

TRAFFIC IMPACT ANALYSIS

FAIRVIEW STREET IMPROVEMENTS FROM 9TH STREET TO 16TH STREET AND BRIDGE REPLACEMENT PROJECT

SANTA ANA, CALIFORNIA

This Traffic Impact Analysis has been prepared under the supervision of
Donson H. Liu, T.E.

Signed 



LSA

June 2018

TRAFFIC IMPACT ANALYSIS

FAIRVIEW STREET IMPROVEMENTS FROM 9TH STREET TO 16TH STREET AND BRIDGE REPLACEMENT PROJECT

SANTA ANA, CALIFORNIA

Submitted to:

City of Santa Ana
20 Civic Center Plaza
Santa Ana, California 92701

Prepared by:

LSA
20 Executive Park, Suite 200
Irvine, California 92614
(949) 553-0666

Project No. WKE1702



June 2018

TABLE OF CONTENTS

LIST OF ABBREVIATIONS AND ACRONYMS.....	iii
INTRODUCTION	1
Existing Facilities.....	1
Project Description.....	1
METHODOLOGY.....	4
EXISTING (2017) CONDITIONS	6
FUTURE CONDITIONS.....	9
2021 No Build Conditions.....	10
2021 Build Conditions	12
2040 No Build Conditions.....	14
2040 Build Conditions	16
UNSIGNALIZED QUEUING ANALYSIS.....	18
MITIGATION MEASURE	18
CONCLUSIONS	19

APPENDICES

- A: Existing Counts
- B: LOS Worksheets
- C: OCTAM Forecast Plots

FIGURES AND TABLES

FIGURES

Figure 1: Project Area	2
Figure 2: Existing Facilities.....	3
Figure 3: With Project Facilities.....	5
Figure 4: Existing Traffic Volumes	8
Figure 5: 2021 No Build Traffic Volumes	11
Figure 6: 2021 Build Traffic Volumes.....	13
Figure 7: 2040 No Build Traffic Volumes.....	15
Figure 8: 2040 Build Traffic Volumes.....	17

TABLES

Table A: Existing Intersection LOS Summary	7
Table B: Existing ADT Volumes and LOS	7
Table C: 2021 Intersection LOS Summary	12
Table D: 2021 ADT Volumes and LOS	12
Table E: 2040 Intersection LOS Summary	14
Table F: 2040 ADT Volumes and LOS.....	16
Table G: 2040 Build Fairview Street Turn Pocket Queuing	18

LIST OF ABBREVIATIONS AND ACRONYMS

ADT	average daily traffic
bridge	Fairview Street bridge
City	City of Santa Ana
HCM	<i>Highway Capacity Manual</i>
ICU	Intersection Capacity Utilization
LOS	level of service
MPAH	Master Plan of Arterial Highways
NCHRP	National Cooperative Highway Research Program
OCTAM	Orange County Traffic Analysis Model
project	Fairview Street Improvements from 9 th Street to 16 th Street and Bridge Replacement Project
RIRO	right-in/right out
SAR	Santa Ana River
SCAG	Southern California Association of Governments
TAZ	Traffic Analysis Zone
TIA	Traffic Impact Analysis
v/c	volume-to-capacity ratios
vphpl	vehicle(s) per hour per lane

INTRODUCTION

This Traffic Impact Analysis (TIA) has been prepared to assess the effects of the Fairview Street Improvements from 9th Street to 16th Street and Bridge Replacement Project (project) on intersection and roadway performance. The project proposes to widen the Fairview Street crossing over the Santa Ana River (SAR) from four lanes (two lanes in each direction) to six lanes (three lanes in each direction) between the intersections of 9th Street and 16th Street in Santa Ana, California. This segment of Fairview Street includes a bridge (Fairview Street bridge) over the SAR. LSA performed this TIA consistent with relevant guidelines from the City of Santa Ana (City) Circulation Element and *Capacity Calculations and Level of Service Standards*.

The purpose of this TIA is to document how Fairview Street, between Civic Center Drive and 17th Street, would function without and with the project in the future. The study area comprises the following intersections:

1. Fairview Street/17th Street
2. Fairview Street/16th Street
3. Fairview Street/12th Street
4. Fairview Street/9th Street
5. Fairview Street/Civic Center Drive

This report analyzes roadway segments of Fairview Street between Civic Center Drive and 17th Street; specifically, the segments between each of the study intersections. Figure 1 shows the project area.

Existing Facilities

The City's Circulation Element and the Orange County Transportation Authority Master Plan of Arterial Highways (MPAH) identify Fairview Street between Civic Center Drive and 17th Street (over the SAR) as a six-lane, divided Major Arterial. The bridge currently provides two lanes in each direction. The segment of Fairview Street to the north of 16th Street currently provides two lanes in each direction, with the exception of a three lane southbound segment between Avalon Avenue and Bolivar Circle. Fairview Street south of 9th Street currently provides three lanes in each direction. Fairview Street has a posted speed limit of 45 miles per hour on segments north and south of the bridge.

Sidewalks exist on both sides of Fairview Street, with the exception of the segment on the bridge. Bicycle facilities, such as bicycle lanes, do not exist on Fairview Street; however, the Santa Ana River Trail that runs along the SAR's eastern bank has access points to both the northbound and the southbound sides of Fairview Street at the southern end of the bridge. The trail on the SAR's western bank does not have direct connections to Fairview Street. Figure 2 illustrates the roadway geometrics of the intersections within the study area.

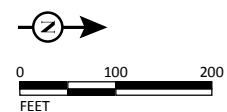
Project Description

Implementation of the MPAH would widen Fairview Street bridge to accommodate three lanes in each direction. The project would also provide additional facilities, such as 8-foot-wide sidewalks



LEGEND

- Proposed Areas of Potential Effects
- Proposed Right of Way Acquisition
- Existing Right of Way
- Proposed Improvements



SOURCE: Bing (2015); WKE (2017)

I:\WKE1702\GIS\TrafficProjectLocation.mxd (5/23/2018)

FIGURE 1

*Fairview Street Improvements
from 9th Street to 16th
Street and Bridge Replacement Project*

Project Area

Federal Project No.: BRLS 5063(184)

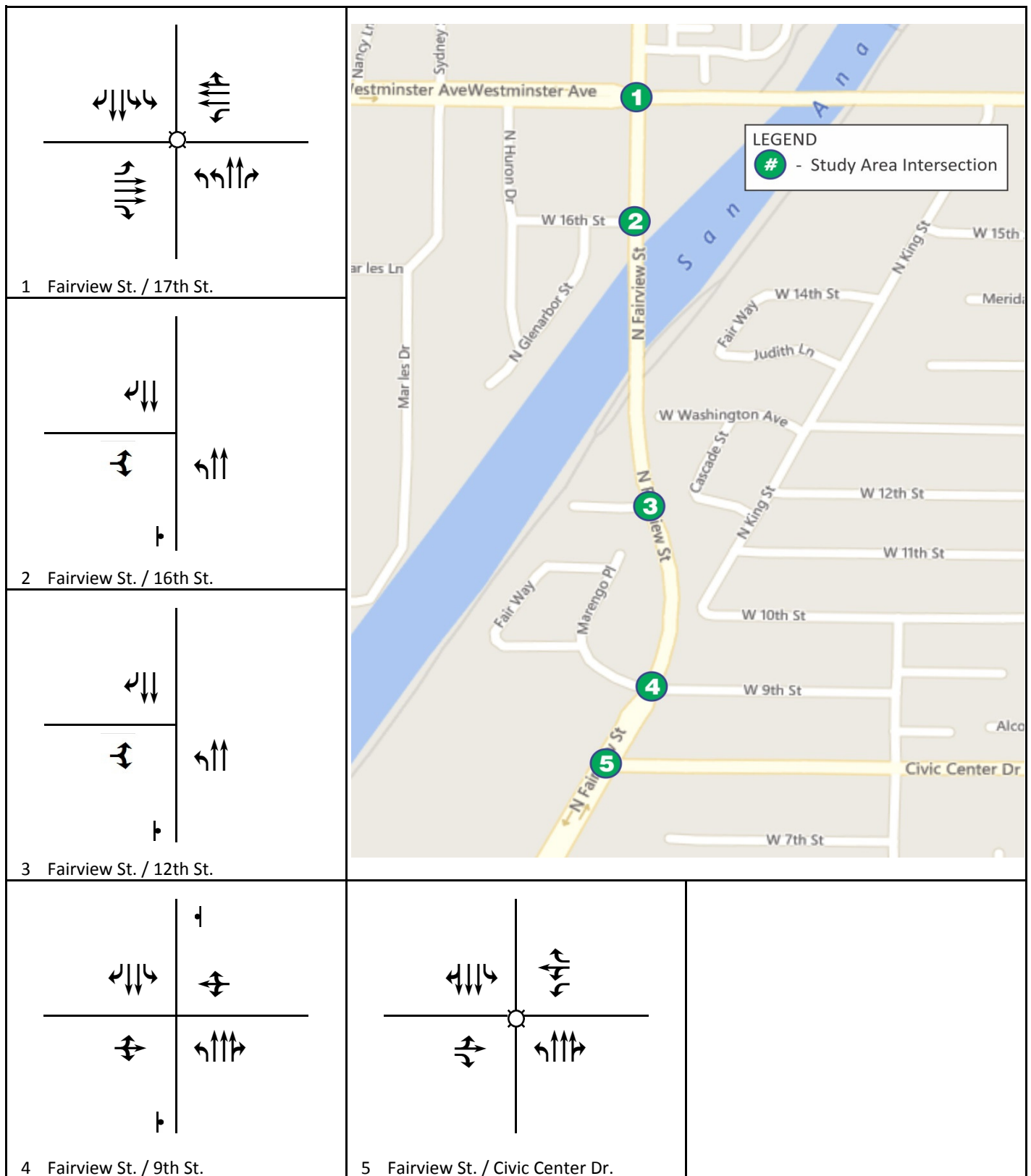


FIGURE 2

LSA

Legend

⊗ Signal

⊥ Stop Sign

F Free Right Turn

*Fairview Street Improvements from 9th Street to 16th
Street and Bridge Replacement Project*
Existing Facilities

and 5-foot-wide Class II bicycle lanes (with a 2-foot buffer) where they currently do not exist on both sides of Fairview Street between Civic Center Drive and 17th Street.

