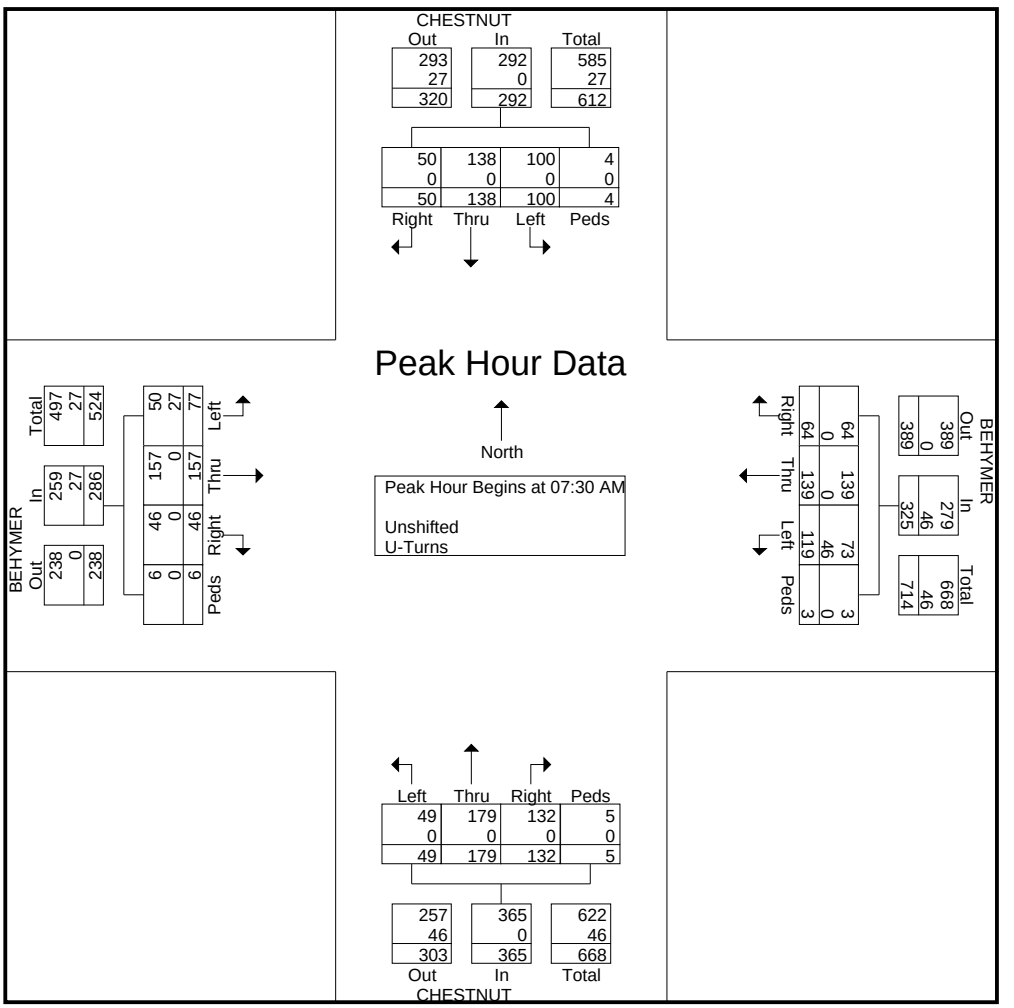
	BEHYMER Eastbound					BEHYMER Westbound					CHESTNUT Northbound					CHESTNUT Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	11	41	15	**5**	72	**52**	34	8	**2**	96	19	21	44	**2**	86	13	25	7	1	46	300
07:45 AM	18	**46**	**24**	1	**89**	51	39	11	1	**102**	**20**	38	**64**	1	**123**	21	21	7	**2**	51	**365**
08:00 AM	22	43	6	0	71	13	**42**	18	0	73	4	59	14	0	77	29	33	14	0	76	297
08:15 AM	**26**	27	1	0	54	3	24	**27**	0	54	6	**61**	10	2	79	**37**	**59**	**22**	1	**119**	306
Total Volume	77	157	46	6	286	119	139	64	3	325	49	179	132	5	365	100	138	50	4	292	1268
% App. Total	26.9	54.9	16.1	2.1		36.6	42.8	19.7	0.9		13.4	49	36.2	1.4		34.2	47.3	17.1	1.4		
PHF	.740	.853	.479	.300	.803	.572	.827	.593	.375	.797	.613	.734	.516	.625	.742	.676	.585	.568	.500	.613	.868
Unshifted	50	157	46	6	259	73	139	64	3	279	49	179	132	5	365	100	138	50	4	292	1195
% Unshifted	64.9	100	100	100	90.6	61.3	100	100	100	85.8	100	100	100	100	100	100	100	100	100	100	94.2
U-Turns	27	0	0	0	27	46	0	0	0	46	0	0	0	0	0	0	0	0	0	0	73
% U-Turns	35.1	0	0	0	9.4	38.7	0	0	0	14.2	0	0	0	0	0	0	0	0	0	0	5.8



JLB Traffic Engineering, Inc.

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File Name : Chestnut and Behymer
Site Code : 00000000
Start Date : 4/25/2023
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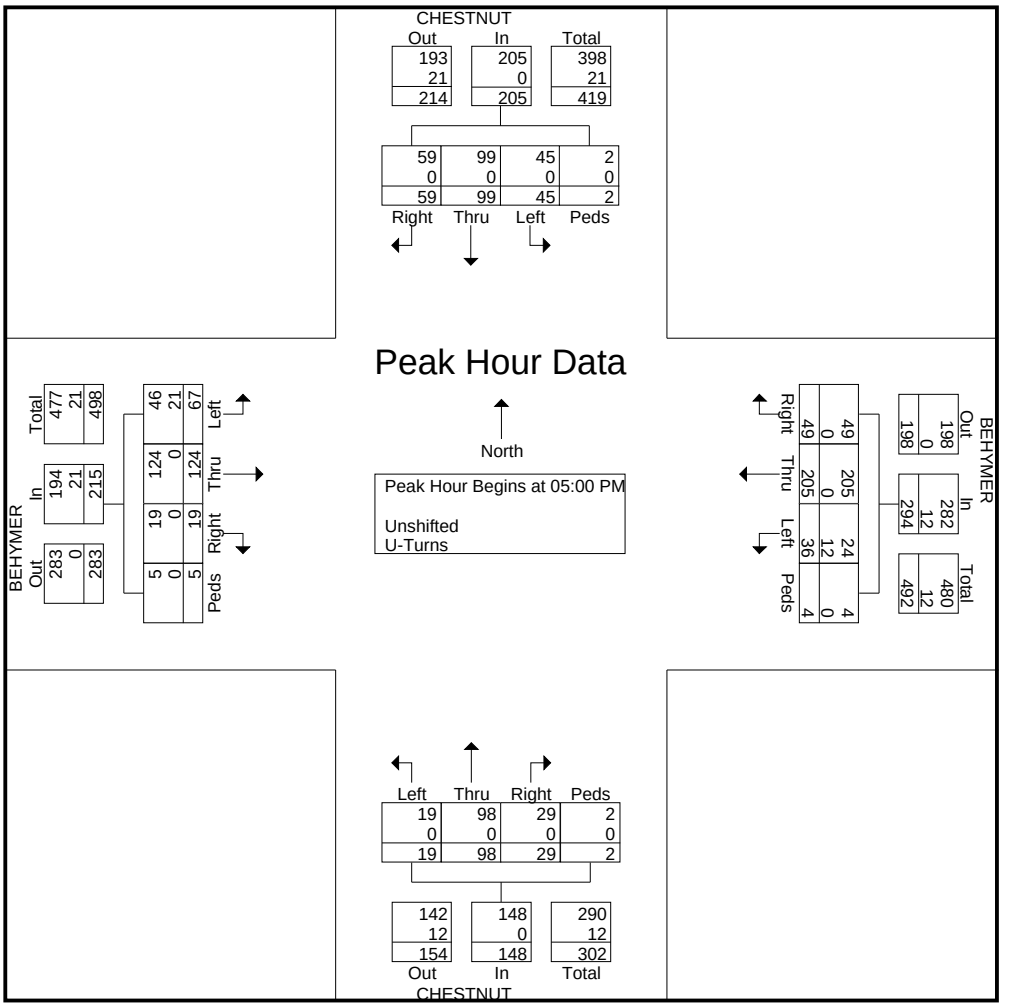
	BEHYMER Eastbound					BEHYMER Westbound					CHESTNUT Northbound					CHESTNUT Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	**19**	31	4	0	54	3	49	**15**	0	67	5	26	8	0	**39**	11	28	13	0	52	212
05:15 PM	13	19	5	1	38	**18**	**58**	14	1	**91**	**6**	**28**	5	0	39	**14**	21	**20**	0	**55**	223
05:30 PM	16	**43**	**7**	**4**	**70**	8	52	5	**3**	68	3	21	7	**2**	33	10	**30**	14	**1**	55	**226**
05:45 PM	19	31	3	0	53	7	46	15	0	68	5	23	**9**	0	37	10	20	12	1	43	201
Total Volume	67	124	19	5	215	36	205	49	4	294	19	98	29	2	148	45	99	59	2	205	862
% App. Total	31.2	57.7	8.8	2.3		12.2	69.7	16.7	1.4		12.8	66.2	19.6	1.4		22	48.3	28.8	1		
PHF	.882	.721	.679	.313	.768	.500	.884	.817	.333	.808	.792	.875	.806	.250	.949	.804	.825	.738	.500	.932	.954
Unshifted	46	124	19	5	194	24	205	49	4	282	19	98	29	2	148	45	99	59	2	205	829
% Unshifted	68.7	100	100	100	90.2	66.7	100	100	100	95.9	100	100	100	100	100	100	100	100	100	100	96.2
U-Turns	21	0	0	0	21	12	0	0	0	12	0	0	0	0	0	0	0	0	0	0	33
% U-Turns	31.3	0	0	0	9.8	33.3	0	0	0	4.1	0	0	0	0	0	0	0	0	0	0	3.8



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Groups Printed- Bicycles

	BEHYMER Eastbound				BEHYMER Westbound				CHESTNUT Northbound				CHESTNUT Southbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
*** BREAK ***																	
08:00 AM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
08:15 AM	0	0	0	0	0	0	1	0	0	0	0	0	2	0	0	0	3
*** BREAK ***																	
Total	1	0	0	0	0	0	1	0	0	0	0	0	2	0	0	0	4
*** BREAK ***																	
04:00 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
04:15 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
*** BREAK ***																	
Total	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	2
*** BREAK ***																	
Grand Total	1	0	0	0	1	1	1	0	0	0	0	0	2	0	0	0	6
Apprch %	100	0	0	0	33.3	33.3	33.3	0	0	0	0	0	100	0	0	0	
Total %	16.7	0	0	0	16.7	16.7	16.7	0	0	0	0	0	33.3	0	0	0	

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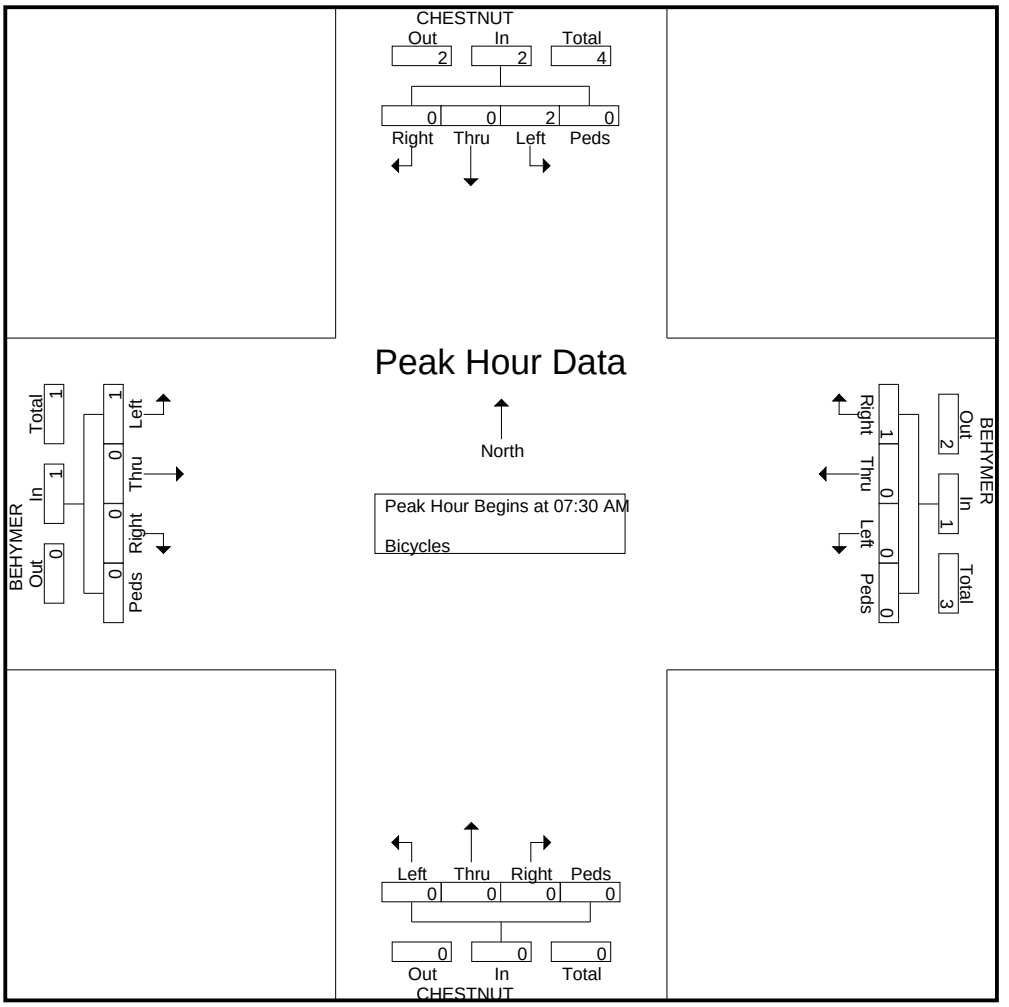
	BEHYMER Eastbound					BEHYMER Westbound					CHESTNUT Northbound					CHESTNUT Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	**1**	0	0	0	**1**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
08:15 AM	0	0	0	0	0	0	0	**1**	0	**1**	0	0	0	0	0	**2**	0	0	0	**2**	**3**
Total Volume	1	0	0	0	1	0	0	1	0	1	0	0	0	0	0	2	0	0	0	2	4
% App. Total	100	0	0	0		0	0	100	0		0	0	0	0		100	0	0	0		
PHF	.250	.000	.000	.000	.250	.000	.000	.250	.000	.250	.000	.000	.000	.000	.000	.250	.000	.000	.000	.250	.333



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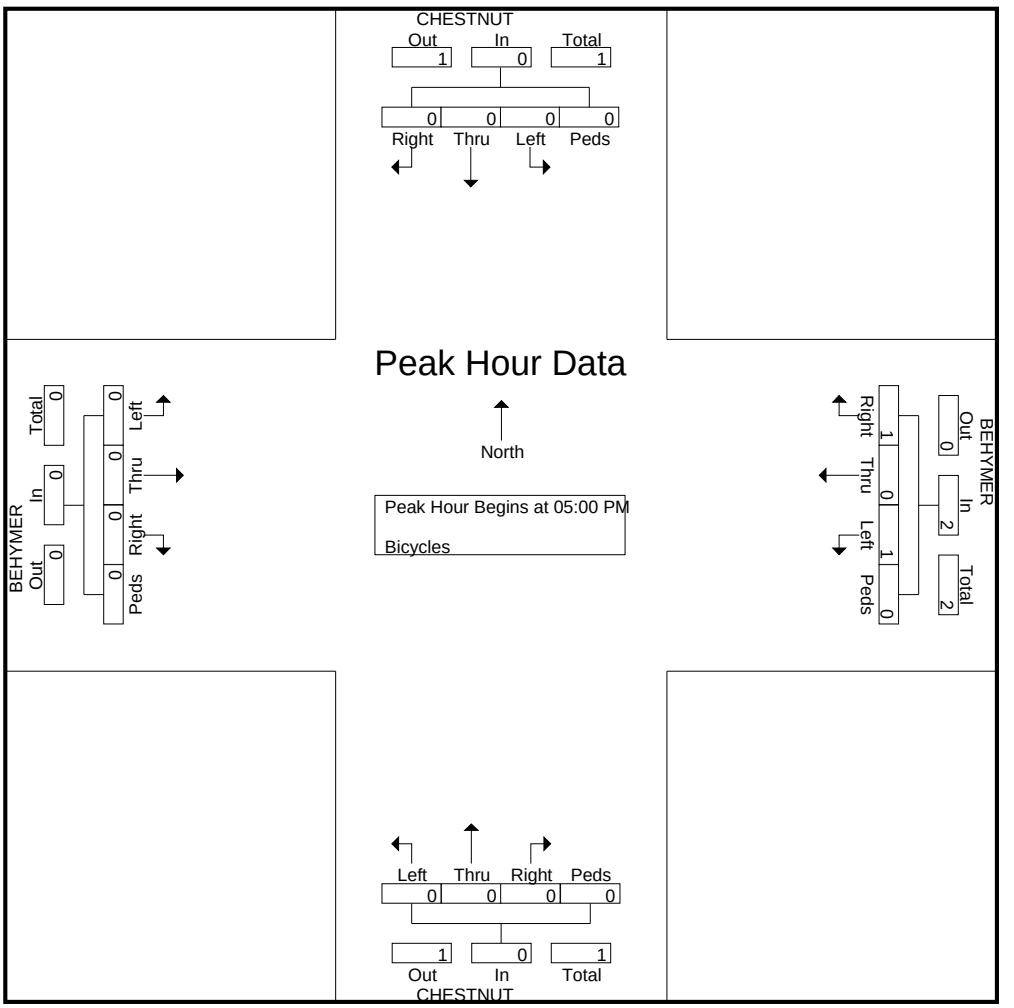
	BEHYMER Eastbound					BEHYMER Westbound					CHESTNUT Northbound					CHESTNUT Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	**1**	0	**1**	0	0	0	0	0	0	0	0	0	0	**1**
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	**1**	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Total Volume	0	0	0	0	0	1	0	1	0	2	0	0	0	0	0	0	0	0	0	0	2
% App. Total	0	0	0	0		50	0	50	0		0	0	0	0		0	0	0	0		
PHF	.000	.000	.000	.000	.000	.250	.000	.250	.000	.500	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.500



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Site Code : 00000000
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Groups Printed- Unshifted - Turns

	CHESTNUT Westbound				SOMMERVILLE Northbound				SOMMERVILLE Southbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
07:00 AM	44	0	2	1	0	14	28	2	1	24	0	0	116
07:15 AM	44	0	3	0	0	18	42	3	5	34	0	0	149
07:30 AM	65	0	2	0	0	42	101	1	4	54	0	0	269
07:45 AM	84	0	9	0	0	49	78	0	5	77	0	0	302
Total	237	0	16	1	0	123	249	6	15	189	0	0	836
08:00 AM	62	0	1	1	0	32	44	0	2	41	0	0	183
08:15 AM	81	0	2	0	1	40	58	1	0	51	0	0	234
08:30 AM	64	0	2	0	2	20	41	0	1	55	0	0	185
08:45 AM	45	0	2	0	2	24	31	2	1	35	0	0	142
Total	252	0	7	1	5	116	174	3	4	182	0	0	744
*** BREAK ***													
03:45 PM	46	0	7	1	0	35	41	0	4	41	0	0	175
Total	46	0	7	1	0	35	41	0	4	41	0	0	175
*** BREAK ***													
04:15 PM	45	0	3	0	2	56	35	0	6	37	0	0	184
04:30 PM	44	0	5	0	1	45	44	1	2	41	0	0	183
04:45 PM	40	0	4	0	0	56	51	0	2	49	0	0	202
Total	129	0	12	0	3	157	130	1	10	127	0	0	569
05:00 PM	54	0	4	0	0	43	53	2	1	43	0	0	200
05:15 PM	35	0	1	2	2	55	59	0	3	45	0	0	202
05:30 PM	57	0	7	0	1	55	68	2	2	38	0	0	230
05:45 PM	41	0	1	0	1	44	51	1	0	36	0	0	175
Total	187	0	13	2	4	197	231	5	6	162	0	0	807
Grand Total	851	0	55	5	12	628	825	15	39	701	0	0	3131
Apprch %	93.4	0	6	0.5	0.8	42.4	55.7	1	5.3	94.7	0	0	
Total %	27.2	0	1.8	0.2	0.4	20.1	26.3	0.5	1.2	22.4	0	0	
Unshifted	851	0	55	5	0	628	825	15	37	701	0	0	3117
% Unshifted	100	0	100	100	0	100	100	100	94.9	100	0	0	99.6
U-Turns	0	0	0	0	12	0	0	0	2	0	0	0	14
% U-Turns	0	0	0	0	100	0	0	0	5.1	0	0	0	0.4

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Site Code : 00000000
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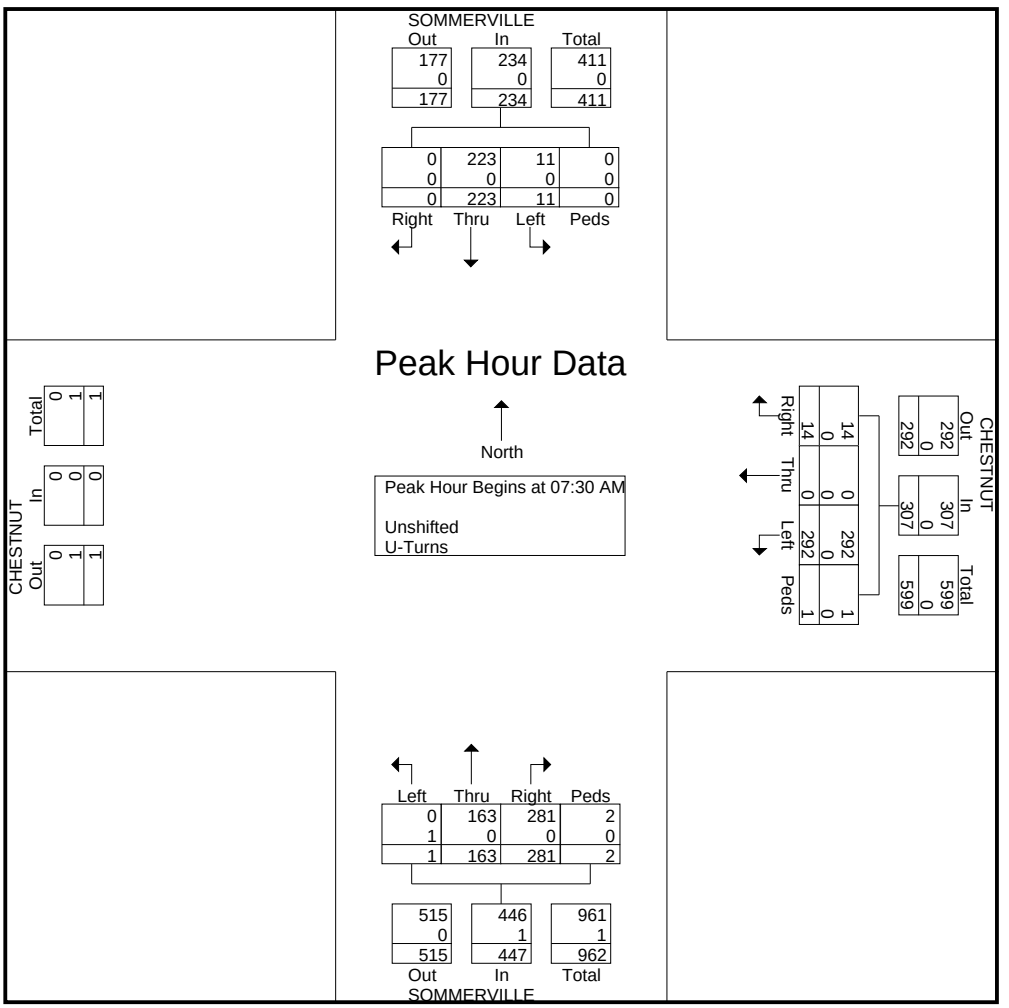
	CHESTNUT Westbound					SOMMERVILLE Northbound					SOMMERVILLE Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																
Peak Hour for Entire Intersection Begins at 07:30 AM																
07:30 AM	65	0	2	0	67	0	42	**101**	**1**	**144**	4	54	0	0	58	269
07:45 AM	**84**	0	**9**	0	**93**	0	**49**	78	0	127	**5**	**77**	0	0	**82**	**302**
08:00 AM	62	0	1	**1**	64	0	32	44	0	76	2	41	0	0	43	183
08:15 AM	81	0	2	0	83	**1**	40	58	1	100	0	51	0	0	51	234
Total Volume	292	0	14	1	307	1	163	281	2	447	11	223	0	0	234	988
% App. Total	95.1	0	4.6	0.3		0.2	36.5	62.9	0.4		4.7	95.3	0	0		
PHF	.869	.000	.389	.250	.825	.250	.832	.696	.500	.776	.550	.724	.000	.000	.713	.818
Unshifted	292	0	14	1	307	0	163	281	2	446	11	223	0	0	234	987
% Unshifted	100	0	100	100	100	0	100	100	100	99.8	100	100	0	0	100	99.9
U-Turns	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1
% U-Turns	0	0	0	0	0	100	0	0	0	0.2	0	0	0	0	0	0.1



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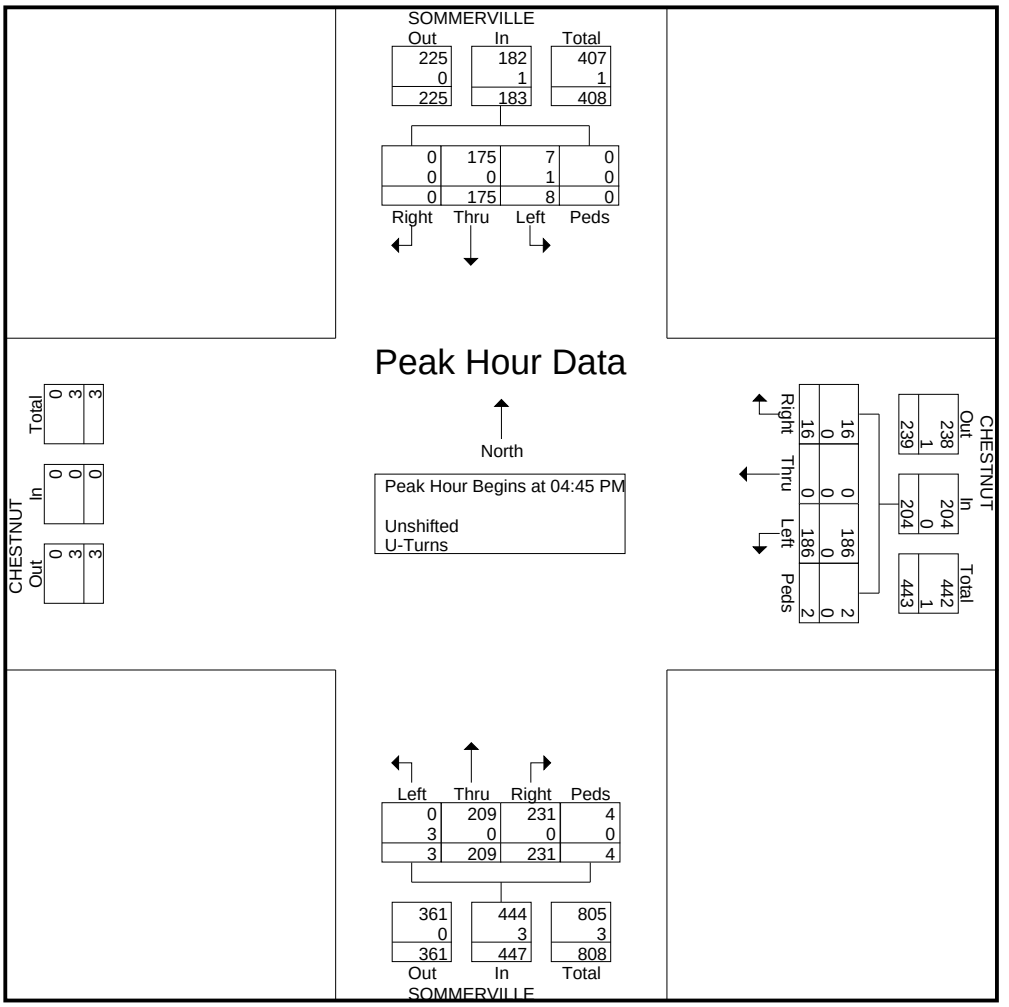
	CHESTNUT Westbound					SOMMERVILLE Northbound					SOMMERVILLE Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																
Peak Hour for Entire Intersection Begins at 04:45 PM																
04:45 PM	40	0	4	0	44	0	**56**	51	0	107	2	**49**	0	0	**51**	202
05:00 PM	54	0	4	0	58	0	43	53	**2**	98	1	43	0	0	44	200
05:15 PM	35	0	1	**2**	38	**2**	55	59	0	116	**3**	45	0	0	48	202
05:30 PM	**57**	0	**7**	0	**64**	1	55	**68**	2	**126**	2	38	0	0	40	**230**
Total Volume	186	0	16	2	204	3	209	231	4	447	8	175	0	0	183	834
% App. Total	91.2	0	7.8	1		0.7	46.8	51.7	0.9		4.4	95.6	0	0		
PHF	.816	.000	.571	.250	.797	.375	.933	.849	.500	.887	.667	.893	.000	.000	.897	.907
Unshifted	186	0	16	2	204	0	209	231	4	444	7	175	0	0	182	830
% Unshifted	100	0	100	100	100	0	100	100	100	99.3	87.5	100	0	0	99.5	99.5
U-Turns	0	0	0	0	0	3	0	0	0	3	1	0	0	0	1	4
% U-Turns	0	0	0	0	0	100	0	0	0	0.7	12.5	0	0	0	0.5	0.5



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Groups Printed- Bicycles

	CHESTNUT Westbound				SOMMERVILLE Northbound				SOMMERVILLE Southbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
*** BREAK ***													
07:15 AM	0	0	0	0	0	0	0	0	0	1	0	0	1
*** BREAK ***													
Total	0	0	0	0	0	0	0	0	0	1	0	0	1
*** BREAK ***													
04:15 PM	0	0	0	0	0	0	0	0	1	0	0	0	1
04:30 PM	0	0	2	0	0	0	0	0	0	0	0	0	2
*** BREAK ***													
Total	0	0	2	0	0	0	0	0	1	0	0	0	3
05:00 PM	0	0	0	0	0	0	0	0	0	1	0	0	1
*** BREAK ***													
05:45 PM	0	0	0	0	0	2	0	0	0	0	0	0	2
Total	0	0	0	0	0	2	0	0	0	1	0	0	3
Grand Total	0	0	2	0	0	2	0	0	1	2	0	0	7
Apprch %	0	0	100	0	0	100	0	0	33.3	66.7	0	0	
Total %	0	0	28.6	0	0	28.6	0	0	14.3	28.6	0	0	

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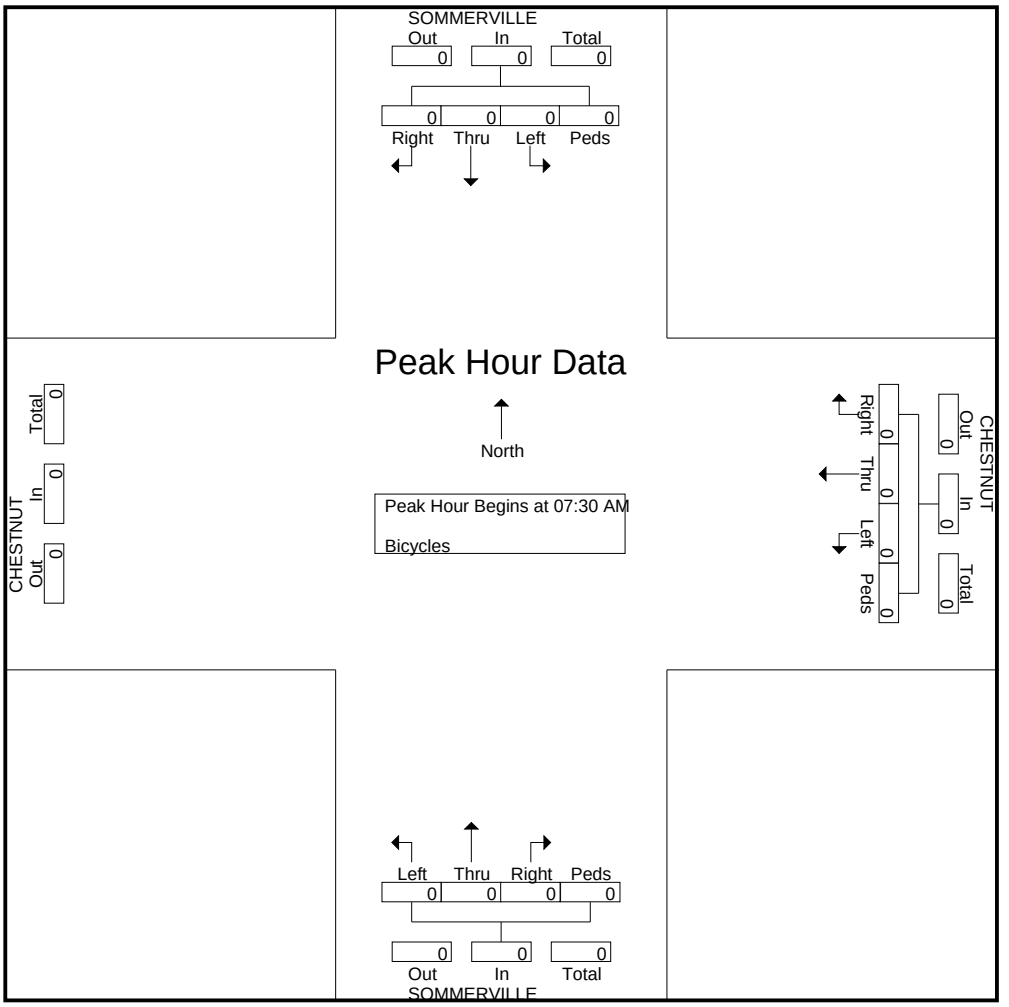
	CHESTNUT Westbound					SOMMERVILLE Northbound					SOMMERVILLE Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																
Peak Hour for Entire Intersection Begins at 07:30 AM																
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0	0		0	0	0	0		0	0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000



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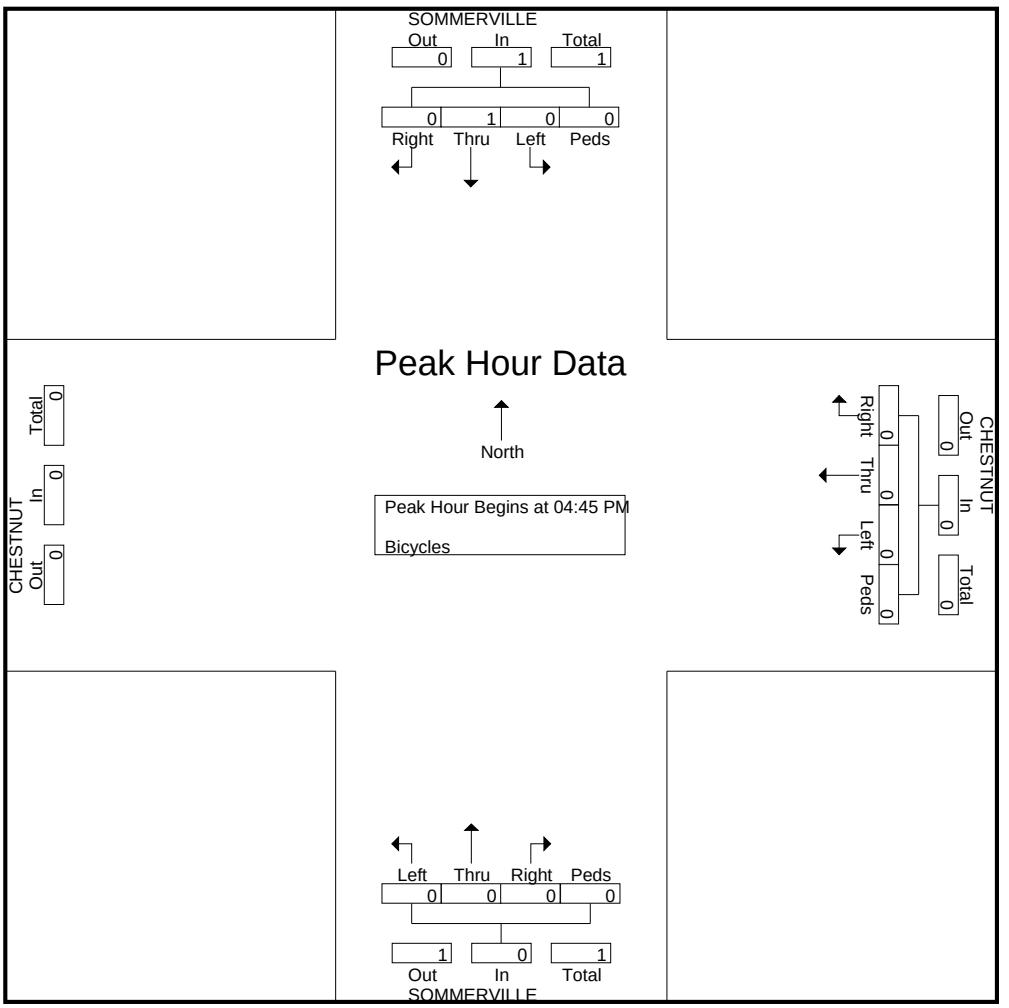
	CHESTNUT Westbound					SOMMERVILLE Northbound					SOMMERVILLE Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																
Peak Hour for Entire Intersection Begins at 04:45 PM																
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	**1**	0	0	**1**	**1**
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
% App. Total	0	0	0	0		0	0	0	0		0	100	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.000	.000	.250	.250



Metro Traffic Data Inc.
310 N. Irwin Street - Suite 20
Hanford, CA 93230

800-975-6938 Phone/Fax
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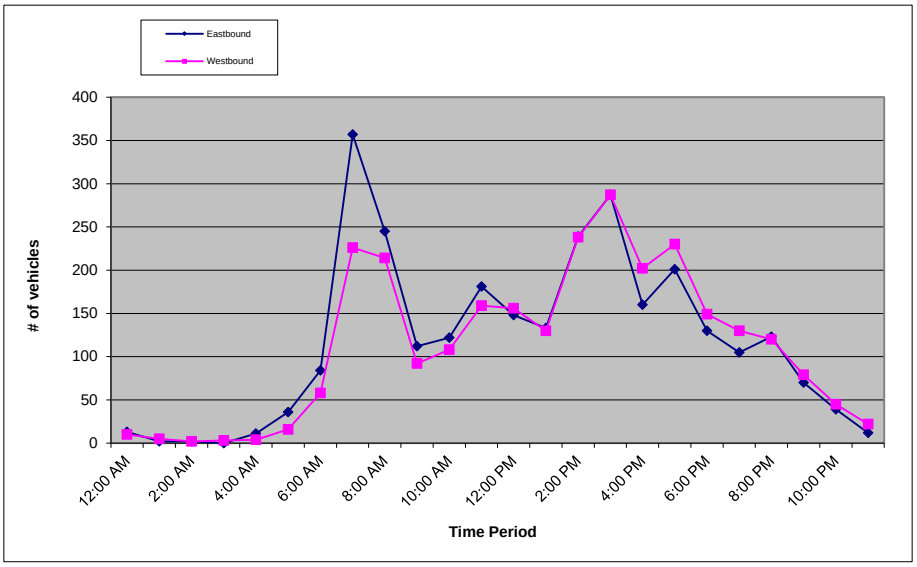
24 Hour Count Report

Prepared For: **JLB Traffic Engineering, Inc.**
516 W. Shaw Ave, Suite 103
Fresno, CA 93704

STREET	Behymer Ave	**LATITUDE**	36.88126134
SEGMENT	East of Chestnut Ave	**LONGITUDE**	-119.7393974
COLLECTION DATE	Tuesday, May 23, 2023	**WEATHER**	Clear
NUMBER OF LANES	2		

	Eastbound					Westbound					Hourly
Hour	1st	2nd	3rd	4th	**Total**	1st	2nd	3rd	4th	**Total**	**Totals**
12:00 AM	5	3	1	4	**13**	2	2	4	2	**10**	**23**
1:00 AM	2	0	0	0	**2**	1	1	1	2	**5**	**7**
2:00 AM	0	1	1	0	**2**	0	2	0	0	**2**	**4**
3:00 AM	0	0	0	0	**0**	1	0	1	1	**3**	**3**
4:00 AM	4	0	4	3	**11**	1	1	1	1	**4**	**15**
5:00 AM	3	9	9	15	**36**	4	1	4	7	**16**	**52**
6:00 AM	15	15	21	33	**84**	10	15	14	19	**58**	**142**
7:00 AM	31	59	119	148	**357**	28	36	80	82	**226**	**583**
8:00 AM	75	77	56	37	**245**	62	81	39	32	**214**	**459**
9:00 AM	27	17	27	41	**112**	21	25	22	24	**92**	**204**
10:00 AM	33	24	29	36	**122**	28	24	29	27	**108**	**230**
11:00 AM	36	40	58	47	**181**	43	33	41	42	**159**	**340**
12:00 PM	29	28	45	46	**148**	34	39	40	43	**156**	**304**
1:00 PM	37	33	27	36	**133**	27	27	33	43	**130**	**263**
2:00 PM	34	32	64	109	**239**	41	39	90	68	**238**	**477**
3:00 PM	70	82	82	53	**287**	61	74	95	57	**287**	**574**
4:00 PM	45	36	38	41	**160**	48	39	57	58	**202**	**362**
5:00 PM	45	35	52	69	**201**	59	55	60	56	**230**	**431**
6:00 PM	51	29	21	29	**130**	48	41	26	34	**149**	**279**
7:00 PM	29	20	25	31	**105**	22	43	33	32	**130**	**235**
8:00 PM	23	24	38	38	**123**	27	35	31	27	**120**	**243**
9:00 PM	15	23	15	17	**70**	17	29	18	15	**79**	**149**
10:00 PM	12	10	11	6	**39**	13	10	13	9	**45**	**84**
11:00 PM	4	2	6	0	**12**	7	7	3	5	**22**	**34**
Total	**51.2%**				**2812**	**48.8%**				**2685**	
	5497										

AM%	**37.5%**	**AM Peak**	**724**	**7:30 am to 8:30 am**	**AM P.H.F.**	**0.79**
PM%	**62.5%**	**PM Peak**	**641**	**2:45 pm to 3:45 pm**	**PM P.H.F.**	**0.91**



Metro Traffic Data Inc.
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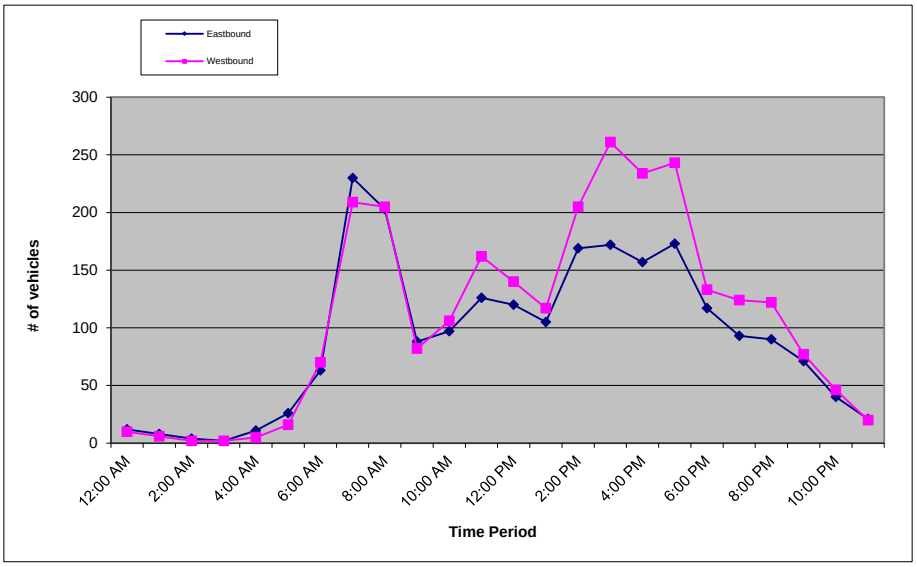
24 Hour Count Report

Prepared For: **JLB Traffic Engineering, Inc.**
516 W. Shaw Ave, Suite 103
Fresno, CA 93704

STREET	Behymer Ave	**LATITUDE**	36.8812828
SEGMENT	West of Chestnut Ave	**LONGITUDE**	-119.7383966
COLLECTION DATE	Tuesday, May 23, 2023	**WEATHER**	Clear
NUMBER OF LANES	2		

	Eastbound					Westbound					Hourly
Hour	1st	2nd	3rd	4th	**Total**	1st	2nd	3rd	4th	**Total**	**Totals**
12:00 AM	5	2	1	4	**12**	2	3	4	1	**10**	**22**
1:00 AM	3	3	1	1	**8**	2	2	1	1	**6**	**14**
2:00 AM	2	1	1	0	**4**	1	1	0	0	**2**	**6**
3:00 AM	1	1	0	0	**2**	1	0	0	1	**2**	**4**
4:00 AM	3	1	2	5	**11**	1	2	2	0	**5**	**16**
5:00 AM	3	6	7	10	**26**	3	2	7	4	**16**	**42**
6:00 AM	9	12	16	26	**63**	11	19	20	20	**70**	**133**
7:00 AM	35	55	67	73	**230**	28	42	69	70	**209**	**439**
8:00 AM	59	65	38	41	**203**	60	72	40	33	**205**	**408**
9:00 AM	21	15	25	27	**88**	19	20	22	21	**82**	**170**
10:00 AM	25	19	22	31	**97**	28	22	30	26	**106**	**203**
11:00 AM	30	27	26	43	**126**	33	34	47	48	**162**	**288**
12:00 PM	23	26	28	43	**120**	32	38	34	36	**140**	**260**
1:00 PM	29	21	26	29	**105**	17	33	29	38	**117**	**222**
2:00 PM	34	34	48	53	**169**	42	34	56	73	**205**	**374**
3:00 PM	54	36	46	36	**172**	49	66	87	59	**261**	**433**
4:00 PM	40	40	37	40	**157**	54	48	66	66	**234**	**391**
5:00 PM	41	38	44	50	**173**	72	54	64	53	**243**	**416**
6:00 PM	42	32	23	20	**117**	42	41	21	29	**133**	**250**
7:00 PM	25	19	28	21	**93**	24	34	26	40	**124**	**217**
8:00 PM	19	22	26	23	**90**	28	37	31	26	**122**	**212**
9:00 PM	16	23	18	14	**71**	18	22	17	20	**77**	**148**
10:00 PM	13	9	10	8	**40**	14	6	14	12	**46**	**86**
11:00 PM	11	3	5	2	**21**	6	8	1	5	**20**	**41**
Total	**45.8%**				**2198**	**54.2%**				**2597**	
	4795										

AM%	**36.4%**	**AM Peak**	**535**	**7:30 am to 8:30 am**	**AM P.H.F.**	**0.94**
PM%	**63.6%**	**PM Peak**	**464**	**2:45 pm to 3:45 pm**	**PM P.H.F.**	**0.87**



Metro Traffic Data Inc.
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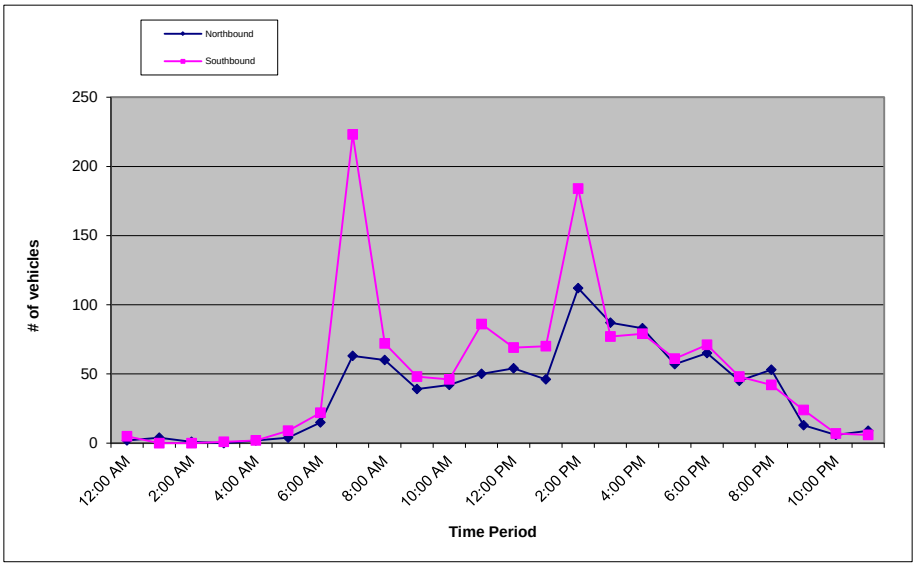
24 Hour Count Report

Prepared For: **JLB Traffic Engineering, Inc.**
516 W. Shaw Ave, Suite 103
Fresno, CA 93704

STREET	Cedar Ave	**LATITUDE**	36.89238327
SEGMENT	North of Olympic Ave	**LONGITUDE**	-119.7564376
COLLECTION DATE	Tuesday, May 23, 2023	**WEATHER**	Clear
NUMBER OF LANES	2		

	Northbound					Southbound					Hourly
Hour	1st	2nd	3rd	4th	**Total**	1st	2nd	3rd	4th	**Total**	**Totals**
12:00 AM	1	0	0	1	**2**	1	2	2	0	**5**	**7**
1:00 AM	1	2	0	1	**4**	0	0	0	0	**0**	**4**
2:00 AM	0	1	0	0	**1**	0	0	0	0	**0**	**1**
3:00 AM	0	0	0	0	**0**	0	0	0	1	**1**	**1**
4:00 AM	0	0	2	0	**2**	0	0	2	0	**2**	**4**
5:00 AM	1	0	1	2	**4**	1	3	4	1	**9**	**13**
6:00 AM	5	2	4	4	**15**	2	2	6	12	**22**	**37**
7:00 AM	2	6	20	35	**63**	13	20	74	116	**223**	**286**
8:00 AM	15	23	15	7	**60**	17	20	18	17	**72**	**132**
9:00 AM	8	9	12	10	**39**	11	13	8	16	**48**	**87**
10:00 AM	9	11	11	11	**42**	8	11	15	12	**46**	**88**
11:00 AM	12	18	6	14	**50**	27	32	13	14	**86**	**136**
12:00 PM	9	11	12	22	**54**	19	21	10	19	**69**	**123**
1:00 PM	11	13	11	11	**46**	20	19	13	18	**70**	**116**
2:00 PM	22	27	18	45	**112**	43	37	36	68	**184**	**296**
3:00 PM	25	26	18	18	**87**	15	26	15	21	**77**	**164**
4:00 PM	13	26	22	22	**83**	23	14	27	15	**79**	**162**
5:00 PM	19	19	16	3	**57**	16	17	6	22	**61**	**118**
6:00 PM	18	13	13	21	**65**	11	20	23	17	**71**	**136**
7:00 PM	12	13	10	10	**45**	15	13	11	9	**48**	**93**
8:00 PM	10	19	18	6	**53**	16	12	7	7	**42**	**95**
9:00 PM	4	6	0	3	**13**	4	9	5	6	**24**	**37**
10:00 PM	3	1	0	2	**6**	4	2	1	0	**7**	**13**
11:00 PM	2	2	4	1	**9**	2	2	1	1	**6**	**15**
Total	**42.1%**				**912**	**57.9%**				**1252**	
	2164										

AM%	**36.8%**	**AM Peak**	**320**	**7:30 am to 8:30 am**	**AM P.H.F.**	**0.53**
PM%	**63.2%**	**PM Peak**	**296**	**2:00 pm to 3:00 pm**	**PM P.H.F.**	**0.65**



Metro Traffic Data Inc.
310 N. Irwin Street - Suite 20
Hanford, CA 93230

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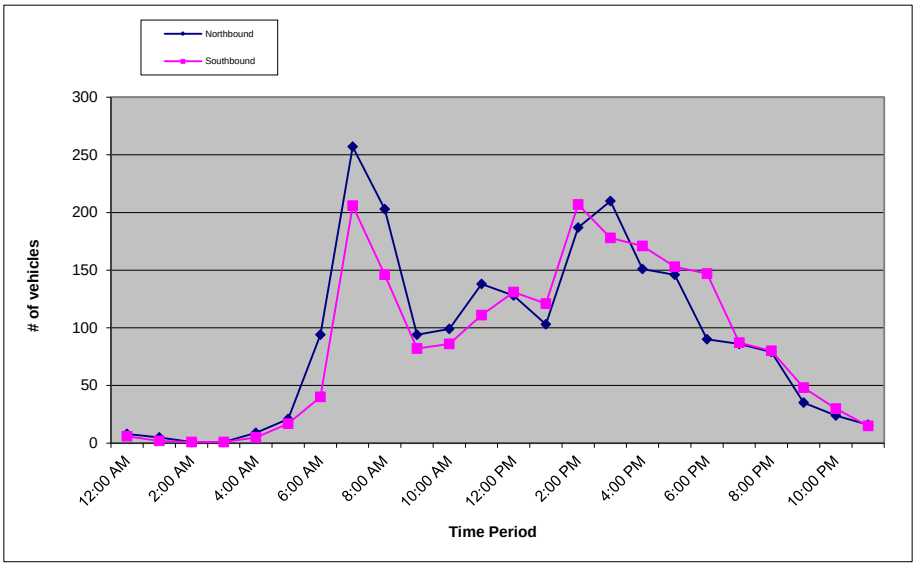
24 Hour Count Report

Prepared For: **JLB Traffic Engineering, Inc.**
516 W. Shaw Ave, Suite 103
Fresno, CA 93704

STREET	Cedar Ave	**LATITUDE**	36.89153365
SEGMENT	South of Olympic Ave	**LONGITUDE**	-119.7564322
COLLECTION DATE	Tuesday, May 23, 2023	**WEATHER**	Clear
NUMBER OF LANES	2		

	Northbound					Southbound					Hourly
Hour	1st	2nd	3rd	4th	**Total**	1st	2nd	3rd	4th	**Total**	**Totals**
12:00 AM	1	4	1	2	**8**	1	4	1	0	**6**	**14**
1:00 AM	2	1	0	2	**5**	1	0	0	1	**2**	**7**
2:00 AM	0	1	0	0	**1**	0	1	0	0	**1**	**2**
3:00 AM	0	0	0	1	**1**	0	0	0	1	**1**	**2**
4:00 AM	0	1	4	4	**9**	2	0	3	0	**5**	**14**
5:00 AM	8	4	3	6	**21**	3	4	6	4	**17**	**38**
6:00 AM	18	17	22	37	**94**	6	9	8	17	**40**	**134**
7:00 AM	30	38	105	84	**257**	29	36	46	95	**206**	**463**
8:00 AM	47	67	57	32	**203**	44	44	31	27	**146**	**349**
9:00 AM	19	25	29	21	**94**	17	22	17	26	**82**	**176**
10:00 AM	21	20	32	26	**99**	28	18	15	25	**86**	**185**
11:00 AM	33	31	33	41	**138**	17	34	30	30	**111**	**249**
12:00 PM	22	23	35	48	**128**	38	40	29	24	**131**	**259**
1:00 PM	27	26	24	26	**103**	30	24	37	30	**121**	**224**
2:00 PM	33	52	40	62	**187**	36	30	51	90	**207**	**394**
3:00 PM	42	61	62	45	**210**	40	60	38	40	**178**	**388**
4:00 PM	27	40	44	40	**151**	45	34	50	42	**171**	**322**
5:00 PM	38	46	38	24	**146**	47	38	47	21	**153**	**299**
6:00 PM	27	23	15	25	**90**	37	37	39	34	**147**	**237**
7:00 PM	18	25	17	26	**86**	22	25	19	21	**87**	**173**
8:00 PM	21	25	20	13	**79**	24	23	14	19	**80**	**159**
9:00 PM	8	13	9	5	**35**	11	19	7	11	**48**	**83**
10:00 PM	9	5	6	4	**24**	11	8	7	4	**30**	**54**
11:00 PM	5	5	4	2	**16**	8	3	3	1	**15**	**31**
Total	**51.3%**				**2185**	**48.7%**				**2071**	
	4256										

AM%	**38.4%**	**AM Peak**	**532**	**7:30 am to 8:30 am**	**AM P.H.F.**	**0.74**
PM%	**61.6%**	**PM Peak**	**455**	**2:45 pm to 3:45 pm**	**PM P.H.F.**	**0.75**



Metro Traffic Data Inc.
310 N. Irwin Street - Suite 20
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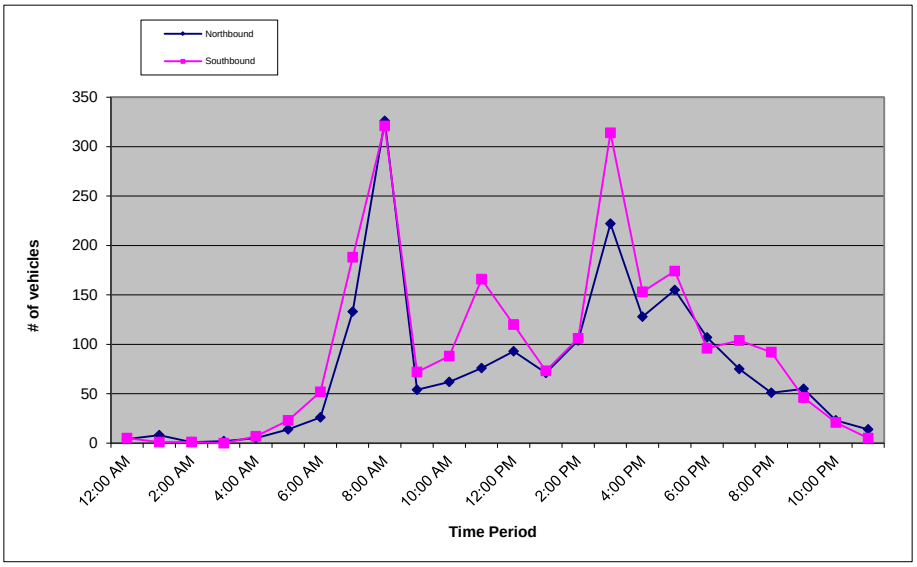
24 Hour Count Report

Prepared For: **JLB Traffic Engineering, Inc.**
516 W. Shaw Ave, Suite 103
Fresno, CA 93704

STREET	Chestnut Ave	**LATITUDE**	36.88172686
SEGMENT	North of Behymer Ave	**LONGITUDE**	-119.7388516
COLLECTION DATE	Tuesday, May 23, 2023	**WEATHER**	Clear
NUMBER OF LANES	2		