The planned improvements include the construction of a continuous raised median between 9th Street and 16th Street. This continuous raised median would change the intersection of Fairview Street/12th Street from full access to right-in/right-out (RIRO) access. Figure 3 illustrates intersection control changes associated with the project.

METHODOLOGY

LSA prepared this TIA consistent with the City's Circulation Element and *Capacity Calculations and Level of Service Standards*. Intersection level of service (LOS) calculations use the intersection capacity utilization (ICU) methodology for signalized intersections, whereas Highway Capacity Manual (HCM) methodology is used for unsignalized intersections. Roadway segment volume-to-capacity ratios (v/c) are determined using the City's theoretical daily roadway capacities. *Traffix* Version 8.0 computer software was used to determine the LOS at signalized intersections based on the ICU methodology, while *Synchro* Version 10.1 computer software was used at the unsignalized intersections using the HCM methodology.

The ICU methodology was implemented using City requirement inputs including 5 percent loss time, 1,700 vehicles per hour per lane (vphpl) capacity for through lanes, and 1,600 vphpl capacity for turn lanes. The ICU methodology compares the v/c ratios of conflicting turn movements at an intersection, sums these critical conflicting v/c ratios for each intersection approach, and determines the overall ICU. The HCM methodology calculates the delay experienced by vehicles passing through the intersection. The resulting ICU or delay is expressed in terms of LOS, where LOS A represents free-flow activity and LOS F represents overcapacity operation. LOS is a qualitative assessment of the quantitative effects of such factors as traffic volume, roadway geometrics, speed, delay, and maneuverability on roadway and intersection operations. The following table describes in detail LOS criteria for intersections.

LOS	Description
A	No approach phase is fully utilized by traffic, and no vehicle waits longer than one red indication. Typically, the approach appears quite open, turns are made easily, and nearly all drivers find freedom of operation.
B	This service level represents stable operation, where an occasional approach phase is fully utilized, and a substantial number are nearing full use. Many drivers begin to feel restricted within platoons of vehicles.
C	This level still represents stable operating conditions. Occasionally, drivers may have to wait through more than one red signal indication, and backups may develop behind turning vehicles. Most drivers feel somewhat restricted, but not objectionably so.
D	This level encompasses a zone of increasing restriction approaching instability at the intersection. Delays to approaching vehicles may be substantial during short peaks within the peak period; however, enough cycles with lower demand occur to permit periodic clearance of developing queues, thus preventing excessive backups.
E	Capacity occurs at the upper end of this service level. It represents the most vehicles that any particular intersection approach can accommodate. Full utilization of every signal cycle is attained no matter how great the demand.
F	This level describes forced flow operations at low speeds, where volumes exceed capacity. These conditions usually result from queues of vehicles backing up from a restriction downstream. Speeds are reduced substantially, and stoppages may occur for short or long periods of time due to the congestion. In the extreme case, speed can drop to zero.

LOS = level of service

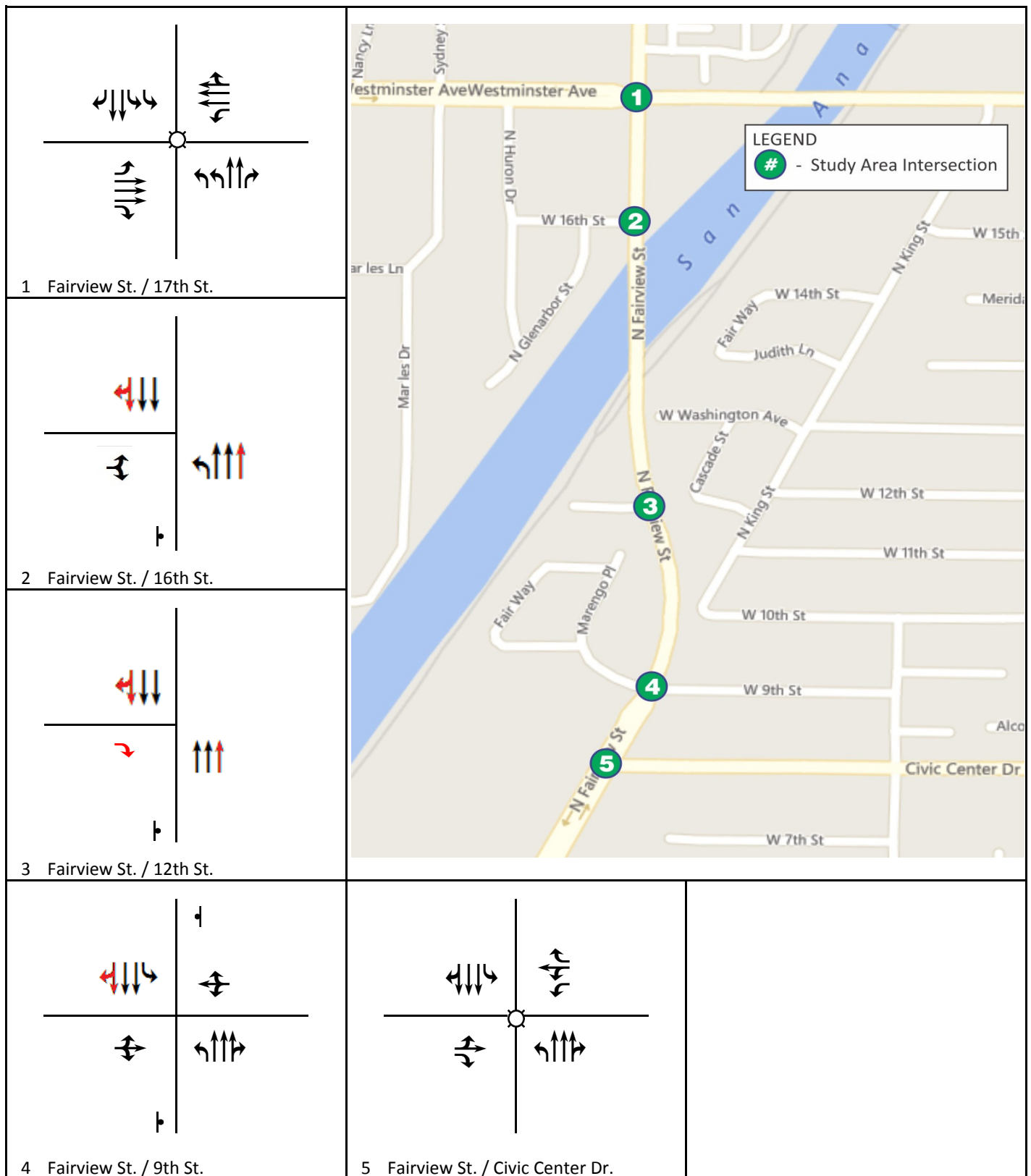


FIGURE 3

LSA

Legend

⊗ Signal

⊥ Stop Sign

F Free Right Turn

Project Change

Fairview Street Improvements from 9th Street to 16th
Street and Bridge Replacement Project
With Project Facilities

The relationship between LOS, ICU value (i.e., the v/c ratio), and HCM delay (at unsignalized intersections) is as follows:

Levels of Service	A	B	C	D	E	F
ICU	0.00–0.60	0.61–0.70	0.71–0.80	0.81–0.90	0.91–1.00	> 1.00
Delay per Vehicle (seconds)	≤10.0	10.0-15.0	15.0-25.0	25.0-35.0	35.0-50.0	>50.0

ICU = intersection capacity utilization

The City considers LOS D to be the upper limit of satisfactory intersection operations.

The four roadway segments between the five study intersections have been assessed for their adequacy in accommodating their respective existing and projected 24-hour daily traffic volumes according to roadway capacities and service standards prescribed by the City's Circulation Element. The relationship between daily traffic volumes and LOS is as follows:

Arterial Type	LOS A	LOS B	LOS C	LOS D	LOS E	LOS F
8 Lanes Divided	45,000	52,500	60,000	67,500	75,000	> 75,000
6 Lanes Divided	33,900	39,400	45,000	50,600	56,300	> 56,300
4 Lanes Divided	22,500	26,300	30,000	33,800	37,500	> 37,500
4 Lanes Undivided	15,000	17,500	20,000	22,500	25,000	> 25,000
2 Lanes Undivided	7,500	8,800	10,000	11,300	12,500	> 12,500

Source: City of Santa Ana General Plan Circulation Element, Table A-1 (January 2010)
LOS = level of service

Similar to the City's acceptability threshold for intersections, LOS D is considered to be the upper limit of satisfactory daily roadway volume-to-capacity.

EXISTING (2017) CONDITIONS

As noted previously, the City's Circulation Element and the MPAH identify the segment of Fairview Street between 17th Street and Civic Center Drive as a six-lane, divided Major Arterial. However, Fairview Street currently provides two lanes in each direction with a painted divided median between Civic Center Drive and 17th Street; the bridge itself provides two lanes in each direction with no median. The segment of Fairview Street to the north of 16th Street currently provides two lanes in each direction, with the exception of a three-lane southbound segment between Avalon Avenue and Bolivar Circle. Fairview Street south of 9th Street currently provides three lanes in each direction.

Pedestrian sidewalks are provided on both sides of Fairview Street with the exception of the bridge, which does not have sidewalks on either side. Currently, pedestrians walk along the northbound and southbound shoulders of Fairview Street. Bicycle facilities are also absent for the length of Fairview Street between Civic Center Drive and 17th Street. The Santa Ana River Trail connects to both the northbound and the southbound sides of Fairview Street at the southern end of the bridge.

Appendix A provides the peak-hour intersection turn volumes and a 24-hour daily roadway segment count National Data and Surveying Services collected on Tuesday, December 12, 2017. Figure 4 presents the existing a.m. and p.m. peak-hour volumes for the five study intersections.

Consistent with the intersection analysis methodology described previously, existing intersection LOS was calculated for the five study intersections. To calculate their daily LOS, existing daily traffic volumes along the roadway segments between the study intersections were compared against the design capacities of each segment. Table A depicts existing intersection LOS, while Table B shows roadway segment LOS. Appendix B provides intersection LOS worksheets.