	Northbound					Southbound					Hourly
Hour	1st	2nd	3rd	4th	**Total**	1st	2nd	3rd	4th	**Total**	**Totals**
12:00 AM	0	1	2	1	**4**	0	4	1	0	**5**	**9**
1:00 AM	2	2	1	3	**8**	0	0	1	0	**1**	**9**
2:00 AM	0	1	0	0	**1**	1	0	0	0	**1**	**2**
3:00 AM	1	0	1	0	**2**	0	0	0	0	**0**	**2**
4:00 AM	0	0	1	4	**5**	1	2	3	1	**7**	**12**
5:00 AM	0	1	4	9	**14**	0	5	7	11	**23**	**37**
6:00 AM	4	5	4	13	**26**	9	11	16	16	**52**	**78**
7:00 AM	23	32	31	47	**133**	26	49	64	49	**188**	**321**
8:00 AM	90	126	48	62	**326**	83	110	86	42	**321**	**647**
9:00 AM	20	16	11	7	**54**	24	9	25	14	**72**	**126**
10:00 AM	20	13	11	18	**62**	20	18	33	17	**88**	**150**
11:00 AM	13	19	23	21	**76**	16	13	86	51	**166**	**242**
12:00 PM	25	26	23	19	**93**	28	20	47	25	**120**	**213**
1:00 PM	17	15	16	23	**71**	20	23	18	12	**73**	**144**
2:00 PM	18	8	18	60	**104**	16	30	31	29	**106**	**210**
3:00 PM	76	78	41	27	**222**	37	135	104	38	**314**	**536**
4:00 PM	37	35	32	24	**128**	38	34	43	38	**153**	**281**
5:00 PM	35	40	48	32	**155**	49	30	56	39	**174**	**329**
6:00 PM	29	24	22	32	**107**	27	25	18	26	**96**	**203**
7:00 PM	21	23	16	15	**75**	24	23	13	44	**104**	**179**
8:00 PM	11	10	22	8	**51**	17	19	29	27	**92**	**143**
9:00 PM	8	18	21	8	**55**	5	15	11	15	**46**	**101**
10:00 PM	9	5	3	6	**23**	8	4	4	5	**21**	**44**
11:00 PM	7	1	3	3	**14**	1	1	3	0	**5**	**19**
Total	**44.8%**				**1809**	**55.2%**				**2228**	
	4037										

AM%	**40.5%**	**AM Peak**	**647**	**8:00 am to 9:00 am**	**AM P.H.F.**	**0.69**
PM%	**59.5%**	**PM Peak**	**560**	**2:45 pm to 3:45 pm**	**PM P.H.F.**	**0.66**



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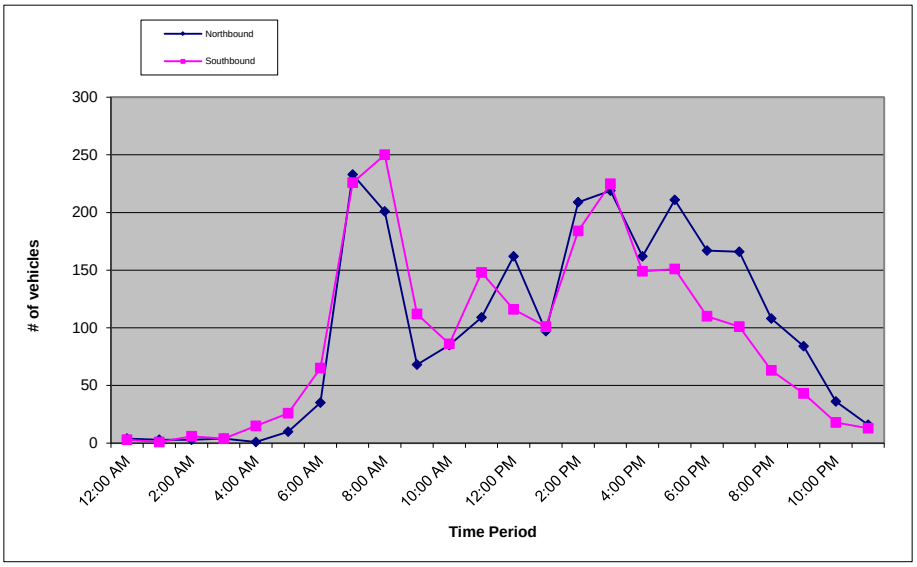
24 Hour Count Report

Prepared For: **JLB Traffic Engineering, Inc.**
516 W. Shaw Ave, Suite 103
Fresno, CA 93704

STREET	Chestnut Ave	**LATITUDE**	36.87544282
SEGMENT	North of Sommerville Dr	**LONGITUDE**	-119.7420877
COLLECTION DATE	Tuesday, May 23, 2023	**WEATHER**	Clear
NUMBER OF LANES	2		

	Northbound					Southbound					Hourly
Hour	1st	2nd	3rd	4th	**Total**	1st	2nd	3rd	4th	**Total**	**Totals**
12:00 AM	2	1	0	1	**4**	0	2	1	0	**3**	**7**
1:00 AM	1	0	0	2	**3**	0	0	1	0	**1**	**4**
2:00 AM	1	0	1	1	**3**	3	0	0	3	**6**	**9**
3:00 AM	1	1	1	1	**4**	0	2	1	1	**4**	**8**
4:00 AM	0	0	1	0	**1**	4	1	4	6	**15**	**16**
5:00 AM	2	0	2	6	**10**	3	4	9	10	**26**	**36**
6:00 AM	4	10	9	12	**35**	12	15	20	18	**65**	**100**
7:00 AM	26	45	90	72	**233**	42	46	68	70	**226**	**459**
8:00 AM	59	66	36	40	**201**	77	69	64	40	**250**	**451**
9:00 AM	15	22	14	17	**68**	27	19	36	30	**112**	**180**
10:00 AM	24	15	24	22	**85**	18	23	31	14	**86**	**171**
11:00 AM	34	34	22	19	**109**	24	34	50	40	**148**	**257**
12:00 PM	43	31	38	50	**162**	31	32	27	26	**116**	**278**
1:00 PM	25	27	21	24	**97**	23	25	26	27	**101**	**198**
2:00 PM	32	46	70	61	**209**	17	42	38	87	**184**	**393**
3:00 PM	59	70	49	41	**219**	45	57	72	51	**225**	**444**
4:00 PM	42	40	39	41	**162**	42	31	37	39	**149**	**311**
5:00 PM	55	57	54	45	**211**	41	35	41	34	**151**	**362**
6:00 PM	51	39	38	39	**167**	26	36	22	26	**110**	**277**
7:00 PM	51	38	37	40	**166**	22	28	17	34	**101**	**267**
8:00 PM	32	32	18	26	**108**	16	17	13	17	**63**	**171**
9:00 PM	21	19	25	19	**84**	9	9	15	10	**43**	**127**
10:00 PM	17	9	4	6	**36**	10	3	4	1	**18**	**54**
11:00 PM	7	2	3	4	**16**	7	3	3	0	**13**	**29**
Total	**51.9%**				**2393**	**48.1%**				**2216**	
	4609										

AM%	**36.8%**	**AM Peak**	**571**	**7:30 am to 8:30 am**	**AM P.H.F.**	**0.90**
PM%	**63.2%**	**PM Peak**	**500**	**2:45 pm to 3:45 pm**	**PM P.H.F.**	**0.84**



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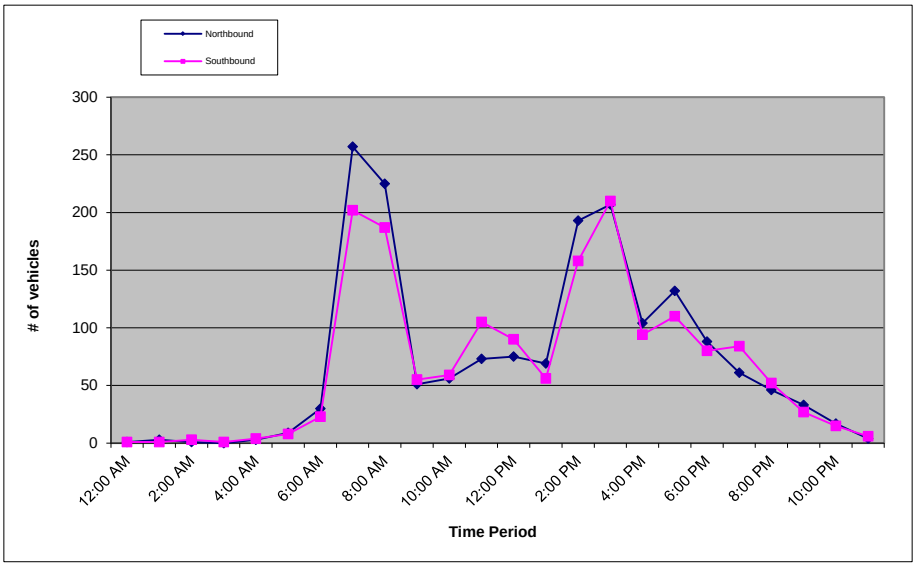
24 Hour Count Report

Prepared For: **JLB Traffic Engineering, Inc.**
516 W. Shaw Ave, Suite 103
Fresno, CA 93704

STREET	Chestnut Ave	**LATITUDE**	36.88093191
SEGMENT	South of Behymer Ave	**LONGITUDE**	-119.738827
COLLECTION DATE	Tuesday, May 23, 2023	**WEATHER**	Clear
NUMBER OF LANES	2		

	Northbound					Southbound					Hourly
Hour	1st	2nd	3rd	4th	**Total**	1st	2nd	3rd	4th	**Total**	**Totals**
12:00 AM	0	0	1	0	**1**	0	1	0	0	**1**	**2**
1:00 AM	2	0	0	1	**3**	0	0	1	0	**1**	**4**
2:00 AM	1	0	0	0	**1**	3	0	0	0	**3**	**4**
3:00 AM	0	0	0	0	**0**	0	1	0	0	**1**	**1**
4:00 AM	0	0	1	2	**3**	0	2	0	2	**4**	**7**
5:00 AM	0	2	4	3	**9**	1	2	2	3	**8**	**17**
6:00 AM	4	5	9	12	**30**	2	4	10	7	**23**	**53**
7:00 AM	22	35	81	119	**257**	29	42	73	58	**202**	**459**
8:00 AM	65	87	30	43	**225**	44	68	49	26	**187**	**412**
9:00 AM	16	13	9	13	**51**	16	9	21	9	**55**	**106**
10:00 AM	18	13	9	16	**56**	10	15	23	11	**59**	**115**
11:00 AM	12	33	13	15	**73**	19	13	38	35	**105**	**178**
12:00 PM	16	22	16	21	**75**	15	15	29	31	**90**	**165**
1:00 PM	12	21	13	23	**69**	17	11	18	10	**56**	**125**
2:00 PM	21	12	28	132	**193**	18	41	59	40	**158**	**351**
3:00 PM	64	64	38	41	**207**	21	83	73	33	**210**	**417**
4:00 PM	33	25	25	21	**104**	23	19	26	26	**94**	**198**
5:00 PM	32	32	34	34	**132**	29	26	30	25	**110**	**242**
6:00 PM	30	18	14	26	**88**	25	22	17	16	**80**	**168**
7:00 PM	21	16	9	15	**61**	18	24	16	26	**84**	**145**
8:00 PM	11	7	21	7	**46**	12	12	16	12	**52**	**98**
9:00 PM	7	7	12	7	**33**	4	11	6	6	**27**	**60**
10:00 PM	6	2	4	5	**17**	5	4	3	3	**15**	**32**
11:00 PM	2	0	1	1	**4**	4	0	2	0	**6**	**10**
Total	**51.6%**				**1738**	**48.4%**				**1631**	
	3369										

AM%	**40.3%**	**AM Peak**	**595**	**7:30 am to 8:30 am**	**AM P.H.F.**	**0.84**
PM%	**59.7%**	**PM Peak**	**515**	**2:45 pm to 3:45 pm**	**PM P.H.F.**	**0.75**



Metro Traffic Data Inc.
310 N. Irwin Street - Suite 20
Hanford, CA 93230

800-975-6938 Phone/Fax
www.metrotrafficdata.com

24 Hour Count Report

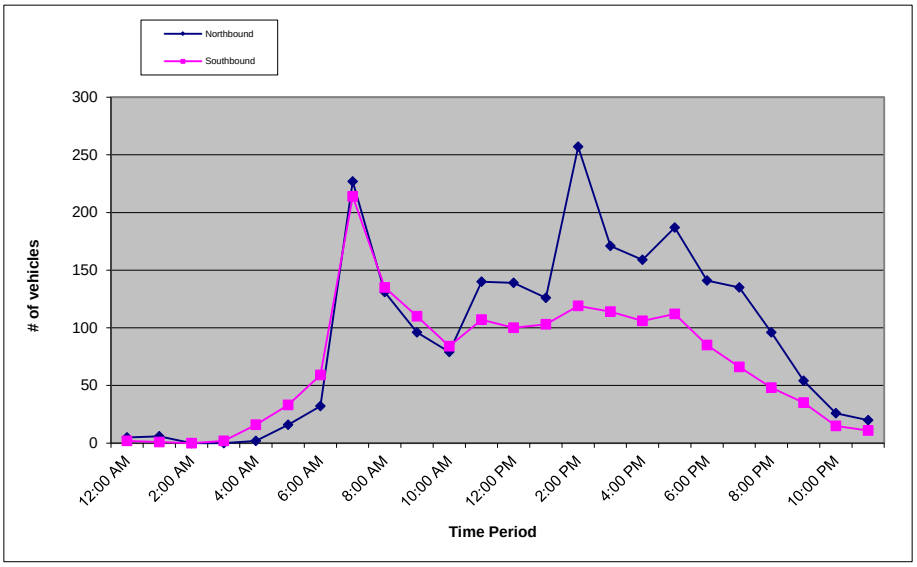
Prepared For: **JLB Traffic Engineering, Inc.**
516 W. Shaw Ave, Suite 103
Fresno, CA 93704

STREET Millbrook Ave
SEGMENT North of Olympic Ave
COLLECTION DATE Tuesday, May 23, 2023
NUMBER OF LANES 2

LATITUDE 36.89283503
LONGITUDE -119.7618259
WEATHER Clear

	Northbound					Southbound					Hourly
Hour	1st	2nd	3rd	4th	**Total**	1st	2nd	3rd	4th	**Total**	**Totals**
12:00 AM	2	2	0	1	**5**	1	1	0	0	**2**	**7**
1:00 AM	2	2	1	1	**6**	0	0	1	0	**1**	**7**
2:00 AM	0	0	0	0	**0**	0	0	0	0	**0**	**0**
3:00 AM	0	0	0	0	**0**	0	0	2	0	**2**	**2**
4:00 AM	0	0	0	2	**2**	1	2	1	12	**16**	**18**
5:00 AM	4	3	2	7	**16**	4	7	7	15	**33**	**49**
6:00 AM	6	4	10	12	**32**	8	14	20	17	**59**	**91**
7:00 AM	16	20	71	120	**227**	24	29	81	80	**214**	**441**
8:00 AM	46	29	23	33	**131**	37	38	33	27	**135**	**266**
9:00 AM	21	18	28	29	**96**	29	28	29	24	**110**	**206**
10:00 AM	16	16	18	29	**79**	19	17	26	22	**84**	**163**
11:00 AM	24	54	38	24	**140**	22	23	33	29	**107**	**247**
12:00 PM	45	38	29	27	**139**	18	35	24	23	**100**	**239**
1:00 PM	30	27	32	37	**126**	21	27	26	29	**103**	**229**
2:00 PM	39	43	42	133	**257**	17	36	25	41	**119**	**376**
3:00 PM	54	39	37	41	**171**	23	31	35	25	**114**	**285**
4:00 PM	39	34	49	37	**159**	26	25	31	24	**106**	**265**
5:00 PM	45	40	44	58	**187**	23	25	42	22	**112**	**299**
6:00 PM	43	41	31	26	**141**	18	22	18	27	**85**	**226**
7:00 PM	29	44	33	29	**135**	18	15	12	21	**66**	**201**
8:00 PM	31	18	27	20	**96**	12	13	12	11	**48**	**144**
9:00 PM	17	13	13	11	**54**	9	12	10	4	**35**	**89**
10:00 PM	8	5	5	8	**26**	5	4	3	3	**15**	**41**
11:00 PM	8	6	3	3	**20**	3	4	3	1	**11**	**31**
Total	**57.2%**				**2245**	**42.8%**				**1677**	
	3922										

AM%	**38.2%**	**AM Peak**	**502**	**7:30 am to 8:30 am**	**AM P.H.F.**	**0.63**
PM%	**61.8%**	**PM Peak**	**397**	**2:15 pm to 3:15 pm**	**PM P.H.F.**	**0.57**



Metro Traffic Data Inc.
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Hanford, CA 93230

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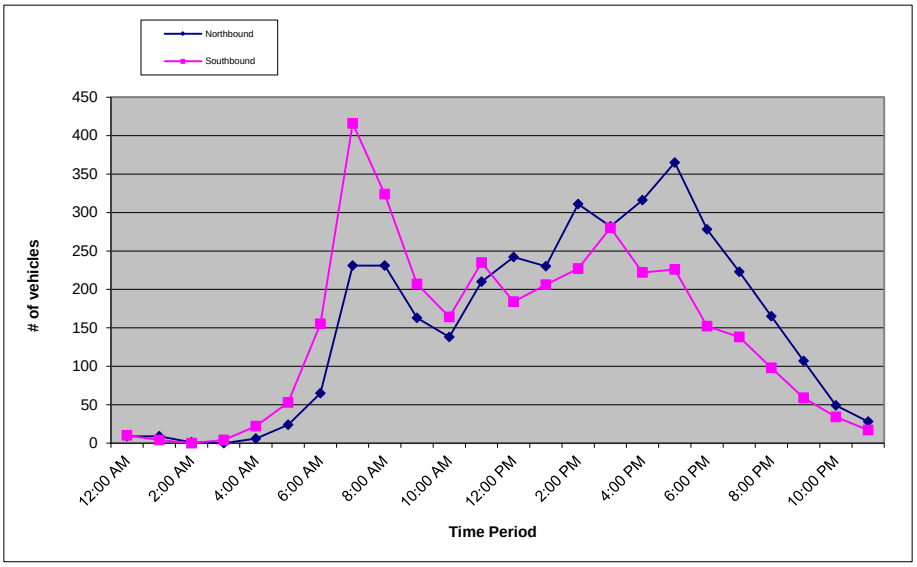
24 Hour Count Report

Prepared For: **JLB Traffic Engineering, Inc.**
516 W. Shaw Ave, Suite 103
Fresno, CA 93704

STREET	Millbrook Ave	**LATITUDE**	36.89227148
SEGMENT	South of Olympic Ave	**LONGITUDE**	-119.7623918
COLLECTION DATE	Tuesday, May 23, 2023	**WEATHER**	Clear
NUMBER OF LANES	2		

	Northbound					Southbound					Hourly
Hour	1st	2nd	3rd	4th	**Total**	1st	2nd	3rd	4th	**Total**	**Totals**
12:00 AM	4	3	1	1	**9**	3	4	2	1	**10**	**19**
1:00 AM	3	3	2	1	**9**	1	0	1	2	**4**	**13**
2:00 AM	1	0	0	0	**1**	0	0	0	0	**0**	**1**
3:00 AM	0	0	0	0	**0**	0	0	2	2	**4**	**4**
4:00 AM	2	1	1	2	**6**	1	4	4	13	**22**	**28**
5:00 AM	8	4	4	8	**24**	12	14	11	16	**53**	**77**
6:00 AM	9	13	13	30	**65**	29	31	41	54	**155**	**220**
7:00 AM	37	45	70	79	**231**	56	64	146	150	**416**	**647**
8:00 AM	82	59	43	47	**231**	88	89	88	59	**324**	**555**
9:00 AM	37	35	40	51	**163**	55	55	53	44	**207**	**370**
10:00 AM	30	33	28	47	**138**	34	35	54	41	**164**	**302**
11:00 AM	48	49	61	52	**210**	37	63	64	71	**235**	**445**
12:00 PM	67	68	55	52	**242**	37	53	52	42	**184**	**426**
1:00 PM	61	47	59	63	**230**	49	53	51	53	**206**	**436**
2:00 PM	69	78	82	82	**311**	39	54	31	103	**227**	**538**
3:00 PM	75	72	66	69	**282**	57	71	85	67	**280**	**562**
4:00 PM	84	67	83	82	**316**	53	48	68	53	**222**	**538**
5:00 PM	95	75	86	109	**365**	52	63	69	42	**226**	**591**
6:00 PM	85	72	69	52	**278**	37	39	35	41	**152**	**430**
7:00 PM	47	70	53	53	**223**	35	31	30	42	**138**	**361**
8:00 PM	50	39	40	36	**165**	26	29	26	17	**98**	**263**
9:00 PM	35	25	21	26	**107**	15	20	15	9	**59**	**166**
10:00 PM	17	11	12	9	**49**	14	9	10	1	**34**	**83**
11:00 PM	14	7	4	3	**28**	7	5	3	2	**17**	**45**
Total	**51.7%**				**3683**	**48.3%**				**3437**	
	7120										

AM%	**37.7%**	**AM Peak**	**763**	**7:30 am to 8:30 am**	**AM P.H.F.**	**0.83**
PM%	**62.3%**	**PM Peak**	**591**	**5:00 pm to 6:00 pm**	**PM P.H.F.**	**0.95**



Metro Traffic Data Inc.
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Hanford, CA 93230

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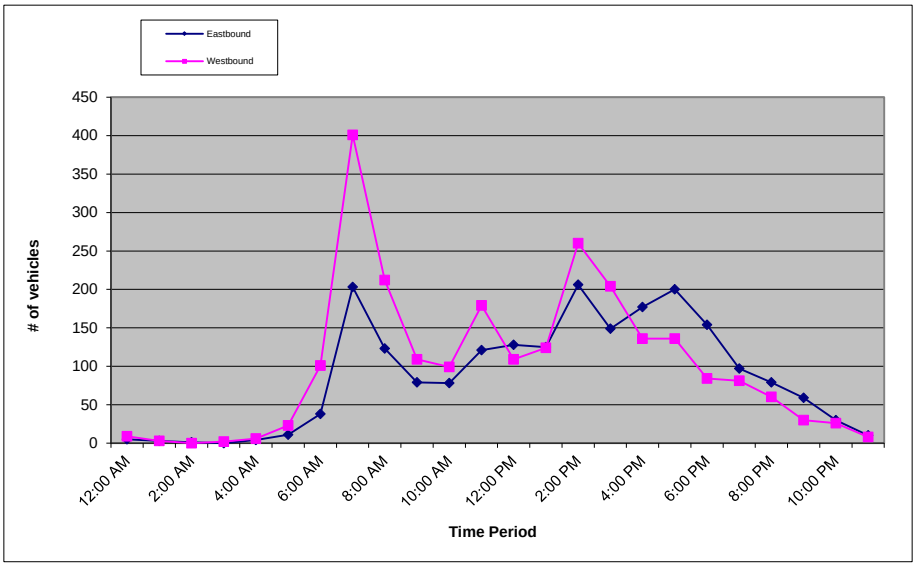
24 Hour Count Report

Prepared For: **JLB Traffic Engineering, Inc.**
516 W. Shaw Ave, Suite 103
Fresno, CA 93704

STREET	Olympic Ave	**LATITUDE**	36.89238685
SEGMENT	East of Millbrook Ave	**LONGITUDE**	-119.7618233
COLLECTION DATE	Tuesday, May 23, 2023	**WEATHER**	Clear
NUMBER OF LANES	2		

	Eastbound					Westbound					Hourly
Hour	1st	2nd	3rd	4th	**Total**	1st	2nd	3rd	4th	**Total**	**Totals**
12:00 AM	2	2	1	0	**5**	2	4	2	1	**9**	**14**
1:00 AM	1	1	1	0	**3**	1	0	0	2	**3**	**6**
2:00 AM	1	0	0	0	**1**	0	0	0	0	**0**	**1**
3:00 AM	0	0	0	0	**0**	0	0	0	2	**2**	**2**
4:00 AM	2	1	1	0	**4**	0	2	3	1	**6**	**10**
5:00 AM	4	1	2	4	**11**	8	7	4	4	**23**	**34**
6:00 AM	3	10	6	19	**38**	21	18	24	38	**101**	**139**
7:00 AM	29	34	67	73	**203**	40	44	133	184	**401**	**604**
8:00 AM	42	39	25	17	**123**	57	60	60	35	**212**	**335**
9:00 AM	19	18	17	25	**79**	29	28	29	23	**109**	**188**
10:00 AM	20	18	15	25	**78**	21	19	33	26	**99**	**177**
11:00 AM	28	29	31	33	**121**	19	74	39	47	**179**	**300**
12:00 PM	27	42	27	32	**128**	24	30	29	26	**109**	**237**
1:00 PM	32	25	35	33	**125**	29	31	33	31	**124**	**249**
2:00 PM	37	49	57	63	**206**	29	32	23	176	**260**	**466**
3:00 PM	37	40	37	35	**149**	50	47	58	49	**204**	**353**
4:00 PM	48	41	41	47	**177**	30	31	44	31	**136**	**313**
5:00 PM	53	41	48	58	**200**	32	44	33	27	**136**	**336**
6:00 PM	45	37	41	31	**154**	22	23	20	19	**84**	**238**
7:00 PM	19	28	23	27	**97**	18	18	21	24	**81**	**178**
8:00 PM	20	23	16	20	**79**	15	18	17	10	**60**	**139**
9:00 PM	18	15	12	14	**59**	6	11	9	4	**30**	**89**
10:00 PM	11	6	9	4	**30**	11	5	9	1	**26**	**56**
11:00 PM	7	2	1	0	**10**	5	2	0	1	**8**	**18**
Total	**46.4%**				**2080**	**53.6%**				**2402**	
	4482										

AM%	**40.4%**	**AM Peak**	**655**	**7:30 am to 8:30 am**	**AM P.H.F.**	**0.64**
PM%	**59.6%**	**PM Peak**	**508**	**2:45 pm to 3:45 pm**	**PM P.H.F.**	**0.53**



Metro Traffic Data Inc.
310 N. Irwin Street - Suite 20
Hanford, CA 93230

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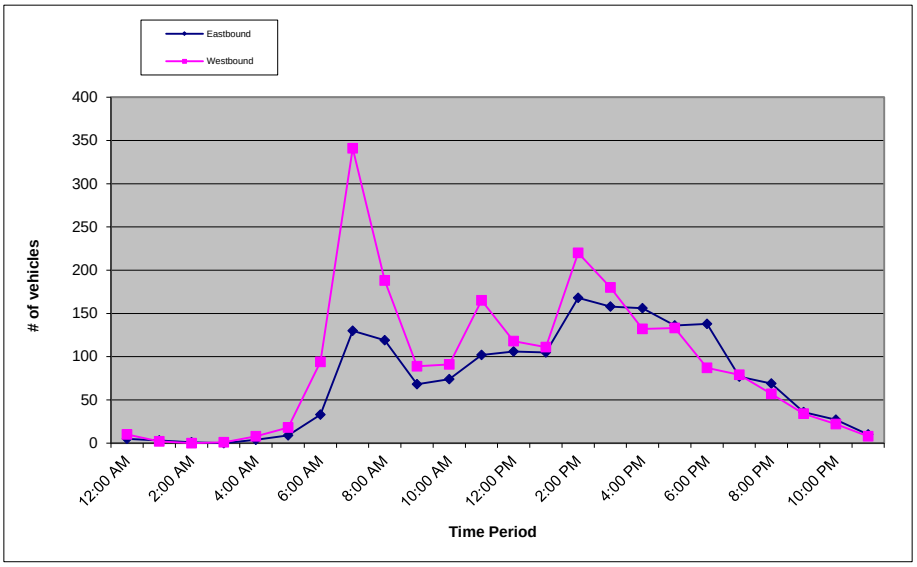
24 Hour Count Report

Prepared For: **JLB Traffic Engineering, Inc.**
516 W. Shaw Ave, Suite 103
Fresno, CA 93704

STREET	Olympic Ave	**LATITUDE**	36.89196706
SEGMENT	West of Cedar Ave	**LONGITUDE**	-119.7571773
COLLECTION DATE	Tuesday, May 23, 2023	**WEATHER**	Clear
NUMBER OF LANES	2		

	Eastbound					Westbound					Hourly
Hour	1st	2nd	3rd	4th	**Total**	1st	2nd	3rd	4th	**Total**	**Totals**
12:00 AM	2	2	1	0	**5**	2	4	3	1	**10**	**15**
1:00 AM	1	1	0	1	**3**	1	0	0	1	**2**	**5**
2:00 AM	0	1	0	0	**1**	0	0	0	0	**0**	**1**
3:00 AM	0	0	0	0	**0**	0	0	0	1	**1**	**1**
4:00 AM	2	0	2	0	**4**	0	1	3	4	**8**	**12**
5:00 AM	2	1	2	4	**9**	7	4	2	5	**18**	**27**
6:00 AM	8	8	6	11	**33**	17	16	22	39	**94**	**127**
7:00 AM	22	27	29	52	**130**	34	43	142	122	**341**	**471**
8:00 AM	38	39	25	17	**119**	43	59	54	32	**188**	**307**
9:00 AM	13	18	18	19	**68**	18	25	26	20	**89**	**157**
10:00 AM	25	16	10	23	**74**	17	18	31	25	**91**	**165**
11:00 AM	14	37	23	28	**102**	45	48	33	39	**165**	**267**
12:00 PM	25	33	26	22	**106**	19	26	30	43	**118**	**224**
1:00 PM	24	24	34	23	**105**	30	32	23	26	**111**	**216**
2:00 PM	29	31	36	72	**168**	47	63	43	67	**220**	**388**
3:00 PM	44	44	32	38	**158**	36	45	53	46	**180**	**338**
4:00 PM	35	40	39	42	**156**	27	34	38	33	**132**	**288**
5:00 PM	48	36	52	0	**136**	36	42	33	22	**133**	**269**
6:00 PM	38	30	36	34	**138**	21	23	22	21	**87**	**225**
7:00 PM	17	22	19	19	**77**	16	22	18	23	**79**	**156**
8:00 PM	16	21	17	15	**69**	19	16	12	10	**57**	**126**
9:00 PM	10	13	5	8	**36**	7	10	12	5	**34**	**70**
10:00 PM	10	7	6	4	**27**	9	5	6	2	**22**	**49**
11:00 PM	7	1	2	0	**10**	4	3	0	1	**8**	**18**
Total	**44.2%**				**1734**	**55.8%**				**2188**	
	3922										

AM%	**39.6%**	**AM Peak**	**524**	**7:30 am to 8:30 am**	**AM P.H.F.**	**0.75**
PM%	**60.4%**	**PM Peak**	**393**	**2:45 pm to 3:45 pm**	**PM P.H.F.**	**0.71**



Metro Traffic Data Inc.
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Hanford, CA 93230

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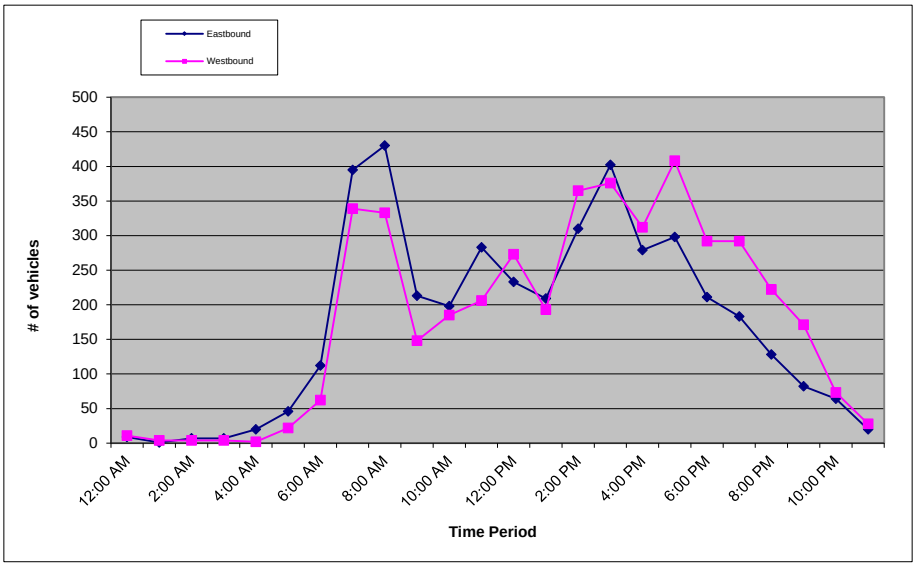
24 Hour Count Report

Prepared For: **JLB Traffic Engineering, Inc.**
516 W. Shaw Ave, Suite 103
Fresno, CA 93704

STREET	Sommerville Dr	**LATITUDE**	36.87496875
SEGMENT	East of Chestnut Ave	**LONGITUDE**	-119.7420043
COLLECTION DATE	Tuesday, May 23, 2023	**WEATHER**	Clear
NUMBER OF LANES	2		

	Eastbound					Westbound					Hourly
Hour	1st	2nd	3rd	4th	**Total**	1st	2nd	3rd	4th	**Total**	**Totals**
12:00 AM	1	4	3	1	**9**	3	2	3	3	**11**	**20**
1:00 AM	0	1	0	0	**1**	0	0	2	2	**4**	**5**
2:00 AM	3	1	0	3	**7**	1	0	2	1	**4**	**11**
3:00 AM	0	2	3	2	**7**	1	1	1	1	**4**	**11**
4:00 AM	5	2	5	8	**20**	1	0	1	0	**2**	**22**
5:00 AM	7	5	19	15	**46**	3	1	7	11	**22**	**68**
6:00 AM	17	28	33	34	**112**	6	18	16	22	**62**	**174**
7:00 AM	70	82	119	124	**395**	35	60	126	118	**339**	**734**
8:00 AM	139	107	105	79	**430**	113	93	69	58	**333**	**763**
9:00 AM	49	34	62	68	**213**	31	41	31	45	**148**	**361**
10:00 AM	45	44	59	50	**198**	48	43	48	46	**185**	**383**
11:00 AM	54	66	80	83	**283**	53	61	53	39	**206**	**489**
12:00 PM	58	57	58	60	**233**	68	62	60	83	**273**	**506**
1:00 PM	46	47	57	59	**209**	45	49	50	49	**193**	**402**
2:00 PM	45	63	76	126	**310**	65	88	114	98	**365**	**675**
3:00 PM	84	95	131	92	**402**	106	101	79	90	**376**	**778**
4:00 PM	78	66	63	72	**279**	76	81	75	80	**312**	**591**
5:00 PM	77	78	71	72	**298**	108	111	92	97	**408**	**706**
6:00 PM	54	65	41	51	**211**	99	68	61	64	**292**	**503**
7:00 PM	40	53	33	57	**183**	99	68	61	64	**292**	**475**
8:00 PM	27	32	32	37	**128**	52	65	48	57	**222**	**350**
9:00 PM	20	26	21	15	**82**	48	41	48	34	**171**	**253**
10:00 PM	21	21	11	11	**64**	25	18	16	14	**73**	**137**
11:00 PM	8	5	4	3	**20**	11	7	3	7	**28**	**48**
Total	**48.9%**				**4140**	**51.1%**				**4325**	
	8465										

AM%	**35.9%**	**AM Peak**	**939**	**7:30 am to 8:30 am**	**AM P.H.F.**	**0.93**
PM%	**64.1%**	**PM Peak**	**820**	**2:45 pm to 3:45 pm**	**PM P.H.F.**	**0.92**



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24 Hour Count Report

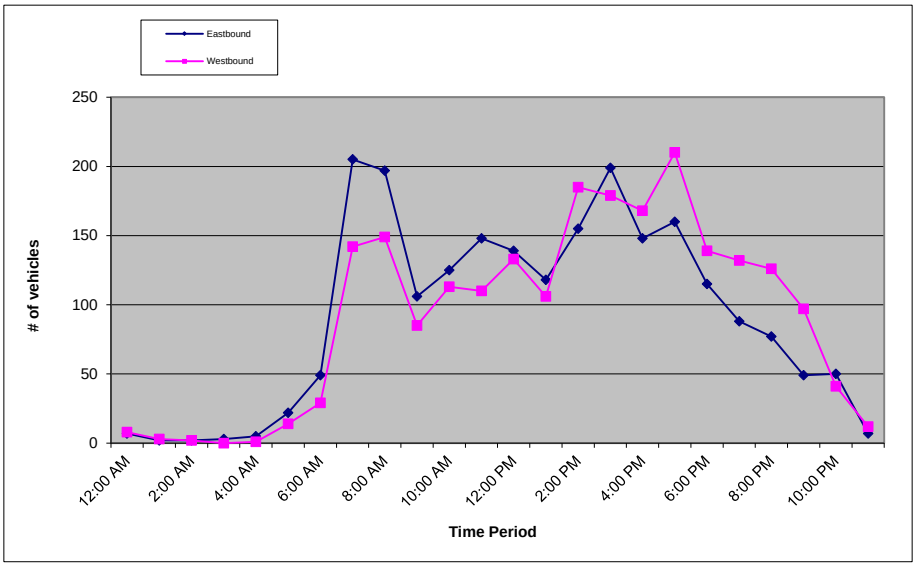
Prepared For: **JLB Traffic Engineering, Inc.**
516 W. Shaw Ave, Suite 103
Fresno, CA 93704

STREET Sommerville Dr
SEGMENT West of Chestnut Ave
COLLECTION DATE Tuesday, May 23, 2023
NUMBER OF LANES 2

LATITUDE 36.87535443
LONGITUDE -119.7426523
WEATHER Clear

	Eastbound					Westbound					Hourly
Hour	1st	2nd	3rd	4th	**Total**	1st	2nd	3rd	4th	**Total**	**Totals**
12:00 AM	1	2	3	1	**7**	1	1	4	2	**8**	**15**
1:00 AM	1	1	0	0	**2**	0	0	3	0	**3**	**5**
2:00 AM	1	1	0	0	**2**	1	0	1	0	**2**	**4**
3:00 AM	0	0	2	1	**3**	0	0	0	0	**0**	**3**
4:00 AM	1	1	1	2	**5**	1	0	0	0	**1**	**6**
5:00 AM	4	2	10	6	**22**	1	2	5	6	**14**	**36**
6:00 AM	6	13	14	16	**49**	3	8	8	10	**29**	**78**
7:00 AM	30	45	59	71	**205**	11	24	44	63	**142**	**347**
8:00 AM	67	44	44	42	**197**	59	33	36	21	**149**	**346**
9:00 AM	21	15	28	42	**106**	15	19	19	32	**85**	**191**
10:00 AM	28	26	31	40	**125**	25	33	27	28	**113**	**238**
11:00 AM	33	35	33	47	**148**	22	30	34	24	**110**	**258**
12:00 PM	34	29	35	41	**139**	32	35	26	40	**133**	**272**
1:00 PM	25	27	32	34	**118**	22	27	30	27	**106**	**224**
2:00 PM	29	27	42	57	**155**	34	48	48	55	**185**	**340**
3:00 PM	42	44	62	51	**199**	50	37	33	59	**179**	**378**
4:00 PM	41	38	30	39	**148**	39	44	40	45	**168**	**316**
5:00 PM	38	44	34	44	**160**	55	55	42	58	**210**	**370**
6:00 PM	29	33	23	30	**115**	49	33	27	30	**139**	**254**
7:00 PM	18	27	18	25	**88**	48	32	26	26	**132**	**220**
8:00 PM	13	19	22	23	**77**	22	37	33	34	**126**	**203**
9:00 PM	10	17	10	12	**49**	26	22	27	22	**97**	**146**
10:00 PM	14	18	7	11	**50**	11	9	12	9	**41**	**91**
11:00 PM	1	2	1	3	**7**	4	5	0	3	**12**	**19**
Total	**49.9%**				**2176**	**50.1%**				**2184**	
	4360										

AM%	**35.0%**	**AM Peak**	**440**	**7:30 am to 8:30 am**	**AM P.H.F.**	**0.82**
PM%	**65.0%**	**PM Peak**	**380**	**2:45 pm to 3:45 pm**	**PM P.H.F.**	**0.85**



Metro Traffic Data Inc.
310 N. Irwin Street - Suite 20
Hanford, CA 93230

800-975-6938 Phone/Fax
www.metrotrafficdata.com

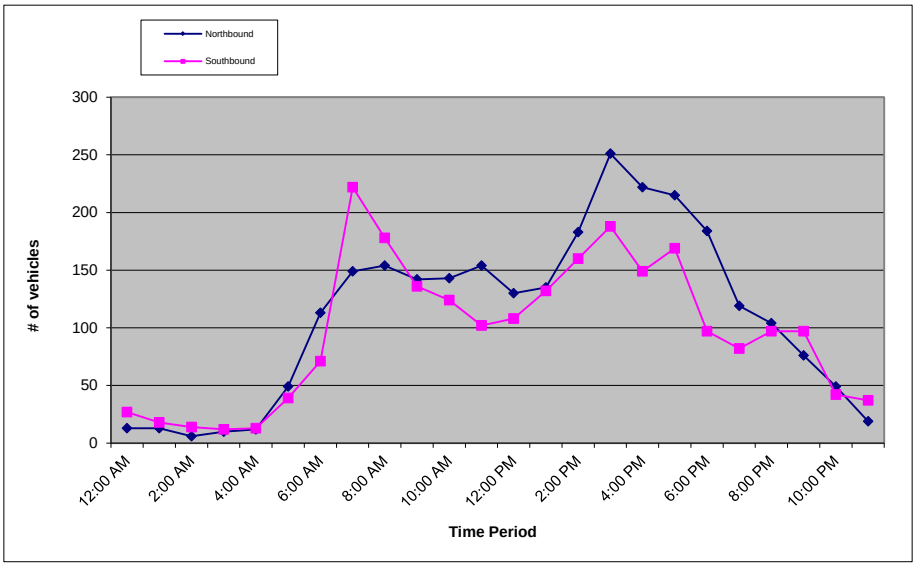
24 Hour Count Report

Prepared For: **JLB Traffic Engineering, Inc.**
516 W. Shaw Ave, Suite 103
Fresno, CA 93704

STREET	Willow Ave	**LATITUDE**	36.89643353
SEGMENT	North of Copper Ave	**LONGITUDE**	-119.7299747
COLLECTION DATE	Tuesday, May 23, 2023	**WEATHER**	Clear
NUMBER OF LANES	2		

	Northbound					Southbound					Hourly
Hour	1st	2nd	3rd	4th	**Total**	1st	2nd	3rd	4th	**Total**	**Totals**
12:00 AM	4	6	2	1	**13**	6	7	8	6	**27**	**40**
1:00 AM	2	4	4	3	**13**	4	2	5	7	**18**	**31**
2:00 AM	1	2	2	1	**6**	5	5	1	3	**14**	**20**
3:00 AM	2	1	3	4	**10**	1	5	2	4	**12**	**22**
4:00 AM	4	0	6	2	**12**	1	1	4	7	**13**	**25**
5:00 AM	8	10	12	19	**49**	9	4	12	14	**39**	**88**
6:00 AM	17	25	31	40	**113**	7	17	19	28	**71**	**184**
7:00 AM	23	50	27	49	**149**	47	57	59	59	**222**	**371**
8:00 AM	40	39	39	36	**154**	43	58	40	37	**178**	**332**
9:00 AM	44	39	30	29	**142**	37	42	27	30	**136**	**278**
10:00 AM	37	38	36	32	**143**	26	28	34	36	**124**	**267**
11:00 AM	39	31	37	47	**154**	24	32	27	19	**102**	**256**
12:00 PM	34	32	28	36	**130**	25	31	27	25	**108**	**238**
1:00 PM	37	35	32	31	**135**	36	24	28	44	**132**	**267**
2:00 PM	49	39	45	50	**183**	30	33	52	45	**160**	**343**
3:00 PM	49	77	57	68	**251**	42	48	47	51	**188**	**439**
4:00 PM	52	49	59	62	**222**	32	39	36	42	**149**	**371**
5:00 PM	59	60	51	45	**215**	42	38	49	40	**169**	**384**
6:00 PM	49	54	47	34	**184**	31	22	26	18	**97**	**281**
7:00 PM	25	29	32	33	**119**	22	20	22	18	**82**	**201**
8:00 PM	30	26	22	26	**104**	22	31	21	23	**97**	**201**
9:00 PM	24	21	14	17	**76**	31	31	22	13	**97**	**173**
10:00 PM	22	11	8	8	**49**	12	15	8	7	**42**	**91**
11:00 PM	6	5	6	2	**19**	9	9	6	13	**37**	**56**
Total	**53.3%**				**2645**	**46.7%**				**2314**	
	4959										

AM%	**38.6%**	**AM Peak**	**384**	**7:15 am to 8:15 am**	**AM P.H.F.**	**0.89**
PM%	**61.4%**	**PM Peak**	**439**	**3:00 pm to 4:00 pm**	**PM P.H.F.**	**0.88**



Appendix B: Methodology

Levels of Service Methodology

The description and procedures for calculating capacity and level of service (LOS) are found in the Transportation Research Board, Highway Capacity Manual (HCM). The HCM 6th Edition represents the research on capacity and quality of service for transportation facilities.

Quality of service requires quantitative measures to characterize operational conditions within a traffic stream. Level of service is a quality measure describing operational conditions within a traffic stream, generally in terms of such service measures as speed and travel time, freedom to maneuver, traffic interruptions, comfort and convenience.

Six levels of service are defined for each type of facility that has analysis procedures available. Letters designate each level of service (LOS), from A to F, with LOS A representing the best operating conditions and LOS F the worst. Each LOS represents a range of operating conditions and the driver's perception of these conditions. Safety is not included in the measures that establish an LOS.

Intersection Levels of Service

One of the more important elements limiting and often interrupting the flow of traffic on a highway is the intersection. Flow on an interrupted facility is usually dominated by points of fixed operation such as traffic signals, stop signs and yield signs.

Signalized Intersections – Performance Measures

For signalized intersections, the performance measures include automobile volume-to-capacity ratio, automobile delay, queue storage length, ratio of pedestrian delay, pedestrian circulation area, pedestrian perception score, bicycle delay and bicycle perception score. LOS is also considered a performance measure. For the automobile mode, the average control delay per vehicle per approach is determined for the peak hour. A weighted average of control delay per vehicle is then determined for the intersection. An LOS designation is given to the weighted average control delay to better describe the level of operation. A description of LOS for signalized intersections is found in Table A-1.

Table A-1: Signalized Intersection Levels of Service Description (Automobile Mode)

Level of Service	*Description*	*Average Control Delay (Seconds per Vehicle)*
A	Operations with a control delay of 10 seconds/vehicle or less and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is really low and either progression is exceptionally favorable or the cycle length is very short. If it's due to favorable progression, most vehicles arrive during the green indication and travel through the intersection without stopping.	≤10
B	Operations with control delay between 10.1 to 20.0 seconds/vehicle and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is low and either progression is highly favorable or the cycle length is short. More vehicles stop than with LOS A.	>10.0 to 20.0
C	Operations with average control delays between 20.1 to 35.0 seconds/vehicle and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio no greater than 1.0, the progression is favorable or the cycle length is moderate. Individual cycle failures (i.e., one or more queued vehicles are not able to depart as a result of insufficient capacity during the cycle) may begin to appear at this level. The number of vehicles stopping is significant, although many vehicles still pass through the intersection without stopping.	>20 to 35
D	Operations with control delay between 35.1 to 55.0 seconds/vehicle and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is high and either progression is ineffective or the cycle length is long. Many vehicles stop and individual cycle failures are noticeable.	>35 to 55
E	Operations with control delay between 55.1 to 80.0 seconds/vehicle and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is high, progression is unfavorable and the cycle length is long. Individual cycle failures are frequent.	>55 to 80
F	Operations with unacceptable control delay exceeding 80.0 seconds/vehicle and a volume-to-capacity ratio greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is very high, progression is very poor and the cycle length is long. Most cycles fail to clear the queue.	>80

Note: Source: Highway Capacity Manual 6th Edition

Unsignalized Intersections

The HCM 6th Edition procedures use control delay as a measure of effectiveness to determine level of service. Delay is a measure of driver discomfort, frustration, fuel consumption and increased travel time. The delay experienced by a motorist is made up of a number of factors that relate to control, traffic and incidents. Total delay is the difference between the travel time actually experienced and the reference travel time that would result during base conditions, i.e., in the absence of traffic control, geometric delay, any incidents and any other vehicles. Control delay is the increased time of travel for a vehicle approaching and passing through an unsignalized intersection, compared with a free-flow vehicle if it were not required to slow or stop at the intersection.

All-Way Stop Controlled Intersections

All-way stop controlled intersections are a form of traffic controls in which all approaches to an intersection are required to stop. Similar to signalized intersections, at all-way stop controlled intersections the average control delay per vehicle per approach is determined for the peak hour. A weighted average of control delay per vehicle is then determined for the intersection as a whole. In other words, the delay measured for all-way stop controlled intersections is a measure of the average delay for all vehicles passing through the intersection during the peak hour. An LOS designation is given to the weighted average control delay to better describe the level of operation.

Two-Way Stop Controlled Intersections

Two-way stop controlled (TWSC) intersections in which stop signs are used to assign the right-of-way, are the most prevalent type of intersection in the United States. At TWSC intersections the stop-controlled approaches are referred to as the minor street approaches and can be either public streets or private driveways. The approaches that are not controlled by stop signs are referred to as the major street approaches.

The capacity of movements subject to delay are determined using the "critical gap" method of capacity analysis. Expected average control delay based on movement volume and movement capacity is calculated. An LOS for a TWSC intersection is determined by the computed or measured control delay for each minor movement. LOS is not defined for the intersection as a whole for three main reasons: (a) major-street through vehicles are assumed to experience zero delay; (b) the disproportionate number of major-street through vehicles at the typical TWSC intersection skews the weighted average of all movements, resulting in a very low overall average delay from all vehicles; and (c) the resulting low delay can mask important LOS deficiencies for minor movements. Table A-2 provides a description of LOS at unsignalized intersections.

Table A-2: Unsignalized Intersection Levels of Service Description (Automobile Mode)

Control Delay (Seconds per Vehicle)	***LOS by Volume-to-Capacity Ratio***	
	v/c ≤ 1.0	***v/c > 1.0***
≤10	A	F
>10 to 15	B	F
>15 to 25	C	F
>25 to 35	D	F
>35 to 50	E	F
>50	F	F

Note: Source: HCM 6th Edition, Exhibit 20-2.

Roundabout Controlled Intersections

Roundabouts are intersections with a generally circular shape, characterized by yield on entry and circulation around a central island. Roundabouts have been used successfully throughout the world and are being used increasingly in the United States, especially since 1990. The procedure used to calculate LOS incorporates a combination of lane-based regression models and gap acceptance models for both single-lane and multi-lane roundabouts. As a result, the capacity models focus on one entry of a roundabout at a time. Table A-3 provides a description of LOS at roundabout intersections.

Table A-3: Roundabout Intersection Level of Service Description (Automobile Mode)

Control Delay (Seconds per Vehicle)	***LOS by Volume-to-Capacity Ratio***	
	v/c ≤ 1.0	***v/c > 1.0***
≤10	A	F
>10 to 15	B	F
>15 to 25	C	F
>25 to 35	D	F
>35 to 50	E	F
>50	F	F

Note: Source: HCM 6th Edition, Exhibit 22-8.

Segment Levels of Service

Segments are portions of roads without any interruption of flow. These are typically studied as urban streets, basic freeways, multilane highways or two-lane highways. Each of these categories has further classification and the level of service analysis can differ between them.

Basic Freeway and Multilane Highway Segments

For segments of multilane highways and basic freeways outside the influence of merging, diverging and weaving maneuvers, LOS is defined by density. Density describes a motorist's proximity to other vehicles and is related to a motorist's freedom to maneuver within the traffic stream. Chapter 12 of the Highway Capacity Manual categorizes each LOS as follows:

LOS A describes free-flow operations. FFS prevails on the freeway or multilane highway, and vehicles are almost completely unimpeded in their ability to maneuver within the traffic stream. The effects of incidents or point breakdowns are easily absorbed.

LOS B represents reasonably free-flow operations, and FFS on the freeway or multilane highway is maintained. The ability to maneuver within the traffic stream is only slightly restricted, and the general level of physical and psychological comfort provided to drivers is still high. The effects of minor incidents are still easily absorbed.

LOS C provides for flow with speeds near the FFS of the freeway or multilane highway. Freedom to maneuver within the traffic stream is noticeably restricted, and lane changes require more care and vigilance on the part of the driver. Minor incidents may still be absorbed, but the local deterioration in service quality will be significant. Queues may be expected to form behind any significant blockages.

LOS D is the level at which speeds begin to decline with increasing flows, with density increasing more quickly. Freedom to maneuver within the traffic stream is seriously limited, and drivers experience reduced physical and psychological comfort levels. Even minor incidents can be expected to create queuing, because the traffic stream has little space to absorb disruptions.

LOS E describes operation at or near capacity. Operations on the freeway or multilane highway at this level are highly volatile because there are virtually no usable gaps within the traffic stream, leaving little room to maneuver within the traffic stream. Any disruption to the traffic stream, such as vehicles entering from a ramp or an access point or a vehicle changing lanes, can establish a disruption wave that propagates throughout the upstream traffic stream. Toward the upper boundary of LOS E, the traffic stream has no ability to dissipate even the most minor disruption, and any incident can be expected to produce a serious breakdown and substantial queuing. The physical and psychological comfort afforded to drivers is poor.

LOS F describes unstable flow. Such conditions exist within queues forming behind bottlenecks. Breakdowns occur for a number of reasons:

- Traffic incidents can temporarily reduce the capacity of a short segment so that the number of vehicles arriving at a point is greater than the number of vehicles that can move through it.
- Points of recurring congestion, such as merge or weaving segments and lane drops, experience very high demand in which the number of vehicles arriving is greater than the number of vehicles that can be discharged.
- In analyses using forecast volumes, the projected flow rate can exceed the estimated capacity of a given location.

Basic Freeway

Basic Freeway segments generally have four to eight lanes and posted speed limits between 50 and 75 mi/hr. The performance measures include capacity, free flow speed, demand and volume-to-capacity ratio, space mean speed, average density and LOS. The LOS is dependent on the number of lanes, base free-flow speed, lane width, right side lateral clearance, total ramp density, hourly demand volume, peak hour factor and total truck percentage. Table A-4 provides a description of LOS for Basic Freeway Segments.

Multilane Highway

Multilane Highway segments generally have four to six lanes and posted speed limits between 40 and 55 mi/hr. The performance measures include capacity, free flow speed, demand and volume-to-capacity ratio, space mean speed, average density and LOS. The LOS is dependent on the number of lanes, base free-flow speed, lane width, right side lateral clearance, left side lateral clearance, access point density, terrain type, median type, hourly demand volume, peak hour factor and total truck percentage. Table A-4 provides a description of LOS for Multilane Highway Segments.

Table A-4: Basic Freeway and Multilane Highway Segment Level of Service Description

Level of Service	*Density (Passenger Cars per Mile per Lane)*
A	≤11
B	>11 to 18
C	>18 to 26
D	>26 to 35
E	>35 to 45
F	>45 or Demand Exceeds Capacity

Note: Source: HCM 6th Edition, Exhibit 12-15.

Two-Lane Highway Segments

Two-Lane Highways generally have one lane per direction and only allow passing maneuvers to take place in the opposing lane of traffic. If allowed, passing maneuvers are limited by the availability of gaps in the opposing traffic stream and by the availability of sufficient sight distance for a driver to discern the approach of an opposing vehicle safely. A principal measure of LOS is percent time spent following and follower density. This is the average percent of time that vehicles must travel in platoons behind slower vehicles due to the inability to pass. Chapter 15 of the Highway Capacity Manual categorizes each LOS as follows:

At **LOS A**, motorists experience high operating speeds on Class I highways and little difficulty in passing. Platoons of three or more vehicles are rare. On Class II highways, speed is controlled primarily by roadway conditions, but a small amount of platooning would be expected. On Class III highways, motorists can maintain operating speeds at or near the facility's FFS.

At **LOS B**, passing demand and passing capacity are balanced. On both Class I and Class II highways, the degree of platooning becomes noticeable. Some speed reductions are present on Class I highways. On Class III highways, maintenance of FFS operation becomes difficult, but the speed reduction is still relatively small.

At **LOS C**, most vehicles travel in platoons. Speeds are noticeably curtailed on all three classes of highways.

At **LOS D**, platooning increases significantly. Passing demand is high on both Class I and Class II facilities, but passing capacity approaches zero. A high percentage of vehicles travels in platoons, and PTSF is noticeable. On Class III highways, the fall-off from FFS is significant.

At **LOS E**, demand is approaching capacity. Passing on Class I and II highways is virtually impossible, and PTSF is more than 80%. Speeds are seriously curtailed. On Class III highways, speed is less than two-thirds of the FFS. The lower limit of LOSE represents capacity.

LOS F exists whenever demand flow in one or both directions exceeds the segment's capacity. Operating conditions are unstable and heavy congestion exists on all classes of two-lane highways.

Two-Lane Highway

The performance measures include average travel speed, segment travel time, percent followers, volume to capacity ratio, follower density and LOS. The LOS is dependent on Highway Class (I, II, or III), lane width, shoulder width, access point density, terrain type, free flow speed, passing lane length, demand flow rate, opposing demand flow rate peak hour factor and total truck percentage. Tables A-5 and A-6 provide a description of LOS for Two-Lane Highway Segments.

Table A-5: Two-Lane Highway Segment Level of Service Description

LOS	*Class I Highways*		*Class II Highways*	*Class III Highways*
	ATS (Mile per Hour)	*PTSF (%)*	*PTSF (%)*	*PFFS (%)*
A	>55	≤35	≤40	>91.7
B	>50 to 55	>35 to 50	>40 to 55	>83.3 to 91.7
C	>45 to 50	>50 to 65	>55 to 70	>75.0 to 83.3
D	>40 to 45	>65 to 80	>70 to 85	>66.7 to 75.0
E	≤40	>80	>85	≤66.7
F	Demand exceeds capacity			

Note: ATS = Average Travel Speed
PTSF = Percent Time Spent Following
PFFS = Percent of Free Flow Speed
Source: HCM 6th Edition, Exhibit 15-3.

Table A-6: Two-Lane Highway Segment Level of Service Description

LOS	*Follower Density (Followers per Mile per Lane)*	
	High Speed Highways Posted Speed Limit ≥ 50 miles per hour	*High Speed Highways Posted Speed Limit < 50 miles per hour*
A	≤2.0	≤2.0
B	>2.0 to 4.0	>2.5 to 5.0
C	>4.0 to 8.0	>5.0 to 10.0
D	>8.0 to 12.0	>10.0 to 15.0
E	>12.0	>15.0

Note: Source: NCHRP 'Improved Analysis of Two-Lane Highway Capacity and Operational Performance, Table 3-23.

Urban Streets (Automobile Mode)

The term “urban streets” refers to urban arterials and collectors, including those in downtown areas. Arterial streets are roads that primarily serve longer through trips. However, providing access to abutting commercial and residential land uses is also an important function of arterials. Collector streets provide both land access and traffic circulation within residential, commercial and industrial areas. Their access function is more important than that of arterials and unlike arterials their operation is not always dominated by traffic signals. Downtown streets are signalized facilities that often resemble arterials.

They not only move through traffic but also provide access to local businesses for passenger cars, transit buses and trucks. Pedestrian conflicts and lane obstructions created by stopping or standing taxicabs, buses, trucks and parking vehicles that cause turbulence in the traffic flow are typical of downtown streets.

Flow Characteristics

The speed of vehicles on urban streets is influenced by three main factors, street environment, interaction among vehicles and traffic control.