Table A: Existing Intersection LOS Summary

Intersection		Existing Conditions			
		AM Peak Hour		PM Peak Hour	
		v/c Delay	LOS	v/c Delay	LOS
1	Fairview Street/17 th Street	0.835	D	0.902	E
2	Fairview Street/16 th Street ¹	31.6	D	20.0	C
3	Fairview Street/12 th Street ¹	25.1	D	19.0	C
4	Fairview Street/9 th Street ¹	>50.0	F	47.4	E
5	Fairview Street/Civic Center Drive	0.642	B	0.640	B

¹ = unsatisfactory LOS

¹ The intersection is unsignalized and was assessed using the HCM methodology. Delay values shown are in seconds per vehicle.

LOS = level of service

v/c = volume-to-capacity ratio

>50.0 = HCM delay value is greater than 50.0 seconds per vehicle, LOS F

Table B: Existing ADT Volumes and LOS

Roadway Segment		Arterial Type	Capacity	ADT	LOS
Existing Conditions					
Fairview Street	17 th Street to 16 th Street	4 Lanes Divided	37,500	42,440	F
	16 th Street to 12 th Street – Fairview Bridge	4 Lanes Undivided	25,000	41,890	F
	12 th Street to 9 th Street	4 Lanes Divided	37,500	40,980	F
	9 th Street to Civic Center Drive	6 Lanes Divided	56,300	41,720	C

¹ = unsatisfactory LOS

ADT = average daily traffic

LOS = level of service

v/c = volume-to-capacity

As Table A shows, the intersections of Fairview Street/17th Street and Fairview Street/9th Street currently operate at unsatisfactory LOS E or worse during one or both peak hours. The three other study intersections currently operate at satisfactory LOS D or better. It should be noted that the HCM methodology consistent delay values shown for the intersections of Fairview Street at 16th Street, 12th Street, and 9th Street are the calculated wait time of the worst performing movement and not indicative of the experience of the majority of vehicles traveling through these intersections. In the case of these three unsignalized intersections, the worst performing movements are the outbound left-turn movements, of which there are fewer than 10 vehicles per

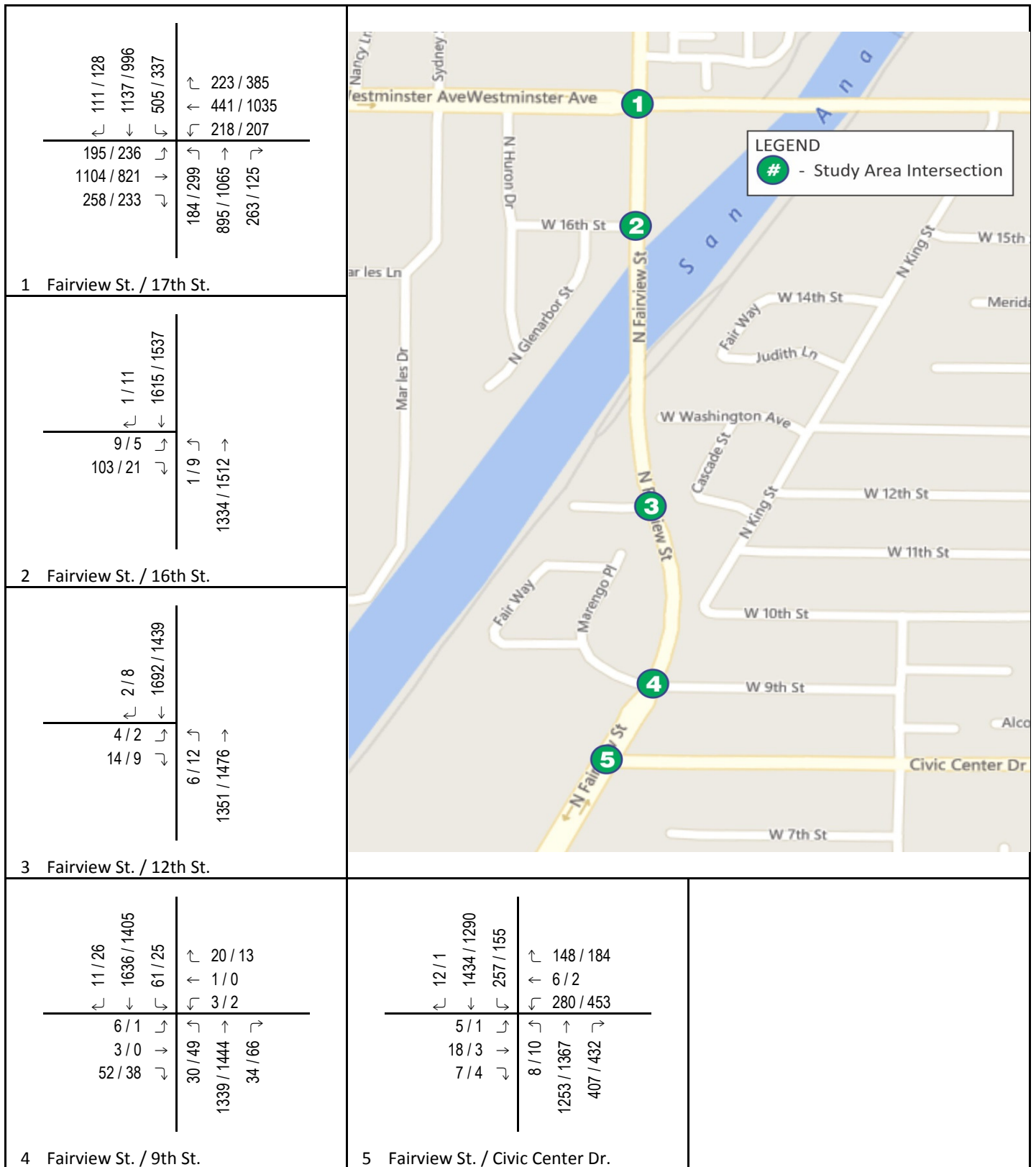


FIGURE 4

LSA

xxx / yyy

AM / PM Volume

Fairview Street Improvements from 9th Street to 16th
Street and Bridge Replacement Project
Existing Traffic Volumes

hour at any one intersection. The especially high-delay values shown in Table A should not be considered representative of actual delay times due to typical driver behavior.

For example, high delays calculated for outbound movements at the intersection of Fairview Street and 9th Street that reach into the hundreds of seconds per vehicle would not be tolerated by drivers making outbound lefts. It is reasonable to expect drivers to make more feasible route choices such as making right turns out to make subsequent U-turns at downstream intersections, as they are available. As shown in Table B, the segments of Fairview Street (including the bridge) that provide only four lanes of travel currently experience daily traffic volumes greater than their respective design capacities, meaning these roadway segments currently experience unsatisfactory LOS F.

FUTURE CONDITIONS

LSA prepared future traffic forecasts (provided in Appendix C) for 2021 and 2040 No Build and Build conditions using the long-range traffic modeling tool, the Orange County Transportation Analysis Model (OCTAM). OCTAM is a travel demand model derived from the Southern California Association of Governments (SCAG) Regional Model that provides more specific land use and network information for Orange County. The 2021 traffic forecasts represent the anticipated conditions at the anticipated project completion year, whereas 2040 traffic forecasts represent long-range design year traffic conditions.

The intersection and roadway segment traffic volumes for 2040 No Build and Build conditions were developed using the OCTAM base year (2012) and future year (2040) model unconstrained networks. Raw traffic model data from OCTAM base and future year model runs were post-processed using National Cooperative Highway Research Program (NCHRP) 255 methodologies to develop peak-hour turning movement volumes at each study area intersection and roadway segment. The following describes the methodology used to post-process model volumes to develop peak hour intersection volumes for 2040 No Build and Build conditions:

1. The difference between the modeled 2012 and 2040 peak period directional arterial traffic volumes (for each intersection approach and departure) was identified from loaded network plots. This difference defines growth in traffic over the 28-year period.
2. The incremental growth in peak period approach and departure volumes between 2012 and 2040 was factored to develop the incremental change in peak-hour volumes. OCTAM uses a 3-hour a.m. peak period and a 4-hour p.m. peak period. SCAG has established that the a.m. peak hour accounts for 38 percent of the peak period and the p.m. peak hour is 28 percent of the peak period. Therefore, the incremental changes in peak period volumes were multiplied by the appropriate factors to develop incremental changes in peak-hour volumes.
3. The incremental growth in approach and departure volumes between 2012 and 2040 for each movement and peak hour was factored to reflect the forecast growth between the year of the existing traffic data (2017) and 2040. For this purpose, LSA assumed linear growth between the 2012 base condition and the forecast 2040 condition. As the increment between Existing and 2040 is 23 years of the 28-year time span, a factor of 0.82 (i.e., 23/28) was used.

4. The forecast growth in approach and departure volumes through 2040 No Build and Build conditions was added to the existing 2017 traffic data, resulting in “post-processed” 2040 No Build and Build link volumes. The approaches and departures along 16th, 12th, and 9th Streets are not anticipated to experience growth as these residential neighborhoods are built out.
5. The 2040 No Build and Build turn volumes were developed using existing (2017) turn volumes and the future approach and departure volumes, based on the methodologies contained in *NCHRP Report 255: Highway Traffic Data for Urbanized Area Project Planning and Design* (Transportation Research Board, December 1982).

A similar methodology (steps 1 through 4) was applied to develop 2040 No Build and Build roadway segment traffic volumes. For intersections that did not exist in the traffic model or had missing legs, anticipated growth (or lack thereof) from adjacent Traffic Analysis Zones (TAZs) were used to develop traffic volumes for those locations. Finally, manual adjustments were made to 2040 Build conditions to reflect the proposed change at the intersection of Fairview Street/12th Street from full access to RIRO.

The 2021 No Build and Build traffic forecasts were developed based on interpolating the overall growth between existing (2017) volumes and 2040 No Build and Build forecasts. Specifically, the proportional growth from 2017 to 2021 (4 years) was scaled against the overall growth between 2017 and 2040 (23 years) to develop a growth ratio of 17.39 percent. This growth percentage was applied to the growth between 2017 and 2040 forecasts at each study intersection and roadway segment to arrive at 2021 No Build and Build traffic forecasts.