The street environment includes the geometric characteristics of the facility, the character of roadside activity and adjacent land uses. Thus, the environment reflects the number and width of lanes, type of median, driveway/access point density, spacing between signalized intersections, existence of parking, level of pedestrian and bicyclist activity and speed limit.

The interaction among vehicles is determined by traffic density, the proportion of trucks and buses and turning movements. This interaction affects the operation of vehicles at intersections and, to a lesser extent, between signals.

Traffic controls (including signals and signs) force a portion of all vehicles to slow or stop. The delays and speed changes caused by traffic control devices reduce vehicle speeds; however, such controls are needed to establish right-of-way.

Urban Street Segments LOS

The average travel speed for through vehicles along an urban street is the determinant of the operating level of service (LOS). The travel speed along a segment, section or entire length of an urban street is dependent on the running speed between signalized intersections and the amount of control delay incurred at signalized intersections. Table A-7 provides a description of LOS for Urban Street Segments.

LOS A describes primarily free-flow operation. Vehicles are completely unimpeded in their ability to maneuver within the traffic stream. Control delay at signalized intersections is minimal. Travel speeds exceed 80 percent of the base free flow speed (FFS).

LOS B describes reasonably unimpeded operation. The ability to maneuver within the traffic stream is only slightly restricted and control delay at the boundary intersections is not significant. The travel speed is between 67 and 80 percent of the base FFS.

LOS C describes stable operations. The ability to maneuver and change lanes in midblock location may be more restricted than at LOS B. Longer queues at the boundary intersections may contribute to lower travel speeds. The travel speed is between 50 and 67 percent of the base FFS.

LOS D indicates a less stable condition in which small increases in flow may cause substantial increases in delay and decreases in travel speed. This operation may be due to adverse signal progression, high volumes or inappropriate signal timing at the boundary intersections. The travel speed is between 40 and 50 percent of the base FFS.

LOS E is characterized as an unstable operation and has significant delay. Such operations may be due to some combination of adverse progression, high volume and inappropriate signal timing at the boundary intersections. The travel speed is between 30 and 40 percent of the base FFS.

LOS F is characterized by street flow at extremely low speed. Congestion is likely occurring at the boundary intersections, as indicated by high delay and extensive queuing. The travel speed is 30 percent or less of the base FFS.

Table A-7: Urban Street Levels of Service (Automobile Mode)

LOS	***Travel Speed Threshold by Base Free-Flow Speed (miles/hour)***							***Volume-to-Capacity Ratio***
	55	**50**	**45**	**40**	**35**	**30**	**25**	
A	>44	>40	>36	>32	>28	>24	>20	≤ 1.0
B	>37	>34	>30	>27	>23	>20	>17	
C	>28	>25	>23	>20	>18	>15	>13	
D	>22	>20	>18	>16	>14	>12	>10	
E	>17	>15	>14	>12	>11	>9	>8	
F	≤17	≤15	≤14	≤12	≤11	≤9	≤8	
F	Any							> 1.0

Note: a = The Critical volume-to-capacity ratio is based on consideration of the through movement-to-capacity ratio at each boundary intersection in the subject direction of travel. The critical volume-to-capacity ratio is the largest ratio of those considered.
Source: Highway Capacity Manual 6th Edition, Exhibit 16-3.

Appendix C: Existing (Year 2023) Traffic Conditions

Intersection	
Intersection Delay, s/veh	20.5
Intersection LOS	C

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Vol, veh/h	288	145	138	162	52	188
Future Vol, veh/h	288	145	138	162	52	188
Peak Hour Factor	0.69	0.69	0.69	0.69	0.69	0.69
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	417	210	200	235	75	272
Number of Lanes	1	1	2	1	1	2

Approach	NW	NE	SW
Opposing Approach		SW	NE
Opposing Lanes	0	3	3
Conflicting Approach Left	NE		NW
Conflicting Lanes Left	3	0	2
Conflicting Approach Right	SW	NW	
Conflicting Lanes Right	3	2	0
HCM Control Delay	31.3	11.5	12.3
HCM LOS	D	B	B

Lane	NELn1	NELn2	NELn3	NWLn1	NWLn2	SWLn1	SWLn2	SWLn3
Vol Left, %	0%	0%	0%	100%	0%	100%	0%	0%
Vol Thru, %	100%	100%	0%	0%	0%	0%	100%	100%
Vol Right, %	0%	0%	100%	0%	100%	0%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	69	69	162	288	145	52	94	94
LT Vol	0	0	0	288	0	52	0	0
Through Vol	69	69	0	0	0	0	94	94
RT Vol	0	0	162	0	145	0	0	0
Lane Flow Rate	100	100	235	417	210	75	136	136
Geometry Grp	8	8	8	8	8	8	8	8
Degree of Util (X)	0.214	0.214	0.337	0.86	0.363	0.174	0.295	0.226
Departure Headway (Hd)	7.7	7.7	5.174	7.418	6.216	8.3	7.784	5.977
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	466	466	693	493	582	432	462	599
Service Time	5.45	5.45	2.921	5.118	3.916	6.053	5.537	3.729
HCM Lane V/C Ratio	0.215	0.215	0.339	0.846	0.361	0.174	0.294	0.227
HCM Control Delay	12.5	12.5	10.6	40.8	12.4	12.8	13.8	10.5
HCM Lane LOS	B	B	B	E	B	B	B	B
HCM 95th-tile Q	0.8	0.8	1.5	9	1.7	0.6	1.2	0.9

Intersection	
Intersection Delay, s/veh	12.2
Intersection LOS	B

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	36	131	208	50	86	119
Future Vol, veh/h	36	131	208	50	86	119
Peak Hour Factor	0.66	0.66	0.66	0.66	0.66	0.66
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	55	198	315	76	130	180
Number of Lanes	1	1	1	2	2	1

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	3	3
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	3	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	3	0	2
HCM Control Delay	11	15.8	8.6
HCM LOS	B	C	A

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	100%	0%	0%	0%	0%
Vol Thru, %	0%	100%	100%	0%	0%	100%	100%	0%
Vol Right, %	0%	0%	0%	0%	100%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	208	25	25	36	131	43	43	119
LT Vol	208	0	0	36	0	0	0	0
Through Vol	0	25	25	0	0	43	43	0
RT Vol	0	0	0	0	131	0	0	119
Lane Flow Rate	315	38	38	55	198	65	65	180
Geometry Grp	8	8	8	8	8	8	8	8
Degree of Util (X)	0.57	0.063	0.044	0.105	0.317	0.115	0.115	0.195
Departure Headway (Hd)	6.506	6	4.229	6.953	5.754	6.368	6.368	3.884
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	555	597	845	515	623	562	562	920
Service Time	4.243	3.737	1.965	4.699	3.5	4.115	4.115	1.63
HCM Lane V/C Ratio	0.568	0.064	0.045	0.107	0.318	0.116	0.116	0.196
HCM Control Delay	17.6	9.1	7.2	10.5	11.2	9.9	9.9	7.6
HCM Lane LOS	C	A	A	B	B	A	A	A
HCM 95th-tile Q	3.6	0.2	0.1	0.3	1.4	0.4	0.4	0.7

Intersection	
Intersection Delay, s/veh	19.6
Intersection LOS	C

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Vol, veh/h	27	50	157	46	46	73	139	64	49	179	132	100
Future Vol, veh/h	27	50	157	46	46	73	139	64	49	179	132	100
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	31	57	180	53	53	84	160	74	56	206	152	115
Number of Lanes	0	1	2	0	0	1	2	0	1	1	0	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	3	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	2	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	3	3	3
HCM Control Delay	14.7	15.1	30.9	15.4
HCM LOS	B	C	D	C

Lane	NBLn1	NBLn2	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	100%	0%	0%	100%	0%	0%	100%	0%	0%
Vol Thru, %	0%	58%	0%	100%	53%	0%	100%	42%	0%	100%	0%
Vol Right, %	0%	42%	0%	0%	47%	0%	0%	58%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	49	311	77	105	98	119	93	110	100	138	50
LT Vol	49	0	77	0	0	119	0	0	100	0	0
Through Vol	0	179	0	105	52	0	93	46	0	138	0
RT Vol	0	132	0	0	46	0	0	64	0	0	50
Lane Flow Rate	56	357	89	120	113	137	107	127	115	159	57
Geometry Grp	8	8	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.136	0.784	0.227	0.292	0.264	0.346	0.254	0.288	0.291	0.379	0.126
Departure Headway (Hd)	8.689	7.892	9.241	8.729	8.393	9.102	8.59	8.174	9.113	8.605	7.894
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	415	461	389	411	427	395	418	439	394	419	454
Service Time	6.389	5.592	6.999	6.486	6.15	6.859	6.347	5.931	6.869	6.361	5.649
HCM Lane V/C Ratio	0.135	0.774	0.229	0.292	0.265	0.347	0.256	0.289	0.292	0.379	0.126
HCM Control Delay	12.8	33.7	14.7	15.1	14.2	16.6	14.3	14.2	15.6	16.6	11.8
HCM Lane LOS	B	D	B	C	B	C	B	B	C	C	B
HCM 95th-tile Q	0.5	7	0.9	1.2	1	1.5	1	1.2	1.2	1.7	0.4

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBT	SBR
Lane Configurations		
Traffic Vol, veh/h	138	50
Future Vol, veh/h	138	50
Peak Hour Factor	0.87	0.87
Heavy Vehicles, %	3	3
Mvmt Flow	159	57
Number of Lanes	1	1

Approach	
Opposing Approach	
Opposing Lanes	
Conflicting Approach Left	
Conflicting Lanes Left	
Conflicting Approach Right	
Conflicting Lanes Right	
HCM Control Delay	
HCM LOS	

Intersection	
Intersection Delay, s/veh	21.2
Intersection LOS	C

Movement	EBU	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations								
Traffic Vol, veh/h	0	11	223	3	163	281	292	14
Future Vol, veh/h	0	11	223	3	163	281	292	14
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles, %	3	3	3	3	3	3	3	3
Mvmt Flow	0	13	272	4	199	343	356	17
Number of Lanes	0	1	2	1	2	0	1	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	3	3	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	3
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	3
HCM Control Delay	11.7	21	28.8
HCM LOS	B	C	D

Lane	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	0%	0%	0%	100%	0%
Vol Thru, %	0%	100%	100%	100%	100%	16%	0%	0%
Vol Right, %	0%	0%	0%	0%	0%	84%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	11	112	112	3	109	335	292	14
LT Vol	11	0	0	0	0	0	292	0
Through Vol	0	112	112	3	109	54	0	0
RT Vol	0	0	0	0	0	281	0	14
Lane Flow Rate	13	136	136	4	133	409	356	17
Geometry Grp	8	8	8	8	8	8	8	8
Degree of Util (X)	0.03	0.286	0.218	0.007	0.257	0.723	0.75	0.03
Departure Headway (Hd)	8.078	7.563	5.761	6.968	6.968	6.367	7.587	6.384
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	443	475	621	514	516	568	481	564
Service Time	5.828	5.313	3.509	4.71	4.71	4.108	5.287	4.084
HCM Lane V/C Ratio	0.029	0.286	0.219	0.008	0.258	0.72	0.74	0.03
HCM Control Delay	11.1	13.3	10.1	9.8	12.1	24	29.7	9.3
HCM Lane LOS	B	B	B	A	B	C	D	A
HCM 95th-tile Q	0.1	1.2	0.8	0	1	6	6.3	0.1

Intersection	
Intersection Delay, s/veh	8.8
Intersection LOS	A

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Vol, veh/h	162	20	198	224	14	105
Future Vol, veh/h	162	20	198	224	14	105
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	174	22	213	241	15	113
Number of Lanes	1	1	2	1	1	2

Approach	NW	NE	SW
Opposing Approach		SW	NE
Opposing Lanes	0	3	3
Conflicting Approach Left	NE		NW
Conflicting Lanes Left	3	0	2
Conflicting Approach Right	SW	NW	
Conflicting Lanes Right	3	2	0
HCM Control Delay	11.3	7.9	8.4
HCM LOS	B	A	A

Lane	NELn1	NELn2	NELn3	NWLn1	NWLn2	SWLn1	SWLn2	SWLn3
Vol Left, %	0%	0%	0%	100%	0%	100%	0%	0%
Vol Thru, %	100%	100%	0%	0%	0%	0%	100%	100%
Vol Right, %	0%	0%	100%	0%	100%	0%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	99	99	224	162	20	14	53	53
LT Vol	0	0	0	162	0	14	0	0
Through Vol	99	99	0	0	0	0	53	53
RT Vol	0	0	224	0	20	0	0	0
Lane Flow Rate	106	106	241	174	22	15	56	56
Geometry Grp	8	8	8	8	8	8	8	8
Degree of Util (X)	0.162	0.162	0.202	0.305	0.03	0.027	0.093	0.065
Departure Headway (Hd)	5.495	5.495	3.023	6.304	5.008	6.417	5.912	4.144
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	650	650	1173	573	705	553	600	850
Service Time	3.251	3.251	0.778	4.004	2.808	4.214	3.708	1.939
HCM Lane V/C Ratio	0.163	0.163	0.205	0.304	0.031	0.027	0.093	0.066
HCM Control Delay	9.3	9.3	6.6	11.7	8	9.4	9.3	7.2
HCM Lane LOS	A	A	A	B	A	A	A	A
HCM 95th-tile Q	0.6	0.6	0.8	1.3	0.1	0.1	0.3	0.2

Intersection	
Intersection Delay, s/veh	8.6
Intersection LOS	A

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	35	155	115	38	48	36
Future Vol, veh/h	35	155	115	38	48	36
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	38	170	126	42	53	40
Number of Lanes	1	1	1	2	2	1

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	3	3
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	3	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	3	0	2
HCM Control Delay	8.6	9.3	7.3
HCM LOS	A	A	A

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	100%	0%	0%	0%	0%
Vol Thru, %	0%	100%	100%	0%	0%	100%	100%	0%
Vol Right, %	0%	0%	0%	0%	100%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	115	19	19	35	155	24	24	36
LT Vol	115	0	0	35	0	0	0	0
Through Vol	0	19	19	0	0	24	24	0
RT Vol	0	0	0	0	155	0	0	36
Lane Flow Rate	126	21	21	38	170	26	26	40
Geometry Grp	8	8	8	8	8	8	8	8
Degree of Util (X)	0.203	0.031	0.02	0.061	0.214	0.04	0.04	0.033
Departure Headway (Hd)	5.773	5.27	3.507	5.716	4.519	5.473	5.473	3.005
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	622	679	1016	627	794	653	653	1183
Service Time	3.51	3.007	1.244	3.447	2.25	3.215	3.215	0.745
HCM Lane V/C Ratio	0.203	0.031	0.021	0.061	0.214	0.04	0.04	0.034
HCM Control Delay	10	8.2	6.3	8.8	8.5	8.4	8.4	5.8
HCM Lane LOS	A	A	A	A	A	A	A	A
HCM 95th-tile Q	0.8	0.1	0.1	0.2	0.8	0.1	0.1	0.1

Intersection	
Intersection Delay, s/veh	10.6
Intersection LOS	B

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Vol, veh/h	21	46	124	19	12	24	205	49	19	98	29	45
Future Vol, veh/h	21	46	124	19	12	24	205	49	19	98	29	45
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	22	48	131	20	13	25	216	52	20	103	31	47
Number of Lanes	0	1	2	0	0	1	2	0	1	1	0	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	3	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	2	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	3	3	3
HCM Control Delay	10.4	10.7	11.2	10.3
HCM LOS	B	B	B	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	100%	0%	0%	100%	0%	0%	100%	0%	0%
Vol Thru, %	0%	77%	0%	100%	69%	0%	100%	58%	0%	100%	0%
Vol Right, %	0%	23%	0%	0%	31%	0%	0%	42%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	19	127	67	83	60	36	137	117	45	99	59
LT Vol	19	0	67	0	0	36	0	0	45	0	0
Through Vol	0	98	0	83	41	0	137	68	0	99	0
RT Vol	0	29	0	0	19	0	0	49	0	0	59
Lane Flow Rate	20	134	71	87	64	38	144	124	47	104	62
Geometry Grp	8	8	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.04	0.24	0.137	0.157	0.111	0.072	0.253	0.207	0.093	0.19	0.101
Departure Headway (Hd)	7.131	6.471	7.006	6.502	6.28	6.838	6.334	6.04	7.057	6.556	5.854
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	501	553	511	550	569	523	565	593	507	546	610
Service Time	4.889	4.229	4.765	4.261	4.038	4.594	4.09	3.796	4.814	4.313	3.611
HCM Lane V/C Ratio	0.04	0.242	0.139	0.158	0.112	0.073	0.255	0.209	0.093	0.19	0.102
HCM Control Delay	10.2	11.3	10.9	10.5	9.8	10.1	11.2	10.4	10.5	10.9	9.3
HCM Lane LOS	B	B	B	B	A	B	B	B	B	B	A
HCM 95th-tile Q	0.1	0.9	0.5	0.6	0.4	0.2	1	0.8	0.3	0.7	0.3

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBT	SBR
Lane Configurations		
Traffic Vol, veh/h	99	59
Future Vol, veh/h	99	59
Peak Hour Factor	0.95	0.95
Heavy Vehicles, %	3	3
Mvmt Flow	104	62
Number of Lanes	1	1

Approach	
Opposing Approach	
Opposing Lanes	
Conflicting Approach Left	
Conflicting Lanes Left	
Conflicting Approach Right	
Conflicting Lanes Right	
HCM Control Delay	
HCM LOS	

Intersection	
Intersection Delay, s/veh	12.4
Intersection LOS	B

Movement	EBU	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations								
Traffic Vol, veh/h	1	7	175	3	209	231	186	16
Future Vol, veh/h	1	7	175	3	209	231	186	16
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	3	3	3	3	3	3	3	3
Mvmt Flow	1	8	192	3	230	254	204	18
Number of Lanes	0	1	2	1	2	0	1	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	3	3	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	3
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	3
HCM Control Delay	10.6	12.5	13.7
HCM LOS	B	B	B

Lane	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	0%	0%	0%	100%	0%
Vol Thru, %	0%	100%	100%	100%	100%	23%	0%	0%
Vol Right, %	0%	0%	0%	0%	0%	77%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	8	88	88	3	139	301	186	16
LT Vol	8	0	0	0	0	0	186	0
Through Vol	0	88	88	3	139	70	0	0
RT Vol	0	0	0	0	0	231	0	16
Lane Flow Rate	9	96	96	3	153	330	204	18
Geometry Grp	8	8	8	8	8	8	8	8
Degree of Util (X)	0.017	0.173	0.173	0.005	0.253	0.497	0.394	0.028
Departure Headway (Hd)	6.978	6.471	6.471	5.956	5.956	5.412	6.937	5.739
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	513	554	554	601	603	664	519	623
Service Time	4.723	4.216	4.216	3.693	3.693	3.149	4.678	3.479
HCM Lane V/C Ratio	0.018	0.173	0.173	0.005	0.254	0.497	0.393	0.029
HCM Control Delay	9.8	10.6	10.6	8.7	10.7	13.4	14.1	8.6
HCM Lane LOS	A	B	B	A	B	B	B	A
HCM 95th-tile Q	0.1	0.6	0.6	0	1	2.8	1.9	0.1

Intersection: 2: Millbrook Avenue & Olympic Avenue

Movement	NW	NW	NE	NE	NE	SW	SW	SW
Directions Served	L	R	T	T	R	L	T	T
Maximum Queue (ft)	136	60	68	55	79	76	55	54
Average Queue (ft)	51	26	35	25	46	28	36	28
95th Queue (ft)	87	47	59	47	70	53	53	50
Link Distance (ft)	242	242	691	691			1128	1128
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)					160	100		
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 3: Cedar Avenue & Olympic Avenue

Movement	EB	EB	NB	NB	NB	SB	SB	SB
Directions Served	L	R	L	T	T	T	T	R
Maximum Queue (ft)	48	55	96	31	31	53	31	78
Average Queue (ft)	18	31	51	17	17	32	6	34
95th Queue (ft)	41	53	81	42	42	43	26	55
Link Distance (ft)		1276		321	321	1184	1184	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	200		200					100
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 4: Chestnut Avenue & Behymer Avenue

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	UL	T	TR	UL	T	TR	L	TR	L	T	R
Maximum Queue (ft)	47	44	59	72	74	75	54	137	75	76	76
Average Queue (ft)	26	28	29	40	42	36	28	71	41	43	28
95th Queue (ft)	44	43	52	62	64	60	52	106	63	72	56
Link Distance (ft)		1445	1445		2494	2494		1741		288	
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	200			230			100		120		120
Storage Blk Time (%)								2			
Queuing Penalty (veh)								1			

Intersection: 5: Sommerville Drive & Chestnut Avenue

Movement	EB	EB	EB	WB	WB	WB	SB	SB
Directions Served	UL	T	T	U	T	TR	L	R
Maximum Queue (ft)	31	55	54	29	65	77	93	29
Average Queue (ft)	9	35	35	1	38	51	58	7
95th Queue (ft)	31	49	51	9	56	71	83	26
Link Distance (ft)		1555	1555		2125	2125		836
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	150			150			140	
Storage Blk Time (%)								
Queuing Penalty (veh)								

Network Summary

Network wide Queuing Penalty: 1

Intersection: 2: Millbrook Avenue & Olympic Avenue

Movement	NW	NW	NE	NE	NE	SW	SW	SW
Directions Served	L	R	T	T	R	L	T	T
Maximum Queue (ft)	93	18	65	54	75	31	51	68
Average Queue (ft)	38	4	35	26	41	14	33	18
95th Queue (ft)	67	16	50	49	65	38	48	47
Link Distance (ft)	242	242	691	691			1128	1128
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)					160	100		
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 3: Cedar Avenue & Olympic Avenue

Movement	EB	EB	NB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	T	R
Maximum Queue (ft)	45	66	76	31	31	52	64
Average Queue (ft)	20	30	31	24	7	25	21
95th Queue (ft)	40	54	55	44	28	47	50
Link Distance (ft)		1276		321	321	1184	
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	200		200				100
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 4: Chestnut Avenue & Behymer Avenue

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	UL	T	TR	UL	T	TR	L	TR	L	T	R
Maximum Queue (ft)	65	44	63	52	69	68	52	76	53	78	68
Average Queue (ft)	25	25	20	24	41	34	17	42	23	38	28
95th Queue (ft)	47	38	42	47	62	55	43	71	48	60	57
Link Distance (ft)		1445	1445		2494	2494		1741		288	
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	200			230			100		120		120
Storage Blk Time (%)											
Queuing Penalty (veh)											

Intersection: 5: Sommerville Drive & Chestnut Avenue

Movement	EB	EB	EB	WB	WB	SB	SB
Directions Served	UL	T	T	T	TR	L	R
Maximum Queue (ft)	31	74	53	76	115	102	31
Average Queue (ft)	9	36	22	38	52	43	12
95th Queue (ft)	31	53	48	60	85	75	35
Link Distance (ft)		1555	1555	2125	2125		836
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	150					140	
Storage Blk Time (%)							
Queuing Penalty (veh)							

Network Summary

Network wide Queuing Penalty: 0

Appendix D: Existing plus Project (Year 2025) Traffic Conditions

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	40	11	168	222	0
Future Vol, veh/h	1	40	11	168	222	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	200	0	250	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	1	44	12	187	247	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	458	247	247	0	-	0
Stage 1	247	-	-	-	-	-
Stage 2	211	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	559	789	1313	-	-	-
Stage 1	792	-	-	-	-	-
Stage 2	822	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	554	789	1313	-	-	-
Mov Cap-2 Maneuver	554	-	-	-	-	-
Stage 1	785	-	-	-	-	-
Stage 2	822	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.8	0.5	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1313	-	554	789	-	-
HCM Lane V/C Ratio	0.009	-	0.002	0.056	-	-
HCM Control Delay (s)	7.8	-	11.5	9.8	-	-
HCM Lane LOS	A	-	B	A	-	-
HCM 95th %tile Q(veh)	0	-	0	0.2	-	-

Intersection	
Intersection Delay, s/veh	27.1
Intersection LOS	D

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Vol, veh/h	315	146	147	162	67	197
Future Vol, veh/h	315	146	147	162	67	197
Peak Hour Factor	0.69	0.69	0.69	0.69	0.69	0.69
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	457	212	213	235	97	286
Number of Lanes	1	1	2	1	1	2

Approach	NW	NE	SW
Opposing Approach		SW	NE
Opposing Lanes	0	3	3
Conflicting Approach Left	NE		NW
Conflicting Lanes Left	3	0	2
Conflicting Approach Right	SW	NW	
Conflicting Lanes Right	3	2	0
HCM Control Delay	45.2	12.2	13
HCM LOS	E	B	B

Lane	NELn1	NELn2	NELn3	NWLn1	NWLn2	SWLn1	SWLn2	SWLn3
Vol Left, %	0%	0%	0%	100%	0%	100%	0%	0%
Vol Thru, %	100%	100%	0%	0%	0%	0%	100%	100%
Vol Right, %	0%	0%	100%	0%	100%	0%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	74	74	162	315	146	67	99	99
LT Vol	0	0	0	315	0	67	0	0
Through Vol	74	74	0	0	0	0	99	99
RT Vol	0	0	162	0	146	0	0	0
Lane Flow Rate	107	107	235	457	212	97	143	143
Geometry Grp	8	8	8	8	8	8	8	8
Degree of Util (X)	0.237	0.237	0.357	0.963	0.375	0.231	0.319	0.247
Departure Headway (Hd)	8.011	8.011	5.475	7.591	6.388	8.566	8.048	6.237
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	448	448	655	479	563	419	447	575
Service Time	5.759	5.759	3.222	5.338	4.135	6.319	5.801	3.988
HCM Lane V/C Ratio	0.239	0.239	0.359	0.954	0.377	0.232	0.32	0.249
HCM Control Delay	13.2	13.2	11.3	60.1	12.9	13.9	14.5	11
HCM Lane LOS	B	B	B	F	B	B	B	B
HCM 95th-tile Q	0.9	0.9	1.6	12	1.7	0.9	1.4	1

Intersection	
Intersection Delay, s/veh	12.3
Intersection LOS	B

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	38	131	208	50	97	134
Future Vol, veh/h	38	131	208	50	97	134
Peak Hour Factor	0.66	0.66	0.66	0.66	0.66	0.66
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	58	198	315	76	147	203
Number of Lanes	1	1	1	2	2	1

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	3	3
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	3	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	3	0	2
HCM Control Delay	11.2	16.1	8.8
HCM LOS	B	C	A

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	100%	0%	0%	0%	0%
Vol Thru, %	0%	100%	100%	0%	0%	100%	100%	0%
Vol Right, %	0%	0%	0%	0%	100%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	208	25	25	38	131	49	49	134
LT Vol	208	0	0	38	0	0	0	0
Through Vol	0	25	25	0	0	49	49	0
RT Vol	0	0	0	0	131	0	0	134
Lane Flow Rate	315	38	38	58	198	73	73	203
Geometry Grp	8	8	8	8	8	8	8	8
Degree of Util (X)	0.578	0.064	0.045	0.113	0.322	0.131	0.131	0.221
Departure Headway (Hd)	6.601	6.095	4.323	7.049	5.849	6.403	6.403	3.918
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	545	587	825	508	613	559	559	910
Service Time	4.344	3.837	2.064	4.801	3.601	4.153	4.153	1.667
HCM Lane V/C Ratio	0.578	0.065	0.046	0.114	0.323	0.131	0.131	0.223
HCM Control Delay	18	9.3	7.3	10.7	11.4	10.1	10.1	7.8
HCM Lane LOS	C	A	A	B	B	B	B	A
HCM 95th-tile Q	3.6	0.2	0.1	0.4	1.4	0.4	0.4	0.8

Intersection	
Intersection Delay, s/veh	20.4
Intersection LOS	C

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations														
Traffic Vol, veh/h	27	50	159	46	46	73	142	64	49	179	132	100	164	50
Future Vol, veh/h	27	50	159	46	46	73	142	64	49	179	132	100	164	50
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	31	57	183	53	53	84	163	74	56	206	152	115	189	57
Number of Lanes	0	1	2	0	0	1	2	0	1	1	0	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	3	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	2	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	3	3	3
HCM Control Delay	15	15.5	32.4	16.6
HCM LOS	B	C	D	C

Lane	NBLn1	NBLn2	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	100%	0%	0%	100%	0%	0%	100%	0%	0%
Vol Thru, %	0%	58%	0%	100%	54%	0%	100%	43%	0%	100%	0%
Vol Right, %	0%	42%	0%	0%	46%	0%	0%	57%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	49	311	77	106	99	119	95	111	100	164	50
LT Vol	49	0	77	0	0	119	0	0	100	0	0
Through Vol	0	179	0	106	53	0	95	47	0	164	0
RT Vol	0	132	0	0	46	0	0	64	0	0	50
Lane Flow Rate	56	357	89	122	114	137	109	128	115	189	57
Geometry Grp	8	8	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.138	0.795	0.232	0.302	0.271	0.352	0.265	0.297	0.294	0.455	0.127
Departure Headway (Hd)	8.805	8.008	9.423	8.909	8.575	9.277	8.764	8.351	9.205	8.696	7.984
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	408	454	381	403	419	388	410	430	391	415	449
Service Time	6.549	5.752	7.174	6.661	6.326	7.029	6.515	6.102	6.957	6.449	5.736
HCM Lane V/C Ratio	0.137	0.786	0.234	0.303	0.272	0.353	0.266	0.298	0.294	0.455	0.127
HCM Control Delay	13	35.4	15	15.5	14.5	17	14.7	14.6	15.8	18.5	11.9
HCM Lane LOS	B	E	B	C	B	C	B	B	C	C	B
HCM 95th-tile Q	0.5	7.2	0.9	1.3	1.1	1.6	1.1	1.2	1.2	2.3	0.4

Intersection	
Intersection Delay, s/veh	26.4
Intersection LOS	D

Movement	EBU	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations								
Traffic Vol, veh/h	0	11	262	3	186	281	318	14
Future Vol, veh/h	0	11	262	3	186	281	318	14
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles, %	3	3	3	3	3	3	3	3
Mvmt Flow	0	13	320	4	227	343	388	17
Number of Lanes	0	1	2	1	2	0	1	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	3	3	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	3
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	3
HCM Control Delay	12.9	25.2	39.2
HCM LOS	B	D	E

Lane	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	0%	0%	0%	100%	0%
Vol Thru, %	0%	100%	100%	100%	100%	18%	0%	0%
Vol Right, %	0%	0%	0%	0%	0%	82%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	11	131	131	3	124	343	318	14
LT Vol	11	0	0	0	0	0	318	0
Through Vol	0	131	131	3	124	62	0	0
RT Vol	0	0	0	0	0	281	0	14
Lane Flow Rate	13	160	160	4	151	418	388	17
Geometry Grp	8	8	8	8	8	8	8	8
Degree of Util (X)	0.031	0.35	0.27	0.007	0.308	0.782	0.844	0.031
Departure Headway (Hd)	8.406	7.889	6.079	7.323	7.323	6.733	7.838	6.634
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	426	455	590	489	491	535	461	539
Service Time	6.161	5.643	3.832	5.069	5.069	4.479	5.586	4.381
HCM Lane V/C Ratio	0.031	0.352	0.271	0.008	0.308	0.781	0.842	0.032
HCM Control Delay	11.4	14.9	11.1	10.1	13.3	29.6	40.5	9.6
HCM Lane LOS	B	B	B	B	B	D	E	A
HCM 95th-tile Q	0.1	1.6	1.1	0	1.3	7.2	8.4	0.1

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	30	36	233	171	1
Future Vol, veh/h	0	30	36	233	171	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	200	0	250	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	31	37	240	176	1

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	491	177	177	0	-	0
Stage 1	177	-	-	-	-	-
Stage 2	314	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	535	863	1393	-	-	-
Stage 1	851	-	-	-	-	-
Stage 2	738	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	521	863	1393	-	-	-
Mov Cap-2 Maneuver	521	-	-	-	-	-
Stage 1	828	-	-	-	-	-
Stage 2	738	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.3	1	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1393	-	-	863	-	-
HCM Lane V/C Ratio	0.027	-	-	0.036	-	-
HCM Control Delay (s)	7.7	-	0	9.3	-	-
HCM Lane LOS	A	-	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.1	-	-

Intersection	
Intersection Delay, s/veh	9
Intersection LOS	A

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Vol, veh/h	162	26	217	233	15	122
Future Vol, veh/h	162	26	217	233	15	122
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	174	28	233	251	16	131
Number of Lanes	1	1	2	1	1	2

Approach	NW	NE	SW
Opposing Approach		SW	NE
Opposing Lanes	0	3	3
Conflicting Approach Left	NE		NW
Conflicting Lanes Left	3	0	2
Conflicting Approach Right	SW	NW	
Conflicting Lanes Right	3	2	0
HCM Control Delay	11.5	8.1	8.6
HCM LOS	B	A	A

Lane	NELn1	NELn2	NELn3	NWLn1	NWLn2	SWLn1	SWLn2	SWLn3
Vol Left, %	0%	0%	0%	100%	0%	100%	0%	0%
Vol Thru, %	100%	100%	0%	0%	0%	0%	100%	100%
Vol Right, %	0%	0%	100%	0%	100%	0%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	109	109	233	162	26	15	61	61
LT Vol	0	0	0	162	0	15	0	0
Through Vol	109	109	0	0	0	0	61	61
RT Vol	0	0	233	0	26	0	0	0
Lane Flow Rate	117	117	251	174	28	16	66	66
Geometry Grp	8	8	8	8	8	8	8	8
Degree of Util (X)	0.18	0.18	0.215	0.311	0.041	0.03	0.111	0.079
Departure Headway (Hd)	5.558	5.558	3.086	6.428	5.232	6.608	6.102	4.332
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	640	640	1142	563	687	545	591	832
Service Time	3.333	3.333	0.859	4.137	2.94	4.308	3.802	2.032
HCM Lane V/C Ratio	0.183	0.183	0.22	0.309	0.041	0.029	0.112	0.079
HCM Control Delay	9.6	9.6	6.7	12	8.2	9.5	9.6	7.4
HCM Lane LOS	A	A	A	B	A	A	A	A
HCM 95th-tile Q	0.7	0.7	0.8	1.3	0.1	0.1	0.4	0.3

Intersection	
Intersection Delay, s/veh	8.6
Intersection LOS	A

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	41	155	115	47	48	39
Future Vol, veh/h	41	155	115	47	48	39
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	45	170	126	52	53	43
Number of Lanes	1	1	1	2	2	1

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	3	3
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	3	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	3	0	2
HCM Control Delay	8.6	9.2	7.3
HCM LOS	A	A	A

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	100%	0%	0%	0%	0%
Vol Thru, %	0%	100%	100%	0%	0%	100%	100%	0%
Vol Right, %	0%	0%	0%	0%	100%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	115	24	24	41	155	24	24	39
LT Vol	115	0	0	41	0	0	0	0
Through Vol	0	24	24	0	0	24	24	0
RT Vol	0	0	0	0	155	0	0	39
Lane Flow Rate	126	26	26	45	170	26	26	43
Geometry Grp	8	8	8	8	8	8	8	8
Degree of Util (X)	0.204	0.038	0.025	0.072	0.215	0.04	0.04	0.036
Departure Headway (Hd)	5.798	5.295	3.533	5.743	4.546	5.512	5.512	3.043
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	618	675	1008	624	789	649	649	1167
Service Time	3.538	3.034	1.271	3.474	2.277	3.255	3.255	0.785
HCM Lane V/C Ratio	0.204	0.039	0.026	0.072	0.215	0.04	0.04	0.037
HCM Control Delay	10	8.2	6.4	8.9	8.5	8.5	8.5	5.9
HCM Lane LOS	A	A	A	A	A	A	A	A
HCM 95th-tile Q	0.8	0.1	0.1	0.2	0.8	0.1	0.1	0.1

Intersection	
Intersection Delay, s/veh	10.8
Intersection LOS	B

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations														
Traffic Vol, veh/h	21	46	126	19	12	24	207	49	19	108	29	45	99	59
Future Vol, veh/h	21	46	126	19	12	24	207	49	19	108	29	45	99	59
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	22	48	133	20	13	25	218	52	20	114	31	47	104	62
Number of Lanes	0	1	2	0	0	1	2	0	1	1	0	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	3	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	2	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	3	3	3
HCM Control Delay	10.5	10.9	11.4	10.4
HCM LOS	B	B	B	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	100%	0%	0%	100%	0%	0%	100%	0%	0%
Vol Thru, %	0%	79%	0%	100%	69%	0%	100%	58%	0%	100%	0%
Vol Right, %	0%	21%	0%	0%	31%	0%	0%	42%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	19	137	67	84	61	36	138	118	45	99	59
LT Vol	19	0	67	0	0	36	0	0	45	0	0
Through Vol	0	108	0	84	42	0	138	69	0	99	0
RT Vol	0	29	0	0	19	0	0	49	0	0	59
Lane Flow Rate	20	144	71	88	64	38	145	124	47	104	62
Geometry Grp	8	8	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.04	0.261	0.138	0.161	0.113	0.073	0.258	0.21	0.094	0.191	0.102
Departure Headway (Hd)	7.154	6.506	7.058	6.553	6.333	6.891	6.387	6.094	7.109	6.607	5.905
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	499	551	506	546	564	519	561	588	503	541	604
Service Time	4.916	4.268	4.822	4.318	4.097	4.649	4.145	3.851	4.872	4.37	3.668
HCM Lane V/C Ratio	0.04	0.261	0.14	0.161	0.113	0.073	0.258	0.211	0.093	0.192	0.103
HCM Control Delay	10.2	11.6	11	10.6	9.9	10.2	11.4	10.5	10.6	10.9	9.3
HCM Lane LOS	B	B	B	B	A	B	B	B	B	B	A
HCM 95th-tile Q	0.1	1	0.5	0.6	0.4	0.2	1	0.8	0.3	0.7	0.3

Intersection	
Intersection Delay, s/veh	13.5
Intersection LOS	B

Movement	EBU	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations								
Traffic Vol, veh/h	1	7	223	3	253	241	186	16
Future Vol, veh/h	1	7	223	3	253	241	186	16
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	3	3	3	3	3	3	3	3
Mvmt Flow	1	8	245	3	278	265	204	18
Number of Lanes	0	1	2	1	2	0	1	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	3	3	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	3
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	3
HCM Control Delay	11.4	14	14.5
HCM LOS	B	B	B

Lane	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	0%	0%	0%	100%	0%
Vol Thru, %	0%	100%	100%	100%	100%	26%	0%	0%
Vol Right, %	0%	0%	0%	0%	0%	74%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	8	112	112	3	169	325	186	16
LT Vol	8	0	0	0	0	0	186	0
Through Vol	0	112	112	3	169	84	0	0
RT Vol	0	0	0	0	0	241	0	16
Lane Flow Rate	9	123	123	3	185	358	204	18
Geometry Grp	8	8	8	8	8	8	8	8
Degree of Util (X)	0.017	0.226	0.226	0.006	0.316	0.557	0.412	0.03
Departure Headway (Hd)	7.15	6.643	6.643	6.129	6.129	5.604	7.251	6.05
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	499	539	539	583	586	644	497	590
Service Time	4.915	4.407	4.407	3.88	3.88	3.354	5.008	3.808
HCM Lane V/C Ratio	0.018	0.228	0.228	0.005	0.316	0.556	0.41	0.031
HCM Control Delay	10	11.4	11.4	8.9	11.7	15.2	15	9
HCM Lane LOS	A	B	B	A	B	C	B	A
HCM 95th-tile Q	0.1	0.9	0.9	0	1.3	3.4	2	0.1

Intersection: 1: Willow Avenue & Alicante Drive

Movement	EB	NB
Directions Served	R	L
Maximum Queue (ft)	92	27
Average Queue (ft)	26	6
95th Queue (ft)	56	24
Link Distance (ft)	2970	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		250
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: Millbrook Avenue & Olympic Avenue

Movement	NW	NW	NE	NE	NE	SW	SW	SW
Directions Served	L	R	T	T	R	L	T	T
Maximum Queue (ft)	137	66	54	55	63	53	75	55
Average Queue (ft)	60	28	34	20	37	30	38	24
95th Queue (ft)	106	51	48	51	56	43	60	47
Link Distance (ft)	242	242	691	691			1128	1128
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)					160	100		
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 3: Cedar Avenue & Olympic Avenue

Movement	EB	EB	NB	NB	NB	SB	SB	SB
Directions Served	L	R	L	T	T	T	T	R
Maximum Queue (ft)	48	59	106	32	77	53	31	79
Average Queue (ft)	17	29	47	22	18	32	13	37
95th Queue (ft)	37	48	83	43	51	49	38	60
Link Distance (ft)		1276		321	321	1184	1184	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	200		200					100
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 4: Chestnut Avenue & Behymer Avenue

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	UL	T	TR	UL	T	TR	L	TR	L	T	R
Maximum Queue (ft)	49	44	62	92	79	88	53	121	140	96	65
Average Queue (ft)	28	26	32	44	47	36	28	78	43	50	30
95th Queue (ft)	49	40	58	72	74	60	52	117	85	83	54
Link Distance (ft)		1445	1445		2494	2494		1741		288	
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	200			230			100		120		120
Storage Blk Time (%)								2	1		
Queuing Penalty (veh)								1	1		

Intersection: 5: Sommerville Drive & Chestnut Avenue

Movement	EB	EB	EB	WB	WB	WB	SB	SB
Directions Served	UL	T	T	U	T	TR	L	R
Maximum Queue (ft)	31	56	91	28	66	103	100	30
Average Queue (ft)	15	39	32	3	39	62	68	11
95th Queue (ft)	38	60	58	16	59	94	102	33
Link Distance (ft)		1555	1555		2125	2125		836
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	150			150			140	
Storage Blk Time (%)								
Queuing Penalty (veh)								

Network Summary

Network wide Queuing Penalty: 2

Intersection: 1: Willow Avenue & Alicante Drive

Movement	EB	NB
Directions Served	R	L
Maximum Queue (ft)	50	31
Average Queue (ft)	20	5
95th Queue (ft)	48	24
Link Distance (ft)	2970	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		250
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: Millbrook Avenue & Olympic Avenue

Movement	NW	NW	NE	NE	NE	SW	SW	SW
Directions Served	L	R	T	T	R	L	T	T
Maximum Queue (ft)	111	38	78	67	91	54	114	32
Average Queue (ft)	42	12	38	27	44	9	40	14
95th Queue (ft)	77	30	61	55	69	33	72	39
Link Distance (ft)	242	242	691	691			1128	1128
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)					160	100		
Storage Blk Time (%)							0	
Queuing Penalty (veh)							0	

Intersection: 3: Cedar Avenue & Olympic Avenue

Movement	EB	EB	NB	NB	NB	SB	SB	SB
Directions Served	L	R	L	T	T	T	T	R
Maximum Queue (ft)	25	80	55	54	56	32	31	51
Average Queue (ft)	19	27	35	22	14	24	5	26
95th Queue (ft)	35	50	55	46	42	44	23	45
Link Distance (ft)		1276		321	321	1184	1184	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	200		200					100
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 4: Chestnut Avenue & Behymer Avenue

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	UL	T	TR	UL	T	TR	L	TR	L	T	R
Maximum Queue (ft)	57	46	42	54	89	55	31	76	52	79	56
Average Queue (ft)	24	25	21	17	49	33	13	43	29	40	29
95th Queue (ft)	43	40	34	44	78	55	38	67	44	70	51
Link Distance (ft)		1445	1445		2494	2494		1741		288	
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	200			230			100		120		120
Storage Blk Time (%)											
Queuing Penalty (veh)											

Intersection: 5: Sommerville Drive & Chestnut Avenue

Movement	EB	EB	EB	WB	WB	WB	SB	SB
Directions Served	UL	T	T	U	T	TR	L	R
Maximum Queue (ft)	31	68	56	27	55	79	88	30
Average Queue (ft)	10	36	30	3	37	51	44	14
95th Queue (ft)	33	53	53	15	52	73	69	38
Link Distance (ft)		1555	1555		2125	2125		836
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	150			150			140	
Storage Blk Time (%)								
Queuing Penalty (veh)								

Network Summary

Network wide Queuing Penalty: 0

Appendix E: Near Term plus Project (Year 2025) Traffic Conditions

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	40	11	184	238	0
Future Vol, veh/h	1	40	11	184	238	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	200	0	250	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	1	44	12	204	264	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	492	264	264	0	-	0
Stage 1	264	-	-	-	-	-
Stage 2	228	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	534	772	1294	-	-	-
Stage 1	778	-	-	-	-	-
Stage 2	808	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	529	772	1294	-	-	-
Mov Cap-2 Maneuver	529	-	-	-	-	-
Stage 1	771	-	-	-	-	-
Stage 2	808	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.9	0.4	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1294	-	529	772	-	-
HCM Lane V/C Ratio	0.009	-	0.002	0.058	-	-
HCM Control Delay (s)	7.8	-	11.8	9.9	-	-
HCM Lane LOS	A	-	B	A	-	-
HCM 95th %tile Q(veh)	0	-	0	0.2	-	-

Intersection	
Intersection Delay, s/veh	32.5
Intersection LOS	D

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Vol, veh/h	333	146	149	163	67	198
Future Vol, veh/h	333	146	149	163	67	198
Peak Hour Factor	0.69	0.69	0.69	0.69	0.69	0.69
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	483	212	216	236	97	287
Number of Lanes	1	1	2	1	1	2

Approach	NW	NE	SW
Opposing Approach		SW	NE
Opposing Lanes	0	3	3
Conflicting Approach Left	NE		NW
Conflicting Lanes Left	3	0	2
Conflicting Approach Right	SW	NW	
Conflicting Lanes Right	3	2	0
HCM Control Delay	56.3	12.4	13.2
HCM LOS	F	B	B

Lane	NELn1	NELn2	NELn3	NWLn1	NWLn2	SWLn1	SWLn2	SWLn3
Vol Left, %	0%	0%	0%	100%	0%	100%	0%	0%
Vol Thru, %	100%	100%	0%	0%	0%	0%	100%	100%
Vol Right, %	0%	0%	100%	0%	100%	0%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	75	75	163	333	146	67	99	99
LT Vol	0	0	0	333	0	67	0	0
Through Vol	75	75	0	0	0	0	99	99
RT Vol	0	0	163	0	146	0	0	0
Lane Flow Rate	108	108	236	483	212	97	143	143
Geometry Grp	8	8	8	8	8	8	8	8
Degree of Util (X)	0.239	0.239	0.357	1.024	0.378	0.23	0.319	0.247
Departure Headway (Hd)	8.162	8.162	5.622	7.642	6.439	8.729	8.211	6.395
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	443	443	645	478	563	414	440	565
Service Time	5.862	5.862	3.322	5.342	4.139	6.429	5.911	4.095
HCM Lane V/C Ratio	0.244	0.244	0.366	1.01	0.377	0.234	0.325	0.253
HCM Control Delay	13.4	13.4	11.4	75.3	13	14	14.7	11.2
HCM Lane LOS	B	B	B	F	B	B	B	B
HCM 95th-tile Q	0.9	0.9	1.6	14.2	1.8	0.9	1.4	1

Intersection	
Intersection Delay, s/veh	12.3
Intersection LOS	B

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	38	132	208	52	97	151
Future Vol, veh/h	38	132	208	52	97	151
Peak Hour Factor	0.66	0.66	0.66	0.66	0.66	0.66
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	58	200	315	79	147	229
Number of Lanes	1	1	1	2	2	1

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	3	3
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	3	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	3	0	2
HCM Control Delay	11.3	16.3	8.9
HCM LOS	B	C	A

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	100%	0%	0%	0%	0%
Vol Thru, %	0%	100%	100%	0%	0%	100%	100%	0%
Vol Right, %	0%	0%	0%	0%	100%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	208	26	26	38	132	49	49	151
LT Vol	208	0	0	38	0	0	0	0
Through Vol	0	26	26	0	0	49	49	0
RT Vol	0	0	0	0	132	0	0	151
Lane Flow Rate	315	39	39	58	200	73	73	229
Geometry Grp	8	8	8	8	8	8	8	8
Degree of Util (X)	0.582	0.067	0.048	0.114	0.328	0.131	0.131	0.25
Departure Headway (Hd)	6.651	6.144	4.371	7.104	5.904	6.426	6.426	3.94
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	542	582	816	504	608	557	557	906
Service Time	4.396	3.89	2.116	4.858	3.657	4.179	4.179	1.692
HCM Lane V/C Ratio	0.581	0.067	0.048	0.115	0.329	0.131	0.131	0.253
HCM Control Delay	18.3	9.3	7.3	10.8	11.5	10.2	10.2	8
HCM Lane LOS	C	A	A	B	B	B	B	A
HCM 95th-tile Q	3.7	0.2	0.2	0.4	1.4	0.4	0.4	1

Intersection	
Intersection Delay, s/veh	21.1
Intersection LOS	C

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations														
Traffic Vol, veh/h	27	50	159	46	46	73	142	65	49	179	132	104	180	50
Future Vol, veh/h	27	50	159	46	46	73	142	65	49	179	132	104	180	50
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	31	57	183	53	53	84	163	75	56	206	152	120	207	57
Number of Lanes	0	1	2	0	0	1	2	0	1	1	0	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	3	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	2	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	3	3	3
HCM Control Delay	15.3	15.8	33.7	17.6
HCM LOS	C	C	D	C

Lane	NBLn1	NBLn2	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	100%	0%	0%	100%	0%	0%	100%	0%	0%
Vol Thru, %	0%	58%	0%	100%	54%	0%	100%	42%	0%	100%	0%
Vol Right, %	0%	42%	0%	0%	46%	0%	0%	58%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	49	311	77	106	99	119	95	112	104	180	50
LT Vol	49	0	77	0	0	119	0	0	104	0	0
Through Vol	0	179	0	106	53	0	95	47	0	180	0
RT Vol	0	132	0	0	46	0	0	65	0	0	50
Lane Flow Rate	56	357	89	122	114	137	109	129	120	207	57
Geometry Grp	8	8	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.139	0.806	0.235	0.306	0.275	0.357	0.269	0.304	0.307	0.503	0.128
Departure Headway (Hd)	8.91	8.113	9.549	9.035	8.701	9.398	8.885	8.469	9.258	8.75	8.038
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	403	447	376	397	413	383	405	425	389	412	446
Service Time	6.659	5.862	7.307	6.792	6.458	7.153	6.639	6.223	7.014	6.505	5.793
HCM Lane V/C Ratio	0.139	0.799	0.237	0.307	0.276	0.358	0.269	0.304	0.308	0.502	0.128
HCM Control Delay	13.1	37	15.2	15.8	14.7	17.3	14.9	14.9	16.1	20.1	12
HCM Lane LOS	B	E	C	C	B	C	B	B	C	C	B
HCM 95th-tile Q	0.5	7.4	0.9	1.3	1.1	1.6	1.1	1.3	1.3	2.7	0.4

Intersection	
Intersection Delay, s/veh	30.2
Intersection LOS	D

Movement	EBU	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations								
Traffic Vol, veh/h	0	11	270	3	192	281	335	14
Future Vol, veh/h	0	11	270	3	192	281	335	14
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles, %	3	3	3	3	3	3	3	3
Mvmt Flow	0	13	329	4	234	343	409	17
Number of Lanes	0	1	2	1	2	0	1	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	3	3	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	3
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	3
HCM Control Delay	13.4	27.3	47.6
HCM LOS	B	D	E

Lane	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	0%	0%	0%	100%	0%
Vol Thru, %	0%	100%	100%	100%	100%	19%	0%	0%
Vol Right, %	0%	0%	0%	0%	0%	81%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	11	135	135	3	128	345	335	14
LT Vol	11	0	0	0	0	0	335	0
Through Vol	0	135	135	3	128	64	0	0
RT Vol	0	0	0	0	0	281	0	14
Lane Flow Rate	13	165	165	4	156	421	409	17
Geometry Grp	8	8	8	8	8	8	8	8
Degree of Util (X)	0.032	0.368	0.285	0.008	0.324	0.805	0.899	0.032
Departure Headway (Hd)	8.564	8.046	6.232	7.479	7.479	6.891	7.925	6.719
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	417	446	575	478	481	526	458	532
Service Time	6.328	5.809	3.994	5.234	5.234	4.646	5.681	4.474
HCM Lane V/C Ratio	0.031	0.37	0.287	0.008	0.324	0.8	0.893	0.032
HCM Control Delay	11.6	15.5	11.5	10.3	13.8	32.4	49.2	9.7
HCM Lane LOS	B	C	B	B	B	D	E	A
HCM 95th-tile Q	0.1	1.7	1.2	0	1.4	7.7	9.8	0.1

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	30	36	236	174	1
Future Vol, veh/h	0	30	36	236	174	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	200	0	250	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	31	37	243	179	1

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	497	180	180	0	-	0
Stage 1	180	-	-	-	-	-
Stage 2	317	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	531	860	1389	-	-	-
Stage 1	849	-	-	-	-	-
Stage 2	736	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	517	860	1389	-	-	-
Mov Cap-2 Maneuver	517	-	-	-	-	-
Stage 1	826	-	-	-	-	-
Stage 2	736	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.3	1	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1389	-	-	860	-	-
HCM Lane V/C Ratio	0.027	-	-	0.036	-	-
HCM Control Delay (s)	7.7	-	0	9.3	-	-
HCM Lane LOS	A	-	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.1	-	-

Intersection	
Intersection Delay, s/veh	9
Intersection LOS	A

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Vol, veh/h	163	26	221	238	15	125
Future Vol, veh/h	163	26	221	238	15	125
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	175	28	238	256	16	134
Number of Lanes	1	1	2	1	1	2

Approach	NW	NE	SW
Opposing Approach		SW	NE
Opposing Lanes	0	3	3
Conflicting Approach Left	NE		NW
Conflicting Lanes Left	3	0	2
Conflicting Approach Right	SW	NW	
Conflicting Lanes Right	3	2	0
HCM Control Delay	11.6	8.1	8.6
HCM LOS	B	A	A

Lane	NELn1	NELn2	NELn3	NWLn1	NWLn2	SWLn1	SWLn2	SWLn3
Vol Left, %	0%	0%	0%	100%	0%	100%	0%	0%
Vol Thru, %	100%	100%	0%	0%	0%	0%	100%	100%
Vol Right, %	0%	0%	100%	0%	100%	0%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	111	111	238	163	26	15	63	63
LT Vol	0	0	0	163	0	15	0	0
Through Vol	111	111	0	0	0	0	63	63
RT Vol	0	0	238	0	26	0	0	0
Lane Flow Rate	119	119	256	175	28	16	67	67
Geometry Grp	8	8	8	8	8	8	8	8
Degree of Util (X)	0.184	0.184	0.22	0.314	0.041	0.03	0.114	0.081
Departure Headway (Hd)	5.57	5.57	3.097	6.456	5.259	6.618	6.112	4.342
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	639	639	1139	559	684	543	589	828
Service Time	3.347	3.347	0.873	4.164	2.968	4.331	3.825	2.054
HCM Lane V/C Ratio	0.186	0.186	0.225	0.313	0.041	0.029	0.114	0.081
HCM Control Delay	9.6	9.6	6.8	12.1	8.2	9.5	9.6	7.4
HCM Lane LOS	A	A	A	B	A	A	A	A
HCM 95th-tile Q	0.7	0.7	0.8	1.3	0.1	0.1	0.4	0.3

Intersection	
Intersection Delay, s/veh	8.7
Intersection LOS	A

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	45	156	116	47	50	39
Future Vol, veh/h	45	156	116	47	50	39
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	49	171	127	52	55	43
Number of Lanes	1	1	1	2	2	1

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	3	3
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	3	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	3	0	2
HCM Control Delay	8.7	9.3	7.4
HCM LOS	A	A	A

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	100%	0%	0%	0%	0%
Vol Thru, %	0%	100%	100%	0%	0%	100%	100%	0%
Vol Right, %	0%	0%	0%	0%	100%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	116	24	24	45	156	25	25	39
LT Vol	116	0	0	45	0	0	0	0
Through Vol	0	24	24	0	0	25	25	0
RT Vol	0	0	0	0	156	0	0	39
Lane Flow Rate	127	26	26	49	171	27	27	43
Geometry Grp	8	8	8	8	8	8	8	8
Degree of Util (X)	0.206	0.038	0.026	0.079	0.217	0.042	0.042	0.036
Departure Headway (Hd)	5.822	5.319	3.556	5.754	4.557	5.532	5.532	3.063
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	616	672	1002	623	787	646	646	1160
Service Time	3.561	3.058	1.294	3.487	2.29	3.277	3.277	0.806
HCM Lane V/C Ratio	0.206	0.039	0.026	0.079	0.217	0.042	0.042	0.037
HCM Control Delay	10.1	8.3	6.4	9	8.6	8.5	8.5	5.9
HCM Lane LOS	B	A	A	A	A	A	A	A
HCM 95th-tile Q	0.8	0.1	0.1	0.3	0.8	0.1	0.1	0.1

Intersection	
Intersection Delay, s/veh	10.9
Intersection LOS	B

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations														
Traffic Vol, veh/h	21	46	126	20	12	24	207	50	20	114	29	45	103	59
Future Vol, veh/h	21	46	126	20	12	24	207	50	20	114	29	45	103	59
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	22	48	133	21	13	25	218	53	21	120	31	47	108	62
Number of Lanes	0	1	2	0	0	1	2	0	1	1	0	1	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	3	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	2	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	3	3	3
HCM Control Delay	10.6	11	11.6	10.5
HCM LOS	B	B	B	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	100%	0%	0%	100%	0%	0%	100%	0%	0%
Vol Thru, %	0%	80%	0%	100%	68%	0%	100%	58%	0%	100%	0%
Vol Right, %	0%	20%	0%	0%	32%	0%	0%	42%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	20	143	67	84	62	36	138	119	45	103	59
LT Vol	20	0	67	0	0	36	0	0	45	0	0
Through Vol	0	114	0	84	42	0	138	69	0	103	0
RT Vol	0	29	0	0	20	0	0	50	0	0	59
Lane Flow Rate	21	151	71	88	65	38	145	125	47	108	62
Geometry Grp	8	8	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.042	0.273	0.139	0.162	0.116	0.073	0.26	0.214	0.094	0.2	0.103
Departure Headway (Hd)	7.18	6.539	7.106	6.602	6.374	6.939	6.435	6.138	7.146	6.644	5.942
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	497	548	503	541	560	515	556	582	500	538	601
Service Time	4.945	4.303	4.874	4.369	4.141	4.699	4.194	3.898	4.911	4.409	3.706
HCM Lane V/C Ratio	0.042	0.276	0.141	0.163	0.116	0.074	0.261	0.215	0.094	0.201	0.103
HCM Control Delay	10.3	11.8	11	10.7	10	10.2	11.5	10.6	10.7	11.1	9.4
HCM Lane LOS	B	B	B	B	A	B	B	B	B	B	A
HCM 95th-tile Q	0.1	1.1	0.5	0.6	0.4	0.2	1	0.8	0.3	0.7	0.3

Intersection	
Intersection Delay, s/veh	14.1
Intersection LOS	B

Movement	EBU	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations								
Traffic Vol, veh/h	1	7	238	3	273	247	191	16
Future Vol, veh/h	1	7	238	3	273	247	191	16
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	3	3	3	3	3	3	3	3
Mvmt Flow	1	8	262	3	300	271	210	18
Number of Lanes	0	1	2	1	2	0	1	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	3	3	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	3
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	3
HCM Control Delay	11.7	14.8	15.1
HCM LOS	B	B	C