Based on a review of the City’s *Capital Improvement Program Fiscal year: 2017/2018* (City of Santa Ana, May 2017) and the Circulation Element, improvements to the five study intersections outside of the restriction of the intersection of Fairview Street and 12th Street from full-access to RIRO are not planned or included in this analysis at this time. The following presents the ability of the existing and proposed roadway facilities to accommodate 2021 and 2040 No Build and Build traffic conditions.

2021 No Build Conditions

Figure 5 shows the OCTAM forecast derived 2021 No Build a.m. and p.m. peak-hour traffic volumes. As shown in Table C, the intersections along Fairview Street are anticipated to operate at acceptable LOS with the exception of the following intersections:

- Fairview Street/17th Street (LOS E during the p.m. peak hour)
- Fairview Street/9th Street (LOS F in both a.m. and p.m. peak hours)

This represents a general worsening of intersection operations under 2021 No Build conditions.

As shown in Table D, forecasted increases to daily traffic volumes along Fairview Street from existing to 2021 No Build conditions are anticipated to continue to result in unsatisfactory roadway segment LOS for the four-lane segments of Fairview Street.

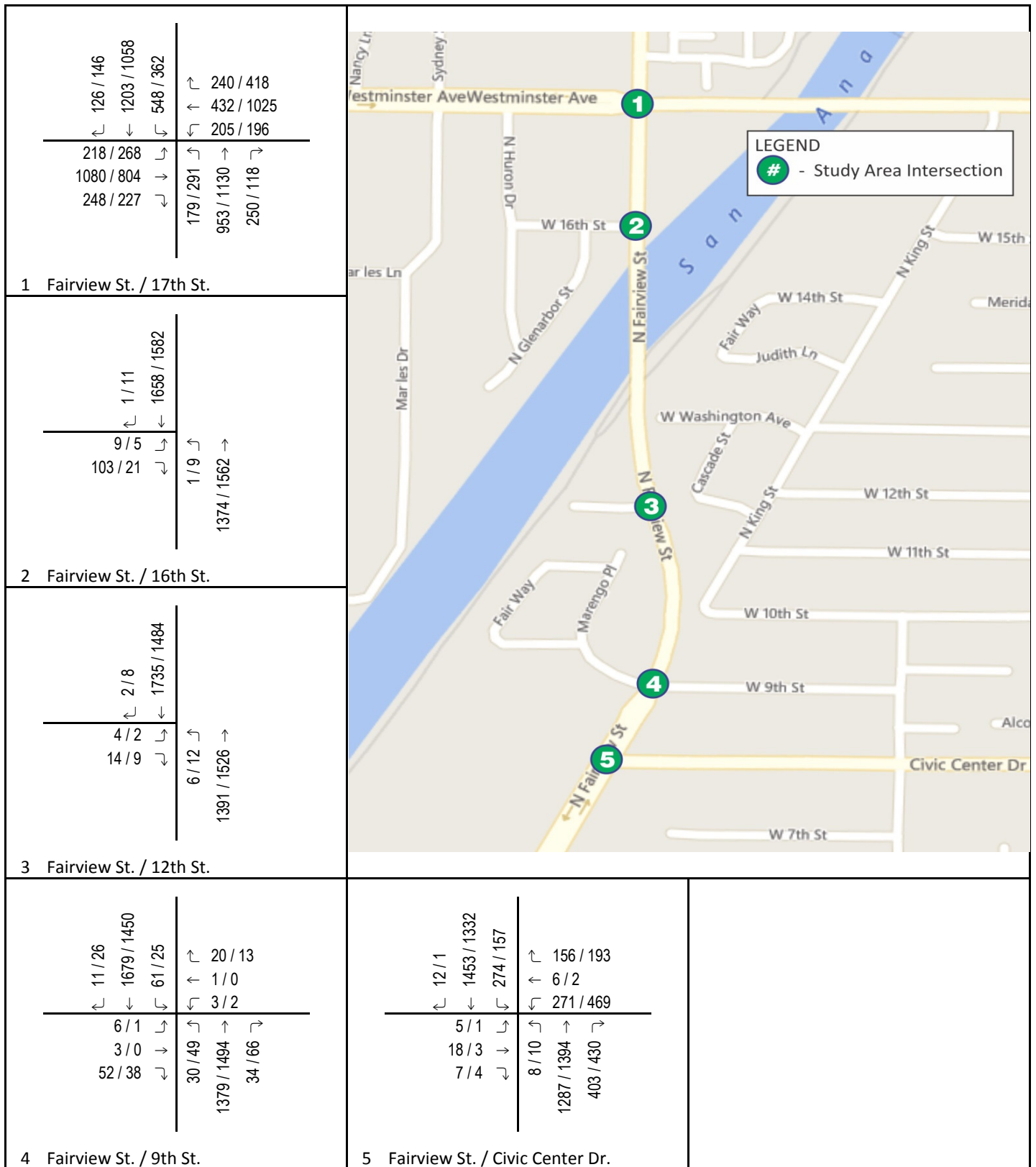


FIGURE 5

LSA

xxx / yyy

AM / PM Volume

Fairview Street Improvements from 9th Street to 16th
Street and Bridge Replacement Project
2021 No Build Traffic Volumes

Table C: 2021 Intersection LOS Summary

Intersection	Existing Conditions				2021 No Build Conditions				2021 Build Conditions			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
	v/c Delay	LOS	v/c Delay	LOS	v/c Delay	LOS	v/c Delay	LOS	v/c Delay	LOS	v/c Delay	LOS
1 Fairview St/17 th St	0.835	D	0.902	E	0.853	D	0.954	E	0.860	D	0.948	E
2 Fairview St/16 th St ¹	31.6	D	20.0	C	33.9	D	20.7	C	>50.0	F	27.2	D
3 Fairview St/12 th St ¹	25.1	D	19.0	C	26.0	D	19.7	C	22.1	C	18.0	C
4 Fairview St/9 th St ¹	>50.0	F	47.4	E	>50.0	F	>50.0	F	>50.0	F	41.4	E
5 Fairview St/Civic Center Dr	0.642	B	0.640	B	0.664	B	0.651	B	0.691	B	0.665	B

¹ = unsatisfactory LOS

The intersection is unsignalized and was assessed using the HCM methodology. Delay values shown are in seconds per vehicle.

LOS = level of service

>50.0 = HCM delay value is greater than 50.0 seconds per vehicle, LOS F

v/c = volume-to-capacity ratio

Table D: 2021 ADT Volumes and LOS

Roadway Segment		Arterial Type	Capacity	ADT	LOS
Existing Conditions					
Fairview Street	17 th Street to 16 th Street	4 Lanes Divided	37,500	42,440	F
	16 th Street to 12 th Street – Fairview Bridge	4 Lanes Undivided	25,000	41,890	F
	12 th Street to 9 th Street	4 Lanes Divided	37,500	40,980	F
	9 th Street to Civic Center Drive	6 Lanes Divided	56,300	41,720	C
2021 No Build Conditions					
Fairview Street	17 th Street to 16 th Street	4 Lanes Divided	37,500	42,910	F
	16 th Street to 12 th Street – Fairview Bridge	4 Lanes Undivided	25,000	42,350	F
	12 th Street to 9 th Street	4 Lanes Divided	37,500	41,430	F
	9 th Street to Civic Center Drive	6 Lanes Divided	56,300	42,180	C
2021 Build Conditions					
Fairview Street	17 th Street to 16 th Street	4 Lanes Divided	37,500	43,620	F
	16 th Street to 12 th Street – Fairview Bridge	6 Lanes Divided	56,300	43,050	C
	12 th Street to 9 th Street	6 Lanes Divided	56,300	42,110	C
	9 th Street to Civic Center Drive	6 Lanes Divided	56,300	42,880	C

¹ = unsatisfactory LOS

ADT = average daily traffic

LOS = level of service

v/c = volume-to-capacity

2021 Build Conditions

Figure 6 shows the OCTAM forecast-derived 2021 Build a.m. and p.m. peak-hour traffic volumes. As shown in Table C, the intersections along Fairview Street are anticipated to operate at acceptable LOS with the exception of the following intersections:

- Fairview Street/17th Street (LOS E during the p.m. peak hour)
- Fairview Street/16th Street (LOS F during the a.m. peak hour)
- Fairview Street/9th Street (LOS F during both the a.m. peak hour and LOS E in the p.m. peak hour)

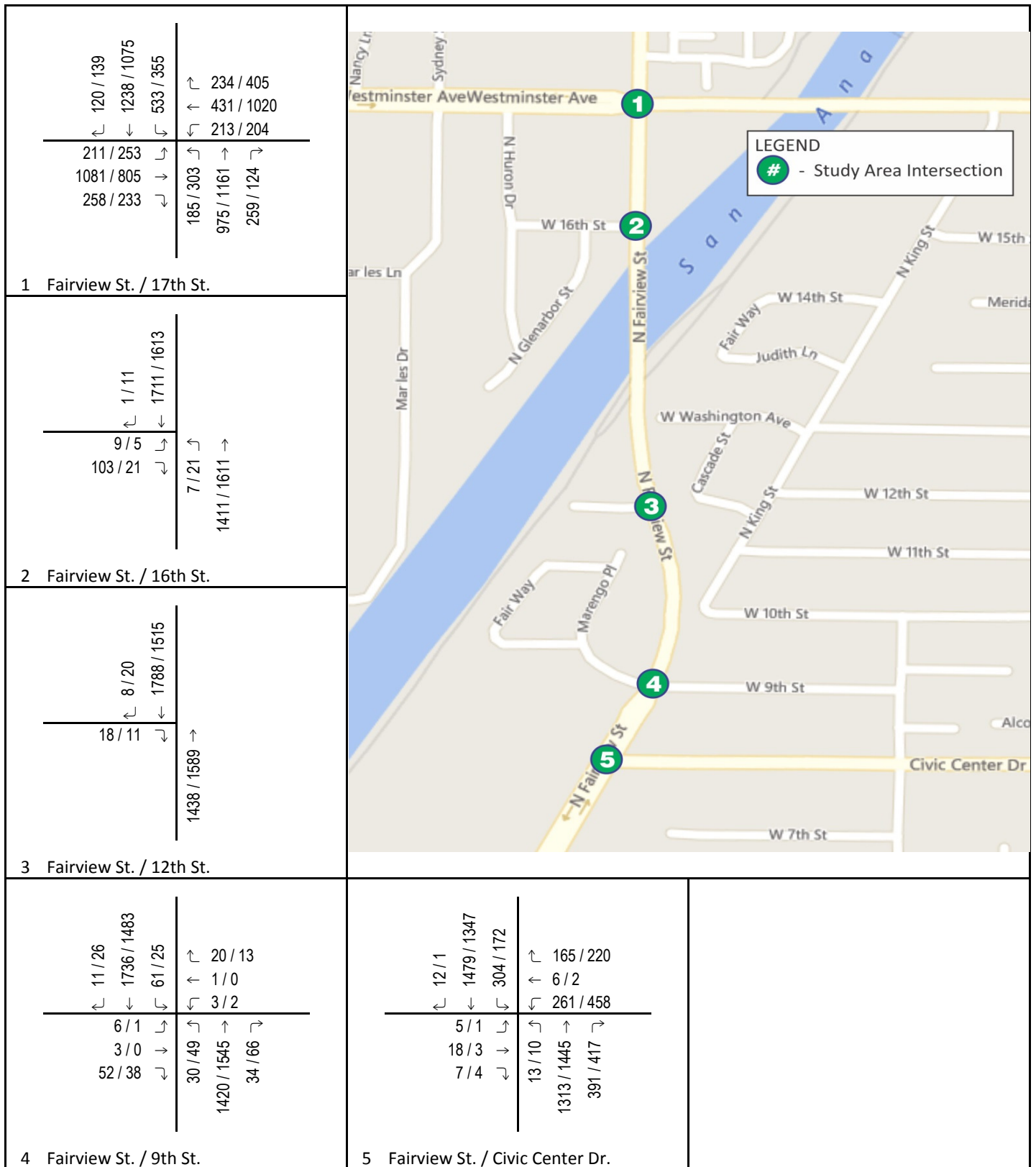


FIGURE 6

LSA

xxx / yyy

AM / PM Volume

Fairview Street Improvements from 9th Street to 16th
Street and Bridge Replacement Project
2021 Build Traffic Volumes

Several of the study intersections are shown to operate at higher levels of delay or capacity compared to the 2021 No Build condition because of the rerouting of regional north-south vehicular traffic from parallel routes that may now use Fairview Street due to the proposed improvements. Exceptions include the intersections of Fairview Street at 17th Street and 12th Street, which operate better due to reductions in travel patterns (higher north-south through traffic, while lower east-west turning movements at 17th Street) and changes in access (12th Street). It should be noted that implementation of the project would result in prolonged delay for the eastbound left-turn movements at the intersection of Fairview Street at 16th Street. This represents a worsening of access conditions to 9 a.m. and 5 p.m. peak-hour conditions.

As Table D shows, the proposed increase in roadway capacity to Fairview Street south of 16th Street is anticipated to accommodate both ambient existing to 2021 traffic growth and north-south regional traffic rebalancing at satisfactory LOS C. This is an improvement over both existing and 2021 No Build overcapacity traffic conditions.

2040 No Build Conditions

Figure 7 shows the OCTAM forecasted a.m. and p.m. peak-hour traffic volumes. As shown in Table E, the intersections along Fairview Street are anticipated to operate at acceptable LOS with the exception of the following intersections:

- Fairview Street/17th Street (LOS F in both a.m. and p.m. peak hours)
- Fairview Street/16th Street (LOS E during the a.m. peak hour)
- Fairview Street/9th Street (LOS F in both a.m. and p.m. peak hours)

Table E: 2040 Intersection LOS Summary

Intersection	Existing Conditions				2040 No Build Conditions				2040 Build Conditions			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
	v/c Delay	LOS	v/c Delay	LOS	v/c Delay	LOS	v/c Delay	LOS	v/c Delay	LOS	v/c Delay	LOS
1 Fairview St/17 th St	0.835	D	0.902	E	1.071	F	1.258	F	1.031	F	1.195	F
2 Fairview St/16 th St ¹	31.6	D	20.0	C	48.1	E	24.9	C	>50.0	F	41.7	E
3 Fairview St/12 th St ¹	25.1	D	19.0	C	32.0	D	23.4	C	30.6	D	22.3	C
4 Fairview St/9 th St ¹	>50.0	F	47.4	E	>50.0	F	>50.0	F	>50.0	F	>50.0	F
5 Fairview St/Civic Center Dr	0.642	B	0.640	B	0.766	C	0.705	C	0.908	E	0.876	D

¹ = unsatisfactory LOS

¹ The intersection is unsignalized and was assessed using the HCM methodology. Delay values shown are in seconds per vehicle.

LOS = level of service

>50.0 = HCM delay value is greater than 50.0 seconds per vehicle, LOS F

v/c = volume-to-capacity ratio

This represents a general worsening of intersection operations under 2040 No Build conditions.

As shown in Table F, forecasted increases to daily traffic volumes along Fairview Street from existing to 2040 No Build conditions are anticipated to continue to result in unsatisfactory roadway segment LOS for the four-lane segments of Fairview Street.

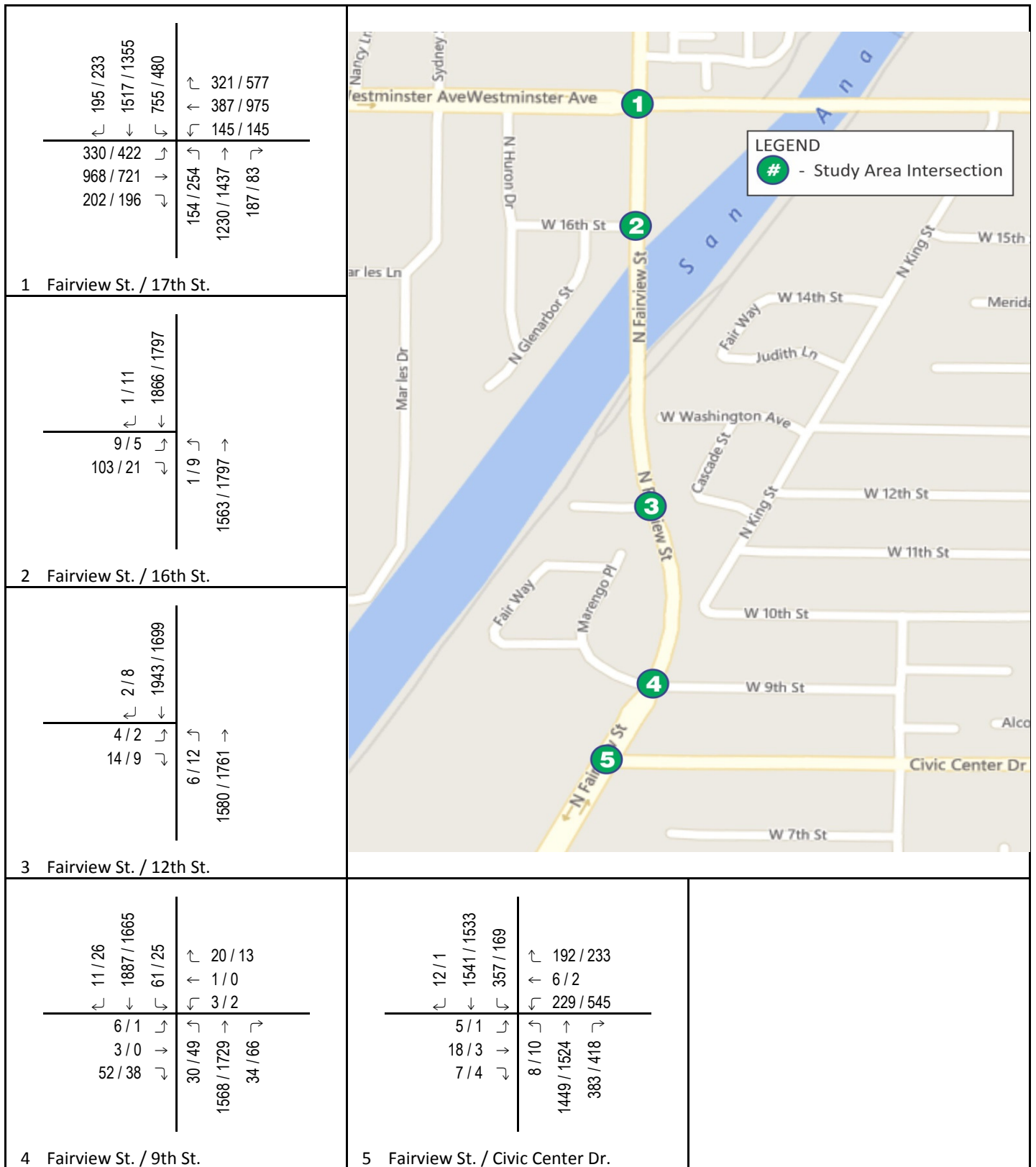


FIGURE 7

LSA

xxx / yyy

AM / PM Volume

Fairview Street Improvements from 9th Street to 16th
Street and Bridge Replacement Project
2040 No Build Traffic Volumes

Table F: 2040 ADT Volumes and LOS

Roadway Segment		Arterial Type	Capacity	ADT	LOS
Existing Conditions					
Fairview Street	17 th Street to 16 th Street	4 Lanes Divided	37,500	42,440	F
	16 th Street to 12 th Street – Fairview Bridge	4 Lanes Undivided	25,000	41,890	F
	12 th Street to 9 th Street	4 Lanes Divided	37,500	40,980	F
	9 th Street to Civic Center Drive	6 Lanes Divided	56,300	41,720	C
2040 No Build Conditions					
Fairview Street	17 th Street to 16 th Street	4 Lanes Divided	37,500	45,130	F
	16 th Street to 12 th Street – Fairview Bridge	4 Lanes Undivided	25,000	44,540	F
	12 th Street to 9 th Street	4 Lanes Divided	37,500	43,580	F
	9 th Street to Civic Center Drive	6 Lanes Divided	56,300	44,360	C
2040 Build Conditions					
Fairview Street	17 th Street to 16 th Street	4 Lanes Divided	37,500	49,200	F
	16 th Street to 12 th Street – Fairview Bridge	6 Lanes Divided	56,300	48,560	D
	12 th Street to 9 th Street	6 Lanes Divided	56,300	47,510	D
	9 th Street to Civic Center Drive	6 Lanes Divided	56,300	48,360	D

■ = unsatisfactory LOS

ADT = average daily traffic

LOS = level of service

v/c = volume-to-capacity

2040 Build Conditions

Figure 8 shows the OCTAM forecasted a.m. and p.m. peak-hour traffic volumes. As shown in Table E, the intersections along Fairview Street are anticipated to operate at acceptable LOS with the exception of the following intersections:

- Fairview Street/17th Street (LOS F during both the a.m. and the p.m. peak hours)
- Fairview Street/16th Street (LOS F during the a.m. peak hour and LOS E during the p.m. peak hour)
- Fairview Street/9th Street (LOS F during both the a.m. and the p.m. peak hours)
- Fairview Street/Civic Center Drive (LOS E during the a.m. peak hour)

Like the analysis results for 2021 Build condition, several of the study intersections are shown to operate at higher levels of delay or capacity under 2040 Build condition, compared to the 2040 No Build condition, because of the rerouting of regional north-south vehicular traffic from parallel routes that may now use Fairview Street due to the proposed improvements. Exceptions include the intersections of Fairview Street at 17th Street and 12th Street, which operate better due to reductions in travel patterns (higher north-south through traffic while lower east-west turning movements at 17th Street) and changes in access (12th Street).

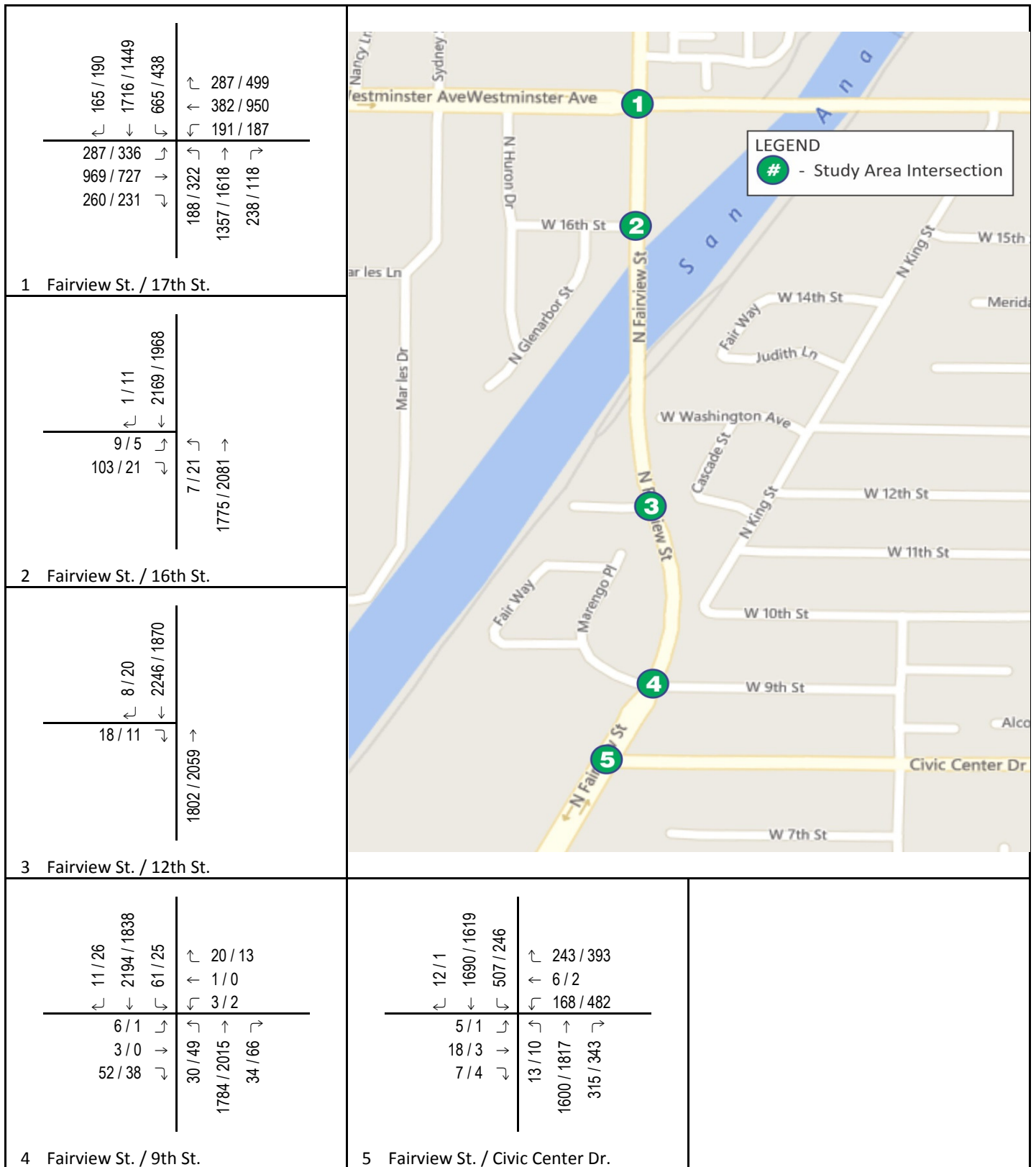


FIGURE 8

LSA

xxx / yyy

AM / PM Volume

Fairview Street Improvements from 9th Street to 16th Street and Bridge Replacement Project
2040 Build Traffic Volumes

The intersection of Fairview Street at 16th Street experiences a worsening of HCM based delay values in the 2040 p.m. peak hour from an acceptable 24.9 second/vehicle LOS "C" in the No Build condition to an unacceptable 41.7 second/vehicle LOS "E" in the Build condition. As previously mentioned, the HCM delay value represents the calculated delay of the worst performing movement in a given intersection and not indicative of the experience of the majority of vehicles traveling through these intersections. As this resulting additional deficient operation is indicative of only the worst performing movement, in this case the 5 eastbound left-turning vehicles in the p.m. peak hour, this delay value and LOS is not considered to be indicative of the overall intersection and is not considered a significant impact.

It should be noted that implementation of the project would result in an additional unsatisfactorily operating intersection (the intersection of Fairview Street and Civic Center Drive) compared to the deficient intersections identified under the 2040 No Build condition. Regional growth between existing and 2040 No Build conditions would contribute to the unacceptable peak-hour operations at the intersection of Fairview Street at Civic Center Drive to result in such a level of significant impact.

As shown previously in Table F, the proposed increase in roadway capacity to Fairview Street south of 16th Street is anticipated to accommodate both ambient existing to 2040 traffic growth and regional north-south regional traffic rebalancing at satisfactory LOS D. This is an improvement over both existing and 2040 No Build overcapacity traffic conditions.

UNSIGNALIZED QUEUING ANALYSIS

To determine the necessary turn pocket lengths at the intersections of Fairview Street/16th Street and Fairview Street/9th Street that would be affected by the project, LSA conducted an HCM based queuing analysis for 2040 Build traffic conditions. Table G shows the results of this queuing analysis.

Table G: 2040 Build Fairview Street Turn Pocket Queuing

Intersection	Movement	Existing Pocket Length (feet)	95 th percentile queue (feet) ¹	
			AM Peak Hour	PM Peak Hour
Fairview Street/16 th Street	Northbound Left	50	< 25	< 25
Fairview Street/9 th Street	Northbound Left	55	33	38
	Southbound Left	95	48	< 25

¹ Queue length is based on a design vehicle length of 25 feet. Queue lengths less than one vehicle in length are noted as "< 25" to signify that a minimum of one vehicle length of queueing storage should be provided.

Because the existing intersection geometrics have storage lengths that exceed the calculated queue lengths, modifications to existing pocket lengths are not necessary to accommodate 2040 Build traffic queues and are not recommended at this time. Appendix B provides HCM calculated queues on the Synchro LOS worksheets.

MITIGATION MEASURE

As described previously, the proposed improvement of Fairview Street from four through lanes to six through lanes could result in a significant impact at the intersection of Fairview Street and Civic

Center Drive under 2040 Build a.m. peak-hour conditions. To mitigate the potentially impacted a.m. peak-hour condition, the following mitigation measure is proposed:

- Restripe the westbound shared left-through turn lane to a shared left-through-right turn lane.

The allowance of westbound right turns from the westbound shared left-through turn lane is anticipated to improve the 2040 Build condition a.m. peak-hour intersection v/c ratio from a deficient 0.908 (LOS E) to an acceptable 0.842 (LOS D). The 2040 Build condition p.m. peak-hour intersection v/c ratio is anticipated to improve from an acceptable 0.876 (LOS D) to an acceptable 0.810 (LOS D).

As this impact and deficiency are not anticipated to occur until the 2040 Build condition, it is recommended that this improvement not be implemented until deemed necessary. This should be done through intersection operations monitoring (particularly of the westbound right-turn movement) by City staff.

CONCLUSIONS

The existing conditions analysis shows that the roadway of Fairview Street between 9th Street and 16th Street experiences higher levels of daily traffic than what the current roadway configuration is designed for. The proposed improvement of Fairview Street from four through lanes to six through lanes between 9th Street and 16th Street is anticipated to accommodate future traffic volumes within capacity at satisfactory LOS.

The additional capacity afforded to north-south traffic along Fairview Street will not alleviate, and may increase, anticipated delays to left-turning vehicles entering and exiting the unsignalized streets of 16th Street, 12th Street, and 9th Street. Once the project is completed, vehicles turning in/out of the residential neighborhoods may utilize alternate routes along Fairview Street, such as U-turns, to more conveniently travel to their intended destinations. This potential rerouting of left-turns would affect a modest number of vehicles, less than 10 per peak hour at any one intersection.

Additionally, the project's improvement to north-south traffic capacity along Fairview Street is anticipated to result in unacceptable LOS E operations at the intersection of Fairview Street and Civic Center Drive under the 2040 Build a.m. peak-hour condition. The project's significant impact can be mitigated through the restriping of the westbound shared left-through turn lane to a shared left-through-right turn lane. As this impact is not anticipated to occur until 2040 Build conditions, it is recommended that this improvement not be implemented until it is determined by City staff that the intersection may be approaching deficient levels of operation.

Pedestrian and bicyclist facilities along Fairview Street that currently exist on both sides of the bridge but not on the bridge itself would be connected by sidewalks and Class II bike lanes that are part of the project. The closure of this gap in the pedestrian network will benefit pedestrians traveling between destinations north of 17th Street, such as Leroy L. Doig Intermediate School, Samueli Academy, the Stater Bros. Market, and the residential community south of the SAR.

APPENDIX A

EXISTING COUNTS

Fairview St & 16th St

Peak Hour Turning Movement Count

ID: 17-01276-002
City: Santa Ana

Day: Tuesday
Date: 12/12/2017

[illegible]

Fairview St & 9th St

Peak Hour Turning Movement Count

ID: 17-01276-004
City: Santa Ana

Day: Tuesday
Date: 12/12/2017

[illegible]

APPENDIX B

LOS WORKSHEETS

ExAM Thu Apr 26, 2018 17:35:45 Page 2-1

North Fairview Bridge Widening Improvement Project (WKE1702)
Existing Conditions
AM Peak Hour

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #1 Fairview Street (NS) / West 17th Street (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.835
Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx
Optimal Cycle: 60 Level Of Service: D

Street Name: Fairview Street West 17th Street
Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	2	0	2	0	1	2	0	2	0	1	1	0

Volume Module:

Base Vol:	184	895	263	505	1137	111	195	1104	258	218	441	223
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	184	895	263	505	1137	111	195	1104	258	218	441	223
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	184	895	263	505	1137	111	195	1104	258	218	441	223
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	184	895	263	505	1137	111	195	1104	258	218	441	223
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	184	895	263	505	1137	111	195	1104	258	218	441	223

Saturation Flow Module:

Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	0.88	1.00	0.94	0.88	1.00	0.94	0.94	1.00	0.94	0.94	1.00	0.94
Lanes:	2.00	2.00	1.00	2.00	2.00	1.00	1.00	3.00	1.00	1.00	2.00	1.00
Final Sat.:	2992	3400	1598	2992	3400	1598	1598	5100	1598	1598	3400	1598

Capacity Analysis Module:

Vol/Sat:	0.06	0.26	0.16	0.17	0.33	0.07	0.12	0.22	0.16	0.14	0.13	0.14
Crit Moves:	****	****	****	****	****	****	****	****	****	****	****	****

Traffix 8.0.0715 (c) 2008 Dowling Assoc. Licensed to LSA ASSOC. IRVINE, CA

HCM 6th TWSC North Fairview Bridge Widening Improvement Project (WKE1702)
2: N Fairview Street & W 16th Street 01/23/2018

Intersection						
Int Delay, s/veh	1.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔		↔	↕↕	↕↕	↕
Traffic Vol, veh/h	9	103	1	1334	1615	1
Future Vol, veh/h	9	103	1	1334	1615	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	0	-	50	-	-	65
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	113	1	1466	1775	1

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	2510	888	1776
Stage 1	1775	-	-
Stage 2	735	-	-
Critical Hdwy	6.84	6.94	4.14
Critical Hdwy Stg 1	5.84	-	-
Critical Hdwy Stg 2	5.84	-	-
Follow-up Hdwy	3.52	3.32	2.22
Pot Cap-1 Maneuver	23	287	346
Stage 1	121	-	-
Stage 2	435	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	23	287	346
Mov Cap-2 Maneuver	111	-	-
Stage 1	121	-	-
Stage 2	435	-	-

Approach	EB	NB	SB
HCM Control Delay, s	31.6	0	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT EBLn1	SBT	SBR
Capacity (veh/h)	346	-	255	-
HCM Lane V/C Ratio	0.003	-	0.483	-
HCM Control Delay (s)	15.4	-	31.6	-
HCM Lane LOS	C	-	D	-
HCM 95th %tile Q(veh)	0	-	2.4	-

5:00 pm 01/23/2018 Existing - AM Peak Hour
LSA - DL

Synchro 10 Report
Page 1

HCM 6th TWSC North Fairview Bridge Widening Improvement Project (WKE1702)
3: N Fairview Street & W 12th Street 01/23/2018

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔		↔	↔↔	↔↔	↔
Traffic Vol, veh/h	4	14	6	1351	1692	2
Future Vol, veh/h	4	14	6	1351	1692	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	25	-	-	110
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	15	6	1407	1763	2

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	2479	882	1765
Stage 1	1763	-	-
Stage 2	716	-	-
Critical Hdwy	6.84	6.94	4.14
Critical Hdwy Stg 1	5.84	-	-
Critical Hdwy Stg 2	5.84	-	-
Follow-up Hdwy	3.52	3.32	2.22
Pot Cap-1 Maneuver	24	289	350
Stage 1	123	-	-
Stage 2	445	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	24	289	350
Mov Cap-2 Maneuver	94	-	-
Stage 1	121	-	-
Stage 2	445	-	-

Approach	EB	NB	SB
HCM Control Delay, s	25.1	0.1	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	350	-	198	-	-
HCM Lane V/C Ratio	0.018	-	0.095	-	-
HCM Control Delay (s)	15.5	-	25.1	-	-
HCM Lane LOS	C	-	D	-	-
HCM 95th %tile Q(veh)	0.1	-	0.3	-	-

HCM 6th TWSC North Fairview Bridge Widening Improvement Project (WKE1702)
4: N Fairview Street & W 9th Street 01/23/2018

Intersection												
Int Delay, s/veh	6.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↔	↔↔		↔	↔↔	↔
Traffic Vol, veh/h	6	3	52	3	1	20	30	1339	34	61	1636	11
Future Vol, veh/h	6	3	52	3	1	20	30	1339	34	61	1636	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	55	-	-	95	-	145
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	3	53	3	1	20	31	1366	35	62	1669	11

Major/Minor	Minor2	Minor1	Major1	Major2
Conflicting Flow All	2402	3256	835	2406
Stage 1	1793	1793	-	1446
Stage 2	609	1463	-	960
Critical Hdwy	6.99	6.54	6.94	6.99
Critical Hdwy Stg 1	6.54	5.54	-	7.34
Critical Hdwy Stg 2	6.74	5.54	-	6.54
Follow-up Hdwy	3.67	4.02	3.32	3.67
Pot Cap-1 Maneuver	25	9	311	25
Stage 1	82	131	-	98
Stage 2	421	191	-	269
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	16	6	311	10
Mov Cap-2 Maneuver	16	6	-	10
Stage 1	75	98	-	90
Stage 2	360	175	-	162

Approach	EB	WB	NB	SB
HCM Control Delay, s	249	156	0.3	0.9
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	377	-	-	59	45	249	-	-
HCM Lane V/C Ratio	0.081	-	-	1.055	0.544	0.25	-	-
HCM Control Delay (s)	15.4	-	-	249	156	24.2	-	-
HCM Lane LOS	C	-	-	F	F	C	-	-
HCM 95th %tile Q(veh)	0.3	-	-	5	2	1	-	-

North Fairview Bridge Widening Improvement Project (WKE1702)
Existing Conditions
AM Peak Hour

```

-----
Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)
*****
Intersection #5 Fairview Street (NS) / West Civic Center Drive (EW)
*****
Cycle (sec):      100          Critical Vol./Cap.(X):      0.642
Loss Time (sec):   5           Average Delay (sec/veh):      xxxxxx
Optimal Cycle:     32          Level Of Service:           B
*****
Street Name:      Fairview Street      West Civic Center Drive
Approach:         North Bound      South Bound      East Bound      West Bound
Movement:         L - T - R      L - T - R      L - T - R      L - T - R
-----
Control:          Protected      Protected      Split Phase      Split Phase
Rights:           Include      Include      Include      Include
Min. Green:       0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Y+R:             4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0
Lanes:           1 0 2 1 0 1 0 2 1 0 0 1 0 0 1 1
-----
Volume Module:
Base Vol:         8 1253 407 257 1434 12 5 18 7 280 6 148
Growth Adj:      1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse:      8 1253 407 257 1434 12 5 18 7 280 6 148
User Adj:        1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj:         1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Volume:      8 1253 407 257 1434 12 5 18 7 280 6 148
Reduct Vol:      0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol:     8 1253 407 257 1434 12 5 18 7 280 6 148
PCE Adj:         1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj:         1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
FinalVolume:     8 1253 407 257 1434 12 5 18 7 280 6 148
-----
Saturation Flow Module:
Sat/Lane:        1700 1700 1700 1700 1700 1700 1700 1700 1700 1700
Adjustment:      0.94 1.00 1.00 0.94 1.00 1.00 1.00 1.00 0.94 0.97 1.00 0.94
Lanes:           1.00 2.26 0.74 1.00 2.98 0.02 0.22 0.78 1.00 1.96 0.04 1.00
Final Sat.:      1598 3850 1250 1598 5058 42 370 1330 1598 3227 71 1598
-----
Capacity Analysis Module:
Vol/Sat:         0.01 0.33 0.33 0.16 0.28 0.28 0.01 0.01 0.00 0.09 0.08 0.09
Crit Moves:      ****          ****          ****          ****
*****

```

North Fairview Bridge Widening Improvement Project (WKE1702)
Existing Conditions
PM Peak Hour

```

-----
Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)
*****
Intersection #1 Fairview Street (NS) / West 17th Street (EW)
*****
Cycle (sec):      100          Critical Vol./Cap.(X):      0.902
Loss Time (sec):   5           Average Delay (sec/veh):      xxxxxx
Optimal Cycle:     88          Level Of Service:           E
*****
Street Name:      Fairview Street      West 17th Street
Approach:         North Bound      South Bound      East Bound      West Bound
Movement:         L - T - R      L - T - R      L - T - R      L - T - R
-----
Control:          Protected      Protected      Protected      Protected
Rights:           Include      Include      Include      Include
Min. Green:       0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Y+R:             4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0
Lanes:           2 0 2 0 1 2 0 2 0 1 1 0 3 0 1 1 0 2 1 0
-----
Volume Module:
Base Vol:        299 1065 125 337 996 128 236 821 233 207 1035 385
Growth Adj:      1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse:      299 1065 125 337 996 128 236 821 233 207 1035 385
User Adj:        1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj:         1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Volume:      299 1065 125 337 996 128 236 821 233 207 1035 385
Reduct Vol:      0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol:     299 1065 125 337 996 128 236 821 233 207 1035 385
PCE Adj:         1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj:         1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
FinalVolume:     299 1065 125 337 996 128 236 821 233 207 1035 385
-----
Saturation Flow Module:
Sat/Lane:        1700 1700 1700 1700 1700 1700 1700 1700 1700 1700
Adjustment:      0.88 1.00 0.94 0.88 1.00 0.94 0.94 1.00 0.94 0.94 1.00 1.00
Lanes:           2.00 2.00 1.00 2.00 2.00 1.00 1.00 3.00 1.00 1.00 2.19 0.81
Final Sat.:      2992 3400 1598 2992 3400 1598 1598 5100 1598 1598 3717 1383
-----
Capacity Analysis Module:
Vol/Sat:         0.10 0.31 0.08 0.11 0.29 0.08 0.15 0.16 0.15 0.13 0.28 0.28
Crit Moves:      ****          ****          ****          ****
*****

```

HCM 6th TWSC North Fairview Bridge Widening Improvement Project (WKE1702)
2: N Fairview Street & W 16th Street 01/24/2018

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W		W	W	W	W
Traffic Vol, veh/h	5	21	9	1512	1537	11
Future Vol, veh/h	5	21	9	1512	1537	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	65
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	99	99	99	99	99	99
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	21	9	1527	1553	11

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	2335	777	1564
Stage 1	1553	-	-
Stage 2	782	-	-
Critical Hdwy	6.84	6.94	4.14
Critical Hdwy Stg 1	5.84	-	-
Critical Hdwy Stg 2	5.84	-	-
Follow-up Hdwy	3.52	3.32	2.22
Pot Cap-1 Maneuver	31	340	418
Stage 1	160	-	-
Stage 2	411	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	30	340	418
Mov Cap-2 Maneuver	139	-	-
Stage 1	156	-	-
Stage 2	411	-	-

Approach	EB	NB	SB
HCM Control Delay, s	20	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	418	-	266	-	-
HCM Lane V/C Ratio	0.022	-	0.099	-	-
HCM Control Delay (s)	13.8	-	20	-	-
HCM Lane LOS	B	-	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.3	-	-

HCM 6th TWSC North Fairview Bridge Widening Improvement Project (WKE1702)
3: N Fairview Street & W 12th Street 01/24/2018

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W		W	W	W	W
Traffic Vol, veh/h	2	9	12	1476	1439	8
Future Vol, veh/h	2	9	12	1476	1439	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	25	-	-	110
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	9	12	1506	1468	8

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	2245	734	1476
Stage 1	1468	-	-
Stage 2	777	-	-
Critical Hdwy	6.84	6.94	4.14
Critical Hdwy Stg 1	5.84	-	-
Critical Hdwy Stg 2	5.84	-	-
Follow-up Hdwy	3.52	3.32	2.22
Pot Cap-1 Maneuver	35	363	452
Stage 1	178	-	-
Stage 2	414	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	34	363	452
Mov Cap-2 Maneuver	123	-	-
Stage 1	173	-	-
Stage 2	414	-	-

Approach	EB	NB	SB
HCM Control Delay, s	19	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	452	-	268	-	-
HCM Lane V/C Ratio	0.027	-	0.042	-	-
HCM Control Delay (s)	13.2	-	19	-	-
HCM Lane LOS	B	-	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-

HCM 6th TWSC North Fairview Bridge Widening Improvement Project (WKE1702)
4: N Fairview Street & W 9th Street 01/24/2018

Intersection												
Int Delay, s/veh	0.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔ ↔ ↔ ↔ ↔ ↔ ↔ ↔ ↔ ↔ ↔ ↔											
Traffic Vol, veh/h	1	0	38	2	0	13	49	1444	66	25	1405	26
Future Vol, veh/h	1	0	38	2	0	13	49	1444	66	25	1405	26
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	55	-	-	95	-	145
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	0	39	2	0	13	50	1473	67	26	1434	27

Major/Minor	Minor2	Minor1	Major1	Major2
Conflicting Flow All	2175	3126	717	2376
Stage 1	1486	1486	-	1607
Stage 2	689	1640	-	769
Critical Hdwy	6.99	6.54	6.94	6.99
Critical Hdwy Stg 1	6.54	5.54	-	7.34
Critical Hdwy Stg 2	6.74	5.54	-	6.54
Follow-up Hdwy	3.67	4.02	3.32	3.67
Pot Cap-1 Maneuver	36	11	372	26
Stage 1	128	186	-	75
Stage 2	376	157	-	350
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	29	9	372	19
Mov Cap-2 Maneuver	29	9	-	19
Stage 1	114	163	-	67
Stage 2	320	140	-	275

Approach	EB	WB	NB	SB
HCM Control Delay, s	19.7	47.4	0.4	0.4
HCM LOS	C	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	458	-	-	285	100	213	-	-
HCM Lane V/C Ratio	0.109	-	-	0.14	0.153	0.12	-	-
HCM Control Delay (s)	13.8	-	-	19.7	47.4	24.2	-	-
HCM Lane LOS	B	-	-	C	E	C	-	-
HCM 95th %tile Q(veh)	0.4	-	-	0.5	0.5	0.4	-	-

ExPM	Thu Apr 26, 2018 17:36:09														Page 3-1										
North Fairview Bridge Widening Improvement Project (WKE1702)																									
Existing Conditions																									
PM Peak Hour																									

Level Of Service Computation Report																									
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)																									

Intersection #5 Fairview Street (NS) / West Civic Center Drive (EW)																									

Cycle (sec):		100		Critical Vol./Cap.(X):														0.640							
Loss Time (sec):		5		Average Delay (sec/veh):														xxxxxx							
Optimal Cycle:		32		Level Of Service:														B							

Street Name:		Fairview Street								West Civic Center Drive															
Approach:		North Bound				South Bound				East Bound				West Bound											
Movement:		L		T		R		L		T		R		L		T		R		L		T		R	

Control:		Protected				Protected				Split Phase				Split Phase											
Rights:		Include				Include				Include				Include											
Min. Green:		0		0		0		0		0		0		0		0		0		0		0		0	
Y+R:		4.0		4.0		4.0		4.0		4.0		4.0		4.0		4.0		4.0		4.0		4.0		4.0	
Lanes:		1		0		2		1		0		2		1		0		1		0		2		1	

Volume Module:																									
Base Vol:		10		1367		432		155		1290		1		1		3		4		453		2		184	
Growth Adj:		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00	
Initial Bse:		10		1367		432		155		1290		1		1		3		4		453		2		184	
User Adj:		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00	
PHF Adj:		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00	
PHF Volume:		10		1367		432		155		1290		1		1		3		4		453		2		184	
Reduct Vol:		0		0		0		0		0		0		0		0		0		0		0		0	
Reduced Vol:		10		1367		432		155		1290		1		1		3		4		453		2		184	
PCE Adj:		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00	
MLF Adj:		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00	
Final Volume:		10		1367		432		155		1290		1		1		3		4		453		2		184	

Saturation Flow Module:																									
Sat/Lane:		1700		1700		1700		1700		1700		1700		1700		1700		1700		1700		1700		1700	
Adjustment:		0.94		1.00		1.00		0.94		1.00		1.00		1.00		1.00		0.94		0.97		1.00		0.94	
Lanes:		1.00		2.28		0.72		1.00		2.99		0.01		0.25		0.75		1.00		1.99		0.01		1.00	
Final Sat.:		1598		3875		1225		1598		5096		4		425		1275		1598		3283		15		1598	

Capacity Analysis Module:																									
Vol/Sat:		0.01		0.35		0.35		0.10		0.25		0.25		0.00		0.00		0.00		0.14		0.13		0.12	
Crit Moves:		****				****				****				****				****				****			

2021 NP AM Thu Apr 26, 2018 17:16:30 Page 2-1

North Fairview Bridge Widening Improvement Project (WKE1702)
2021 No Project Conditions
AM Peak Hour

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #1 Fairview Street (NS) / West 17th Street (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.853
Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx
Optimal Cycle: 66 Level Of Service: D

Street Name: Fairview Street West 17th Street
Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Protected Protected
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0
Lanes: 2 0 2 0 1 2 0 2 0 1 1 0 3 0 1 1 0 2 1 0

Volume Module:
Base Vol: 179 953 250 548 1203 126 218 1080 248 205 432 240
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 179 953 250 548 1203 126 218 1080 248 205 432 240
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Volume: 179 953 250 548 1203 126 218 1080 248 205 432 240
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 179 953 250 548 1203 126 218 1080 248 205 432 240
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
FinalVolume: 179 953 250 548 1203 126 218 1080 248 205 432 240

Saturation Flow Module:
Sat/Lane: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700
Adjustment: 0.88 1.00 0.94 0.88 1.00 0.94 0.94 1.00 0.94 0.94 1.00 0.94
Lanes: 2.00 2.00 1.00 2.00 2.00 1.00 1.00 3.00 1.00 1.00 2.00 1.00
Final Sat.: 2992 3400 1598 2992 3400 1598 1598 5100 1598 1598 3400 1598

Capacity Analysis Module:
Vol/Sat: 0.06 0.28 0.16 0.18 0.35 0.08 0.14 0.21 0.16 0.13 0.13 0.15
Crit Moves: ****

Traffix 8.0.0715 (c) 2008 Dowling Assoc. Licensed to LSA ASSOC. IRVINE, CA

HCM 6th TWSC North Fairview Bridge