Lane	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	0%	0%	0%	100%	0%
Vol Thru, %	0%	100%	100%	100%	100%	27%	0%	0%
Vol Right, %	0%	0%	0%	0%	0%	73%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	8	119	119	3	182	338	191	16
LT Vol	8	0	0	0	0	0	191	0
Through Vol	0	119	119	3	182	91	0	0
RT Vol	0	0	0	0	0	247	0	16
Lane Flow Rate	9	131	131	3	200	371	210	18
Geometry Grp	8	8	8	8	8	8	8	8
Degree of Util (X)	0.018	0.245	0.245	0.006	0.345	0.588	0.43	0.03
Departure Headway (Hd)	7.258	6.75	6.75	6.216	6.216	5.698	7.381	6.18
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	492	530	530	574	578	631	487	577
Service Time	5.025	4.517	4.517	3.971	3.971	3.452	5.144	3.943
HCM Lane V/C Ratio	0.018	0.247	0.247	0.005	0.346	0.588	0.431	0.031
HCM Control Delay	10.2	11.7	11.7	9	12.2	16.3	15.6	9.1
HCM Lane LOS	B	B	B	A	B	C	C	A
HCM 95th-tile Q	0.1	1	1	0	1.5	3.8	2.1	0.1

Intersection: 1: Willow Avenue & Alicante Drive

Movement	EB	NB
Directions Served	R	L
Maximum Queue (ft)	68	25
Average Queue (ft)	23	2
95th Queue (ft)	52	12
Link Distance (ft)	2970	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		250
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: Millbrook Avenue & Olympic Avenue

Movement	NW	NW	NE	NE	NE	SW	SW	SW
Directions Served	L	R	T	T	R	L	T	T
Maximum Queue (ft)	182	63	79	68	72	54	119	32
Average Queue (ft)	68	26	37	18	39	30	46	27
95th Queue (ft)	129	46	58	49	59	49	80	44
Link Distance (ft)	242	242	691	691			1128	1128
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)					160	100		
Storage Blk Time (%)							0	
Queuing Penalty (veh)							0	

Intersection: 3: Cedar Avenue & Olympic Avenue

Movement	EB	EB	NB	NB	NB	SB	SB	SB
Directions Served	L	R	L	T	T	T	T	R
Maximum Queue (ft)	25	46	124	50	50	79	31	56
Average Queue (ft)	14	24	53	27	13	36	9	37
95th Queue (ft)	34	35	93	45	40	60	32	54
Link Distance (ft)		1276		321	321	1184	1184	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	200		200					100
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 4: Chestnut Avenue & Behymer Avenue

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	UL	T	TR	UL	T	TR	L	TR	L	T	R
Maximum Queue (ft)	85	56	63	100	78	76	54	142	115	116	67
Average Queue (ft)	29	25	36	43	44	34	22	71	40	55	33
95th Queue (ft)	58	45	60	77	71	66	50	125	73	86	55
Link Distance (ft)		1445	1445		2494	2494		1741		288	
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	200			230			100		120		120
Storage Blk Time (%)								4	0	0	
Queuing Penalty (veh)								2	0	0	

Intersection: 5: Sommerville Drive & Chestnut Avenue

Movement	EB	EB	EB	WB	WB	WB	SB	SB
Directions Served	UL	T	T	U	T	TR	L	R
Maximum Queue (ft)	31	55	72	32	54	103	137	30
Average Queue (ft)	7	37	36	4	37	55	67	7
95th Queue (ft)	27	53	60	19	54	87	103	27
Link Distance (ft)		1555	1555		2125	2125		836
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	150			150			140	
Storage Blk Time (%)							0	
Queuing Penalty (veh)							0	

Network Summary

Network wide Queuing Penalty: 3

Intersection: 1: Willow Avenue & Alicante Drive

Movement	EB	NB
Directions Served	R	L
Maximum Queue (ft)	50	31
Average Queue (ft)	19	1
95th Queue (ft)	45	10
Link Distance (ft)	2970	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		250
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: Millbrook Avenue & Olympic Avenue

Movement	NW	NW	NE	NE	NE	SW	SW	SW
Directions Served	L	R	T	T	R	L	T	T
Maximum Queue (ft)	68	64	68	68	78	30	68	31
Average Queue (ft)	39	13	35	26	47	9	32	15
95th Queue (ft)	64	34	51	51	74	31	43	40
Link Distance (ft)	242	242	691	691			1128	1128
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)					160	100		
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 3: Cedar Avenue & Olympic Avenue

Movement	EB	EB	NB	NB	NB	SB	SB	SB
Directions Served	L	R	L	T	T	T	T	R
Maximum Queue (ft)	43	69	76	31	50	78	31	52
Average Queue (ft)	18	29	39	22	17	30	3	22
95th Queue (ft)	37	52	61	44	43	55	18	43
Link Distance (ft)		1276		321	321	1184	1184	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	200		200					100
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 4: Chestnut Avenue & Behymer Avenue

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	UL	T	TR	UL	T	TR	L	TR	L	T	R
Maximum Queue (ft)	50	46	44	51	103	52	31	75	50	76	89
Average Queue (ft)	22	23	19	22	47	28	15	45	22	41	30
95th Queue (ft)	42	41	34	47	75	44	39	71	46	68	59
Link Distance (ft)		1445	1445		2494	2494		1741		288	
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	200			230			100		120		120
Storage Blk Time (%)											
Queuing Penalty (veh)											

Intersection: 5: Sommerville Drive & Chestnut Avenue

Movement	EB	EB	EB	WB	WB	WB	SB	SB
Directions Served	UL	T	T	U	T	TR	L	R
Maximum Queue (ft)	31	73	98	31	76	93	97	31
Average Queue (ft)	6	41	34	3	44	58	47	14
95th Queue (ft)	26	62	67	16	69	83	80	37
Link Distance (ft)		1555	1555		2125	2125		836
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	150			150			140	
Storage Blk Time (%)								
Queuing Penalty (veh)								

Network Summary

Network wide Queuing Penalty: 0

Appendix F: Traffic Signal Warrants

Signal Warrant Analysis

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet

DIST	CO	RTE	KPM
006	Fresno	N/A	N/A

COUNT DATE 05/23/23
CALC JY DATE 07/13/23
CHK AB DATE 07/13/23

Major St: **Millbrook Avenue** Critical Approach Speed 40 MPH
Minor St: **Olympic Avenue** Critical Approach Speed 35 MPH

Critical speed of major street traffic > 64 km/h (40 mph)..... ☑
or
In built up area of isolated community of < 10,000 population ..... ☐ RURAL (R)
☐ URBAN (U)

WARRANT 1 - Eight Hour Vehicular Volume **SATISFIED** YES ☐ NO ☑
(Condition A or Condition B or combination of A and B must be satisfied)

Condition A - Minimum Vehicle Volume **100% SATISFIED** YES ☐ NO ☑
80 % SATISFIED YES ☐ NO ☑

APPROACH LANES	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS) 1 U	1 R	2 or More U	2 or More R	7:00 AM	8:00 AM	11:00 AM	1:00 PM	2:00 PM	3:00 PM	4:00 PM	5:00 PM
Both Approaches Major Street	500 (400)	350 (280)	600 (480)	420 (336)	445	366	317	333	430	396	422	477
					445	366	317	333	430	396	422	477
Highest Approach Minor Street	150 (120)	105 (84)	200 (160)	140 (112)	401	212	179	124	260	204	136	136
					401	212	179	124	260	204	136	136

Hour

Condition B - Interruption of Continuous Traffic **100% SATISFIED** YES ☐ NO ☑
80 % SATISFIED YES ☐ NO ☑

APPROACH LANES	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS) 1 U	1 R	2 or More U	2 or More R	7:00 AM	8:00 AM	11:00 AM	1:00 PM	2:00 PM	3:00 PM	4:00 PM	5:00 PM
Both Approaches Major Street	750 (600)	525 (420)	900 (720)	630 (504)	445	366	317	333	430	396	422	477
					445	366	317	333	430	396	422	477
Highest Approach Minor Street	75 (60)	53 (42)	100 (80)	70 (56)	401	212	179	124	260	204	136	136
					401	212	179	124	260	204	136	136

Hour

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Combination of Conditions A & B **SATISFIED** YES ☐ NO ☑

REQUIREMENT	WARRANT		FULFILLED
TWO WARRANTS SATISFIED 80%	1. MINIMUM VEHICULAR VOLUME		Yes ☐ No ☑
	2. INTERRUPTION OF CONTINUOUS TRAFFIC		

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Signal Warrant Analysis

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet

DIST	CO	RTE	KPM
006	Fresno	N/A	N/A

COUNT DATE 05/23/23
CALC JY DATE 07/13/23
CHK AB DATE 07/14/23

Major St: **Cedar Avenue** Critical Approach Speed 40 MPH
Minor St: **Olympic Avenue** Critical Approach Speed 35 MPH

Critical speed of major street traffic > 64 km/h (40 mph)..... ☑
In built up area of isolated community of < 10,000 population ..... ☐ or ☐ RURAL (R) ☐ URBAN (U)

WARRANT 1 - Eight Hour Vehicular Volume **SATISFIED** YES ☐ NO ☑
(Condition A or Condition B or combination of A and B must be satisfied)

Condition A - Minimum Vehicle Volume **100% SATISFIED** YES ☐ NO ☑
80 % SATISFIED YES ☐ NO ☑

	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS)												
	U	R	U	R									
APPROACH LANES	1		2 or More		7:00 AM	8:00 AM	11:00 AM	12:00 PM	2:00 PM	3:00 PM	4:00 PM	5:00 PM	Hour
Both Approaches Major Street	500 (400)	350 (280)	600 (480)	420 (336)	480	275	224	197	371	287	230	207	
					480	275	224	197	371	287	230	207	
Highest Approach Minor Street	150 (120)	105 (84)	200 (160)	140 (112)	130	119	102	106	168	158	156	136	
					130	119	102	106	168	158	156	136	

Condition B - Interruption of Continuous Traffic **100% SATISFIED** YES ☐ NO ☑
80 % SATISFIED YES ☐ NO ☑

	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS)												
	U	R	U	R									
APPROACH LANES	1		2 or More		7:00 AM	8:00 AM	11:00 AM	12:00 PM	2:00 PM	3:00 PM	4:00 PM	5:00 PM	Hour
Both Approaches Major Street	750 (600)	525 (420)	900 (720)	630 (504)	480	275	224	197	371	287	230	207	
					480	275	224	197	371	287	230	207	
Highest Approach Minor Street	75 (60)	53 (42)	100 (80)	70 (56)	130	119	102	106	168	158	156	136	
					130	119	102	106	168	158	156	136	

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Combination of Conditions A & B **SATISFIED** YES ☐ NO ☑

REQUIREMENT	WARRANT		FULFILLED
TWO WARRANTS SATISFIED 80%	1. MINIMUM VEHICULAR VOLUME		Yes ☐ No ☑
	2. INTERRUPTION OF CONTINUOUS TRAFFIC		

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(FHWA'S MUTCD 2009 Edition, as amended for use in California)
Signal Warrant Analysis

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet

DIST	CO	RTE	KPM
006	Fresno	N/A	N/A

COUNT DATE 05/23/23
CALC JY DATE 07/13/23
CHK AB DATE 07/13/23

Major St: **Behymer Avenue** Critical Approach Speed 40 MPH
Minor St: **Chestnut Avenue** Critical Approach Speed 35 MPH

Critical speed of major street traffic > 64 km/h (40 mph)..... ☑
In built up area of isolated community of < 10,000 population ..... ☐ or ☐ RURAL (R) / ☐ URBAN (U)

WARRANT 1 - Eight Hour Vehicular Volume **SATISFIED** YES ☐ NO ☑
(Condition A or Condition B or combination of A and B must be satisfied)

Condition A - Minimum Vehicle Volume **100% SATISFIED** YES ☐ NO ☑
80 % SATISFIED YES ☐ NO ☑

APPROACH LANES	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS) 1 U	1 R	2 or More U	2 or More R	7:00 AM	8:00 AM	11:00 AM	12:00 PM	2:00 PM	3:00 PM	4:00 PM	5:00 PM	Hour
Both Approaches	500	350	600	420	456	546	285	276	407	521	359	403	
Major Street	(400)	(280)	(480)	(336)	456	546	285	276	407	521	359	403	
Highest Approach	150	105	200	140	257	214	166	120	193	287	153	174	
Minor Street	(120)	(84)	(160)	(112)	257	214	166	120	193	287	153	174	

Condition B - Interruption of Continuous Traffic **100% SATISFIED** YES ☐ NO ☑
80 % SATISFIED YES ☐ NO ☑

APPROACH LANES	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS) 1 U	1 R	2 or More U	2 or More R	7:00 AM	8:00 AM	11:00 AM	12:00 PM	2:00 PM	3:00 PM	4:00 PM	5:00 PM	Hour
Both Approaches	750	525	900	630	456	546	285	276	407	521	359	403	
Major Street	(600)	(420)	(720)	(504)	456	546	285	276	407	521	359	403	
Highest Approach	75	53	100	70	257	214	166	120	193	287	153	174	
Minor Street	(60)	(42)	(80)	(56)	257	214	166	120	193	287	153	174	

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Combination of Conditions A & B **SATISFIED** YES ☐ NO ☑

REQUIREMENT	WARRANT		FULFILLED
TWO WARRANTS SATISFIED 80%	1. MINIMUM VEHICULAR VOLUME		Yes ☐ No ☑
	2. INTERRUPTION OF CONTINUOUS TRAFFIC		

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Signal Warrant Analysis

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet

DIST	CO	RTE	KPM
006	Fresno	N/A	N/A

COUNT DATE 05/23/23
CALC JY DATE 07/14/23
CHK AB DATE 07/14/23

Major St: **Sommerville Drive** Critical Approach Speed 40 MPH
Minor St: **Chestnut Avenue** Critical Approach Speed 35 MPH

Critical speed of major street traffic > 64 km/h (40 mph)..... ☑
In built up area of isolated community of < 10,000 population ..... ☐ or RURAL (R)
☐ URBAN (U)

WARRANT 1 - Eight Hour Vehicular Volume

SATISFIED YES ☐ NO ☑

(Condition A or Condition B or combination of A and B must be satisfied)

Condition A - Minimum Vehicle Volume

100% SATISFIED YES ☐ NO ☑

80 % SATISFIED YES ☑ NO ☐

APPROACH LANES	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS) U (1)	R (1)	U (2 or More)	R (2 or More)	7:00 AM	8:00 AM	12:00 PM	2:00 PM	3:00 PM	4:00 PM	5:00 PM	6:00 PM	Hour
Both Approaches Major Street	500 (400)	350 (280)	600 (480)	420 (336)	544	530	412	520	575	460	568	407	
Highest Approach Minor Street	150 (120)	105 (84)	200 (160)	140 (112)	226	250	116	184	225	149	151	110	

Condition B - Interruption of Continuous Traffic

100% SATISFIED YES ☐ NO ☑

80 % SATISFIED YES ☐ NO ☑

APPROACH LANES	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS) U (1)	R (1)	U (2 or More)	R (2 or More)	7:00 AM	8:00 AM	12:00 PM	2:00 PM	3:00 PM	4:00 PM	5:00 PM	6:00 PM	Hour
Both Approaches Major Street	750 (600)	525 (420)	900 (720)	630 (504)	544	530	412	520	575	460	568	407	
Highest Approach Minor Street	75 (60)	53 (42)	100 (80)	70 (56)	226	250	116	184	225	149	151	110	

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Combination of Conditions A & B

SATISFIED YES ☐ NO ☑

REQUIREMENT	WARRANT		FULFILLED
TWO WARRANTS SATISFIED 80%	1. MINIMUM VEHICULAR VOLUME		Yes ☐ No ☑
	2. INTERRUPTION OF CONTINUOUS TRAFFIC		

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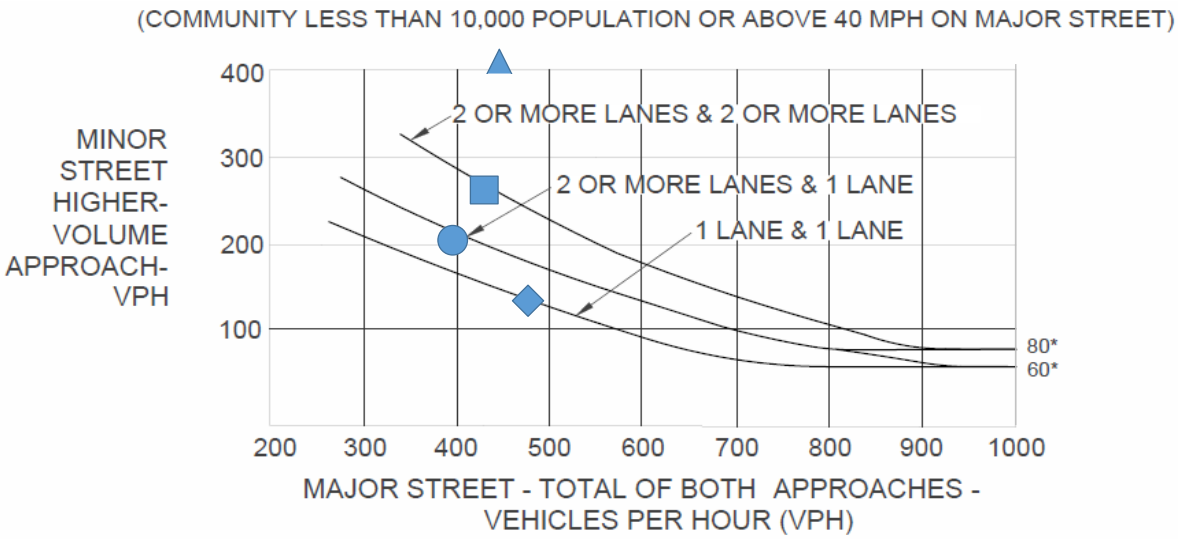
Warrant 2: Four-Hour Vehicular Volume (Rural)

Existing Traffic Conditions

2. Millbrook Avenue / Olympic Avenue



*Note: 80 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 60 vph applies as the lower threshold volume for a minor street approach with one lane.

	1 Lane & 1 Lane	2 or More Lanes & 1 Lane	2 or More Lanes & 2 or More Lanes	7:00 AM Volume	2:00 PM Volume	3:00 PM Volume	5:00 PM Volume
Major Street (Total of Both Approaches)	☐	☐	☑	445	430	396	477
Minor Street (Higher Volume Approach)				401	260	204	136

Satisfied: ☐ **Yes** ☑ **No**

Calculated By: JY Date: 07/13/23
Checked By: AB Date: 07/13/23

Source: California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition)
Chapter 4C: Traffic Control Signal Needs Studies
Part 4: Highway Traffic Signals
November 7, 2014

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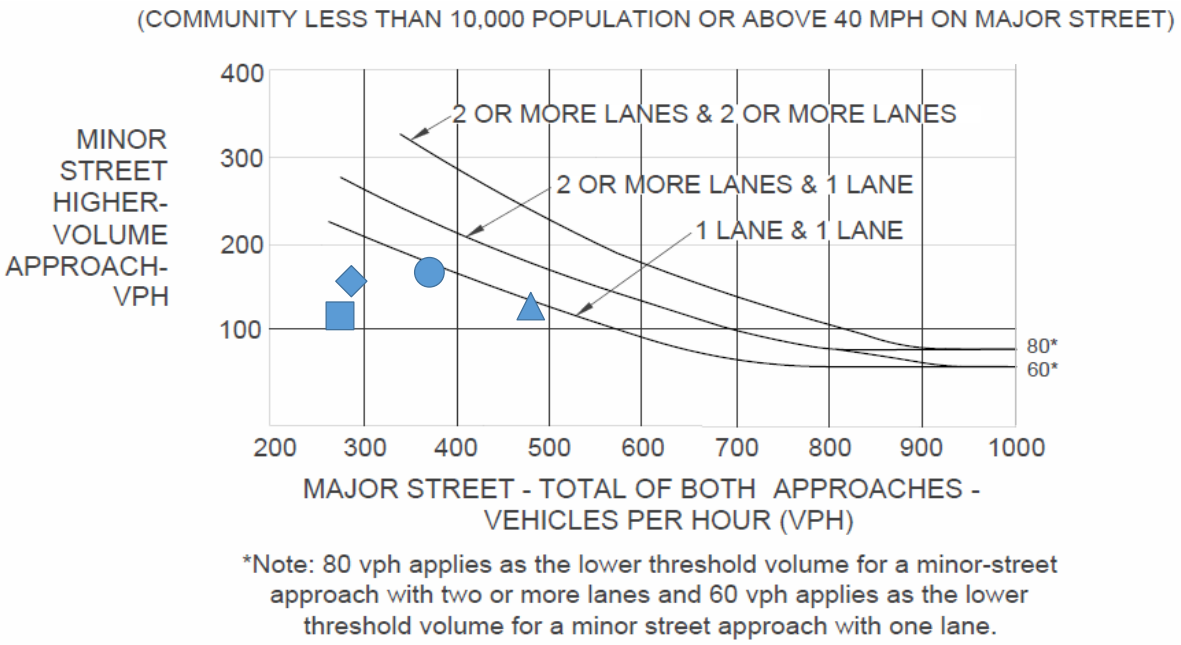
Warrant 2: Four-Hour Vehicular Volume (Rural)

Existing Traffic Conditions

3. Cedar Avenue / Olympic Avenue



*Note: 80 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 60 vph applies as the lower threshold volume for a minor street approach with one lane.

	1 Lane & 1 Lane	2 or More Lanes & 1 Lane	2 or More Lanes & 2 or More Lanes	7:00 AM Volume	8:00 AM Volume	2:00 PM Volume	3:00 PM Volume
Major Street (Total of Both Approaches)	☐	☑	☐	480	275	371	287
Minor Street (Higher Volume Approach)				130	119	168	158

Satisfied: ☐ **Yes** ☑ **No**

Calculated By: JY Date: 07/13/23
Checked By: AB Date: 07/14/23

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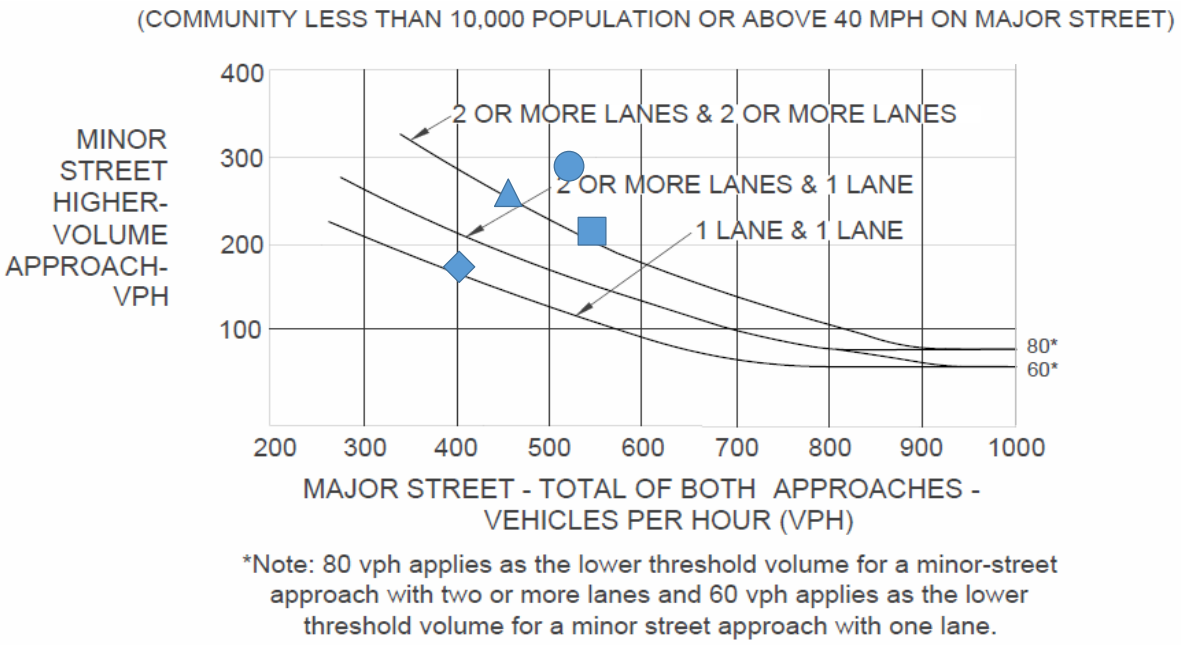
Warrant 2: Four-Hour Vehicular Volume (Rural)

Existing Traffic Conditions

4. Chestnut Avenue / Behymer Avenue



*Note: 80 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 60 vph applies as the lower threshold volume for a minor street approach with one lane.

	1 Lane & 1 Lane	2 or More Lanes & 1 Lane	2 or More Lanes & 2 or More Lanes	▲ 7:00 AM Volume	■ 8:00 AM Volume	● 3:00 PM Volume	◆ 5:00 PM Volume
Major Street (Total of Both Approaches)	☐	☑	☐	456	546	521	403
Minor Street (Higher Volume Approach)				257	214	287	174

Satisfied: ☐ **Yes** ☑ **No**

Calculated By: JY Date: 07/13/23
Checked By: AB Date: 07/13/23

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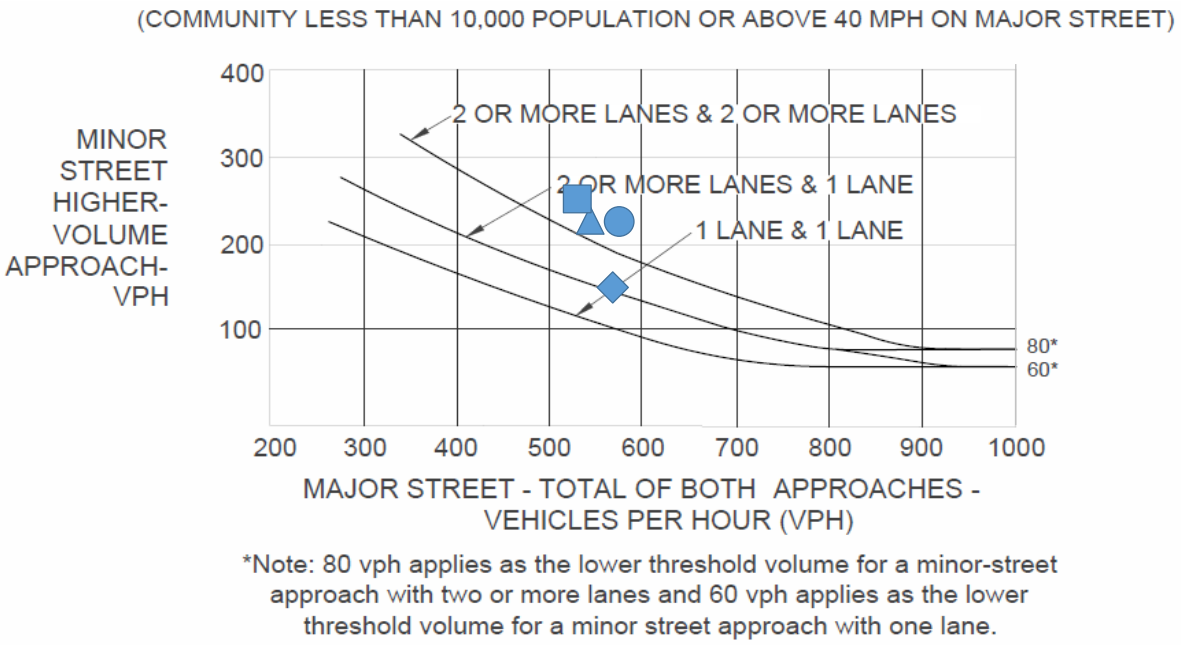
Warrant 2: Four-Hour Vehicular Volume (Rural)

Existing Traffic Conditions

5. Chestnut Avenue / Sommerville Drive



*Note: 80 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 60 vph applies as the lower threshold volume for a minor street approach with one lane.

	1 Lane & 1 Lane	2 or More Lanes & 1 Lane	2 or More Lanes & 2 or More Lanes	7:00 AM Volume	8:00 AM Volume	3:00 PM Volume	5:00 PM Volume
Major Street (Total of Both Approaches)	☐	☑	☐	544	530	575	568
Minor Street (Higher Volume Approach)				226	250	225	151

Satisfied: ☑ **Yes** ☐ **No**

Calculated By: JY Date: 07/14/23
Checked By: AB Date: 07/14/23

Source: California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition)
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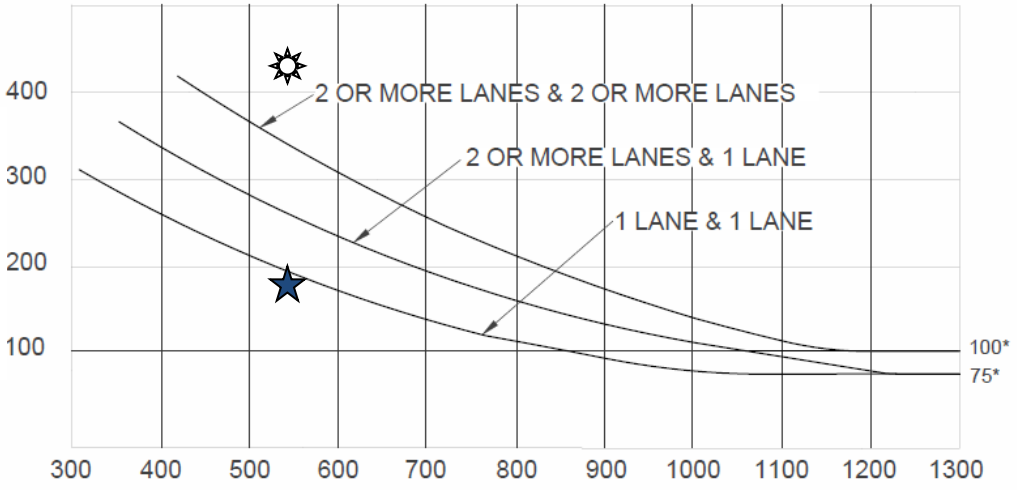
Warrant 3: Peak Hour (Rural)

Existing Traffic Conditions
2. Millbrook Avenue / Olympic Avenue
AM (PM) Peak Hour

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)

Olympic Avenue Highest Approach Volume = 433 (182) VPH



Millbrook Avenue Total of Both Approaches = 540 (541) VPH

*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.

AM Peak Hour – Signal Warrant is Met

PM Peak Hour – Signal Warrant is Not Met

Source: California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition)
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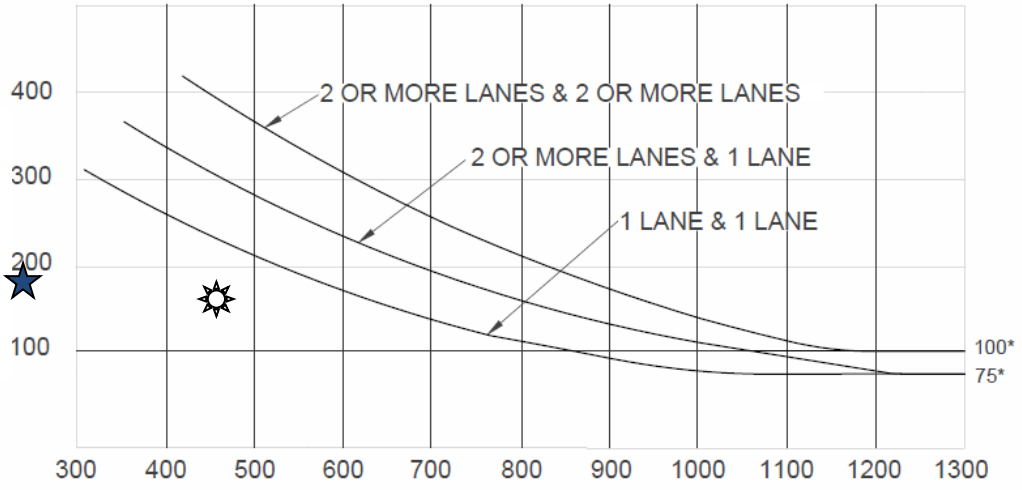
Warrant 3: Peak Hour (Rural)

Existing Traffic Conditions
3. Cedar Avenue / Olympic Avenue
AM (PM) Peak Hour

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)

Olympic Avenue Highest Approach Volume = 167 (190) VPH



Cedar Avenue Total of Both Approaches = 463 (237) VPH

*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.

AM Peak Hour – Signal Warrant is Not Met
PM Peak Hour – Signal Warrant is Not Met

Source: California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition)
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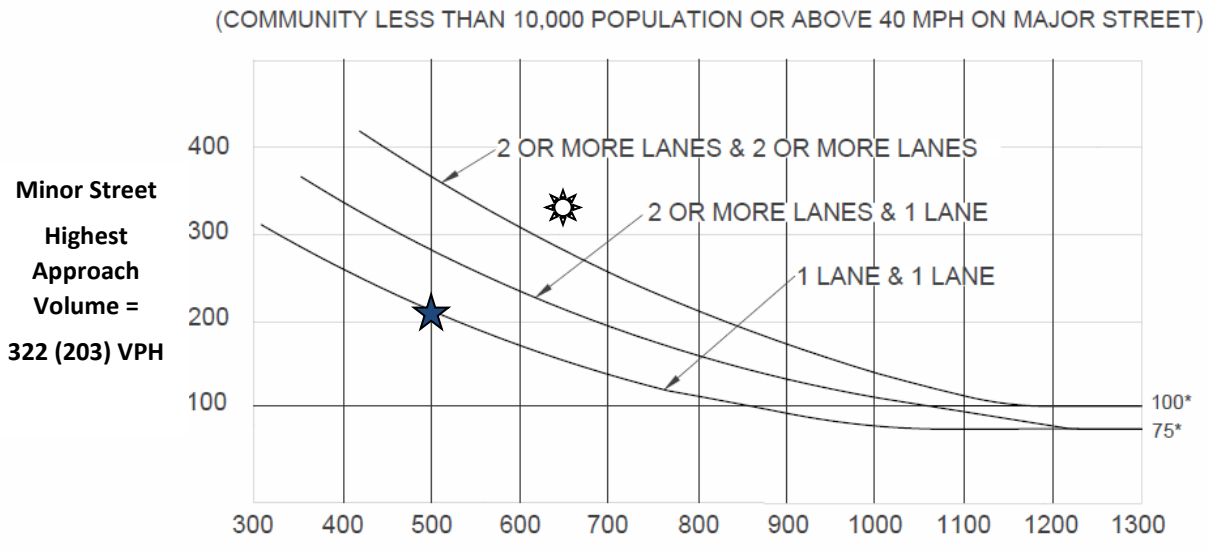
Warrant 3: Peak Hour (Rural)

Existing Traffic Conditions
4. Chestnut Avenue / Behymer Avenue
AM (PM) Peak Hour



Major Street Total of Both Approaches =

648 (500) VPH

*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.

AM Peak Hour – Signal Warrant is Met

PM Peak Hour – Signal Warrant is Not Met

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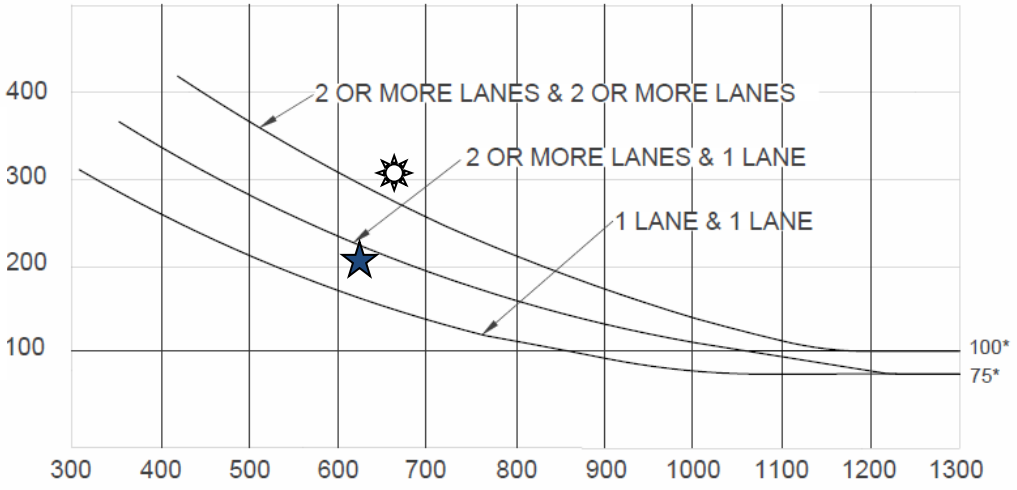
Warrant 3: Peak Hour (Rural)

Existing Traffic Conditions
5. Chestnut Avenue / Sommerville Drive
AM (PM) Peak Hour

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)

Chestnut Avenue Highest Approach Volume = 306 (202) VPH



Sommerville Drive Total of Both Approaches = 681 (626) VPH

*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.

AM Peak Hour – Signal Warrant is Met

PM Peak Hour – Signal Warrant is Not Met

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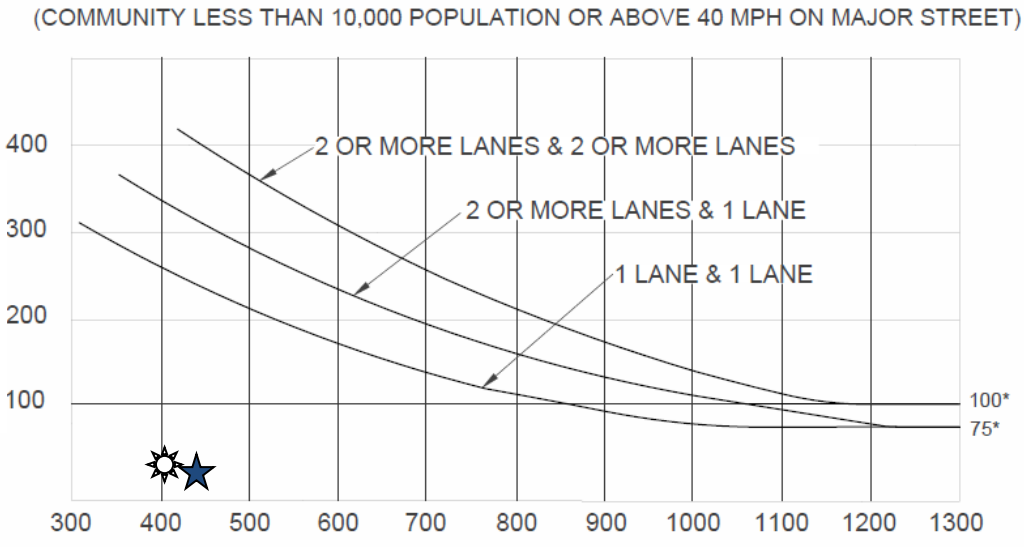
Warrant 3: Peak Hour (Rural)

Existing plus Project Traffic Conditions
1. Willow Avenue / Alicante Drive
AM (PM) Peak Hour

Alicante Drive Highest Approach Volume = 41 (30) VPH



Willow Avenue Total of Both Approaches =

401 (441) VPH

*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.

AM Peak Hour – Signal Warrant is not Met

PM Peak Hour – Signal Warrant is not Met

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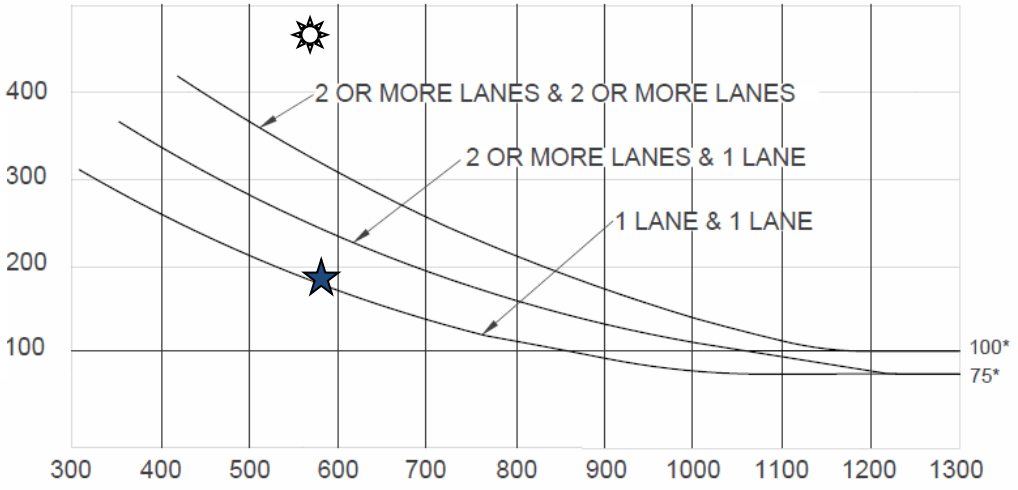
Warrant 3: Peak Hour (Rural)

Existing plus Project Traffic Conditions
2. Millbrook Avenue / Olympic Avenue
AM (PM) Peak Hour

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)

Olympic Avenue Highest Approach Volume = 461 (188) VPH



Millbrook Avenue Total of Both Approaches = 573 (587) VPH

*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.

AM Peak Hour – Signal Warrant is Met

PM Peak Hour – Signal Warrant is not Met

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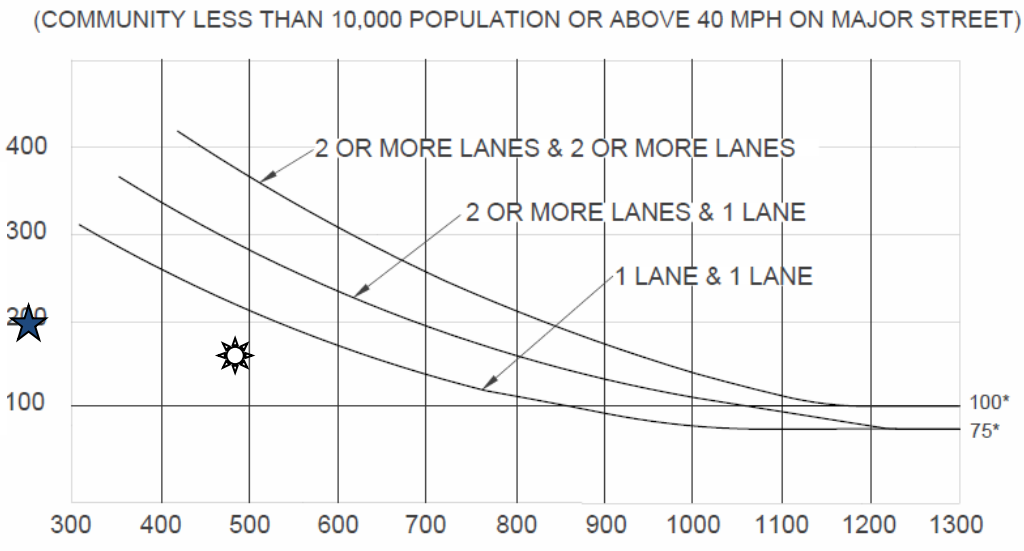
Warrant 3: Peak Hour (Rural)

Existing plus Project Traffic Conditions
3. Cedar Avenue / Olympic Avenue
AM (PM) Peak Hour

Olympic Avenue Highest Approach Volume = 169 (196) VPH



Cedar Avenue Total of Both Approaches =

489 (249) VPH

*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.

AM Peak Hour – Signal Warrant is not Met

PM Peak Hour – Signal Warrant is not Met

Source: California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition)
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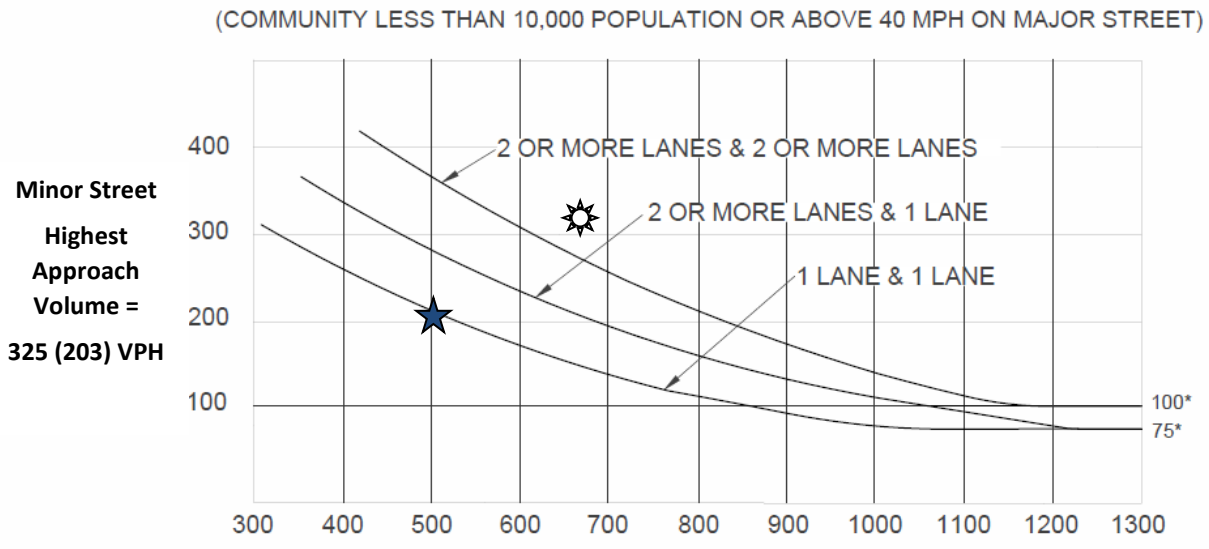
Warrant 3: Peak Hour (Rural)

Existing plus Project Traffic Conditions
4. Chestnut Avenue / Behymer Avenue
AM (PM) Peak Hour



Major Street Total of Both Approaches =

674 (504) VPH

*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.

AM Peak Hour – Signal Warrant is Met

PM Peak Hour – Signal Warrant is not Met

Source: California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition)
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Warrant 3: Peak Hour (Rural)

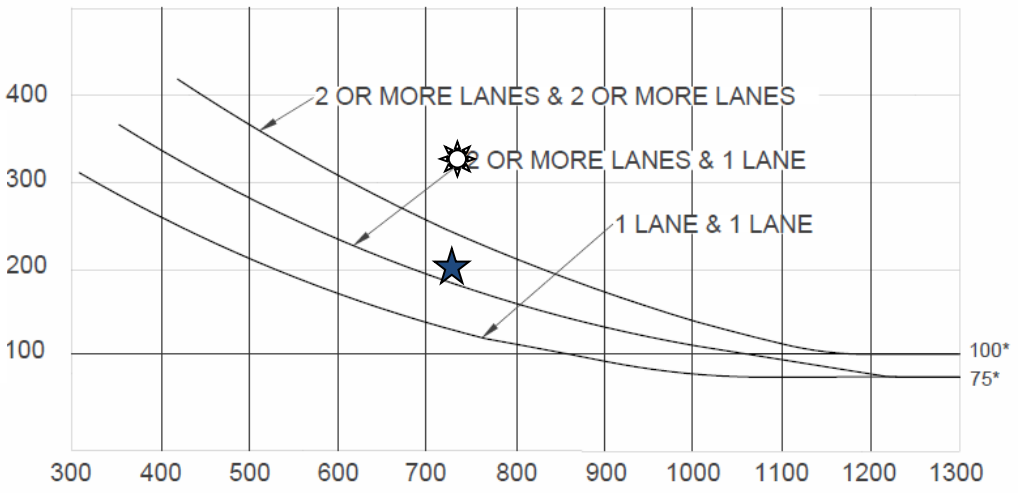
Existing plus Project Traffic Conditions
5. Chestnut Avenue / Sommerville Avenue
AM (PM) Peak Hour

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)

Chestnut Avenue

Highest Approach Volume =

332 (202) VPH



Sommerville Drive Total of Both Approaches =

743 (728) VPH

*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.

AM Peak Hour – Signal Warrant is Met

PM Peak Hour – Signal Warrant is Met

Source: California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition)
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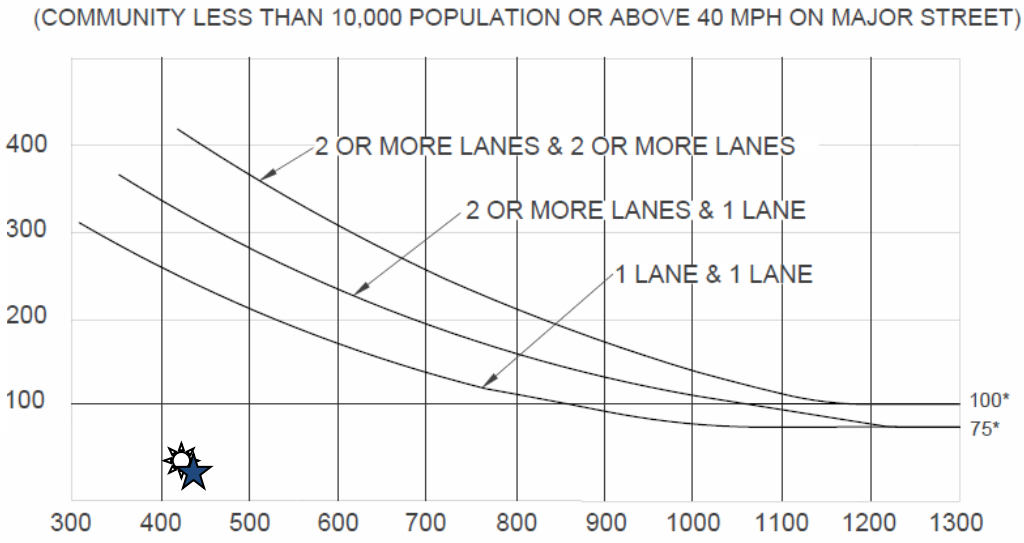
Warrant 3: Peak Hour (Rural)

Near Term plus Project Traffic Conditions
1. Willow Avenue / Alicante Drive
AM (PM) Peak Hour

Alicante Drive Highest Approach Volume = 41 (30) VPH



Willow Avenue Total of Both Approaches =

433 (447) VPH

*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.

AM Peak Hour – Signal Warrant is not Met

PM Peak Hour – Signal Warrant is not Met

Source: California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition)
Chapter 4C: Traffic Control Signal Needs Studies
Part 4: Highway Traffic Signals
November 7, 2014

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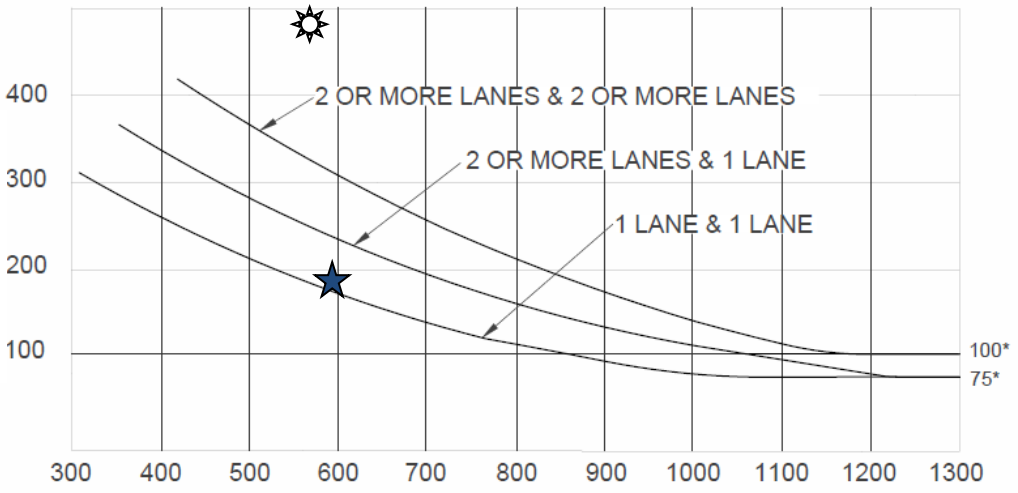
Warrant 3: Peak Hour (Rural)

Near Term plus Project Traffic Conditions
2. Millbrook Avenue / Olympic Avenue
AM (PM) Peak Hour

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)

Olympic Avenue Highest Approach Volume = 479 (189) VPH



Millbrook Avenue Total of Both Approaches = 577 (599) VPH

*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.

AM Peak Hour – Signal Warrant is Met

PM Peak Hour – Signal Warrant is not Met

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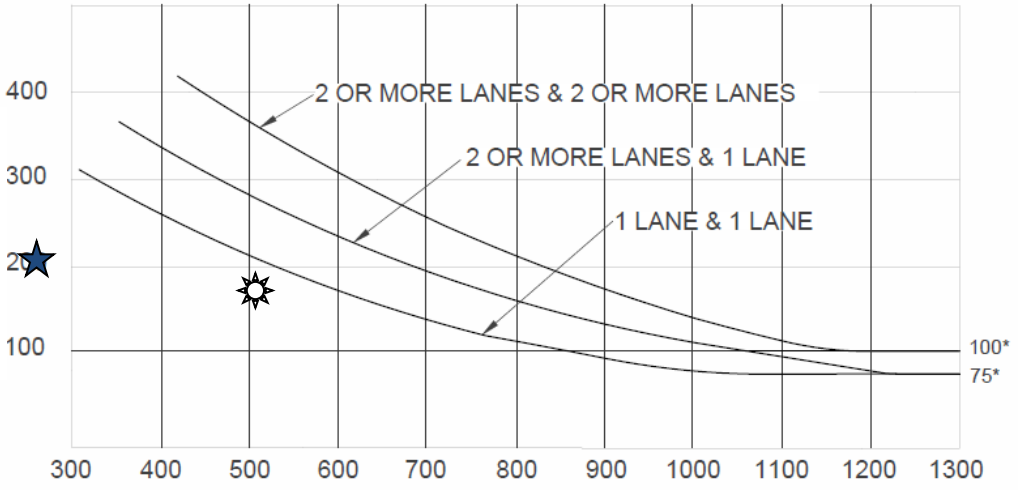
Warrant 3: Peak Hour (Rural)

Near Term plus Project Traffic Conditions
3. Cedar Avenue / Olympic Avenue
AM (PM) Peak Hour

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)

Olympic Avenue Highest Approach Volume = 170 (201) VPH



Cedar Avenue Total of Both Approaches = 508 (252) VPH

*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.

AM Peak Hour – Signal Warrant is not Met

PM Peak Hour – Signal Warrant is not Met

Source: California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition)
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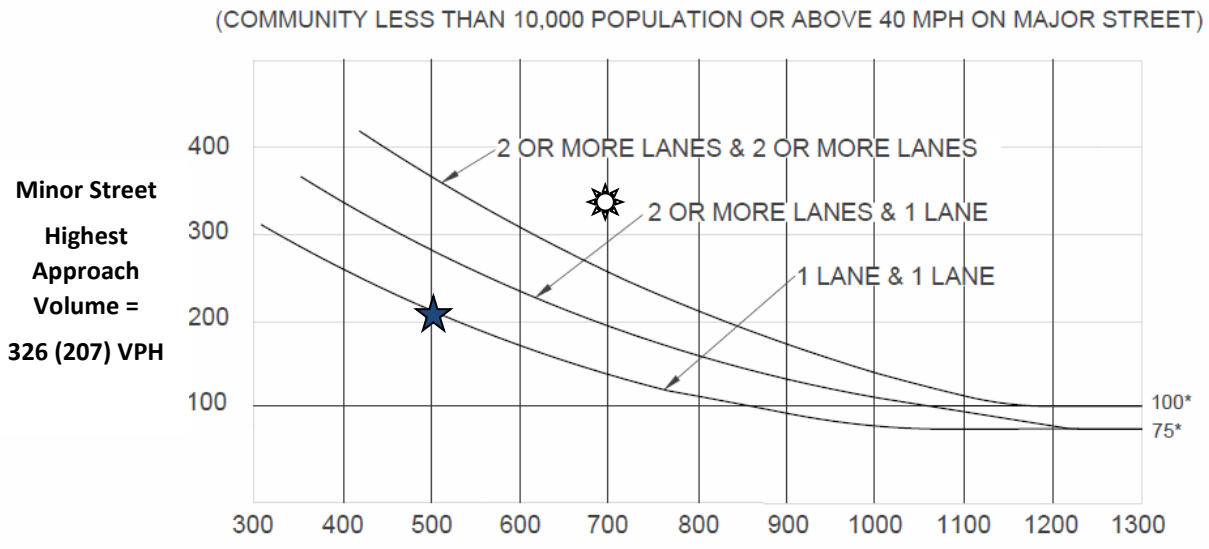
Warrant 3: Peak Hour (Rural)

Near Term plus Project Traffic Conditions
4. Chestnut Avenue / Behymer Avenue
AM (PM) Peak Hour



Major Street Total of Both Approaches =

694 (506) VPH

*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.

AM Peak Hour – Signal Warrant is Met

PM Peak Hour – Signal Warrant is not Met

Source: California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition)
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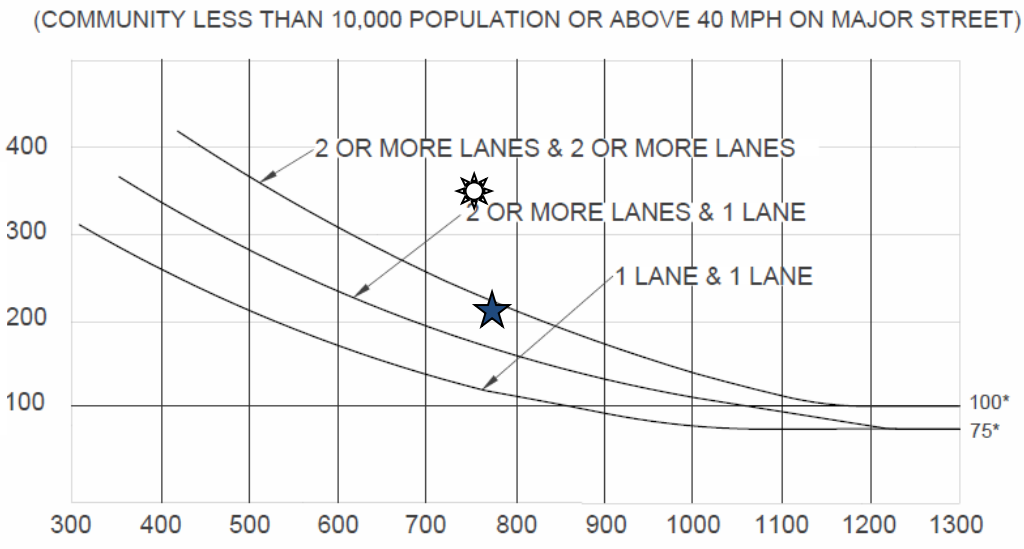
Warrant 3: Peak Hour (Rural)

Near Term plus Project Traffic Conditions
5. Chestnut Avenue / Sommerville Drive
AM (PM) Peak Hour

Chestnut Avenue Highest Approach Volume = 349 (207) VPH



Sommerville Drive Total of Both Approaches = 757 (769) VPH

*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor street approach with one lane.

AM Peak Hour – Signal Warrant is Met

PM Peak Hour – Signal Warrant is Met

Source: California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition)
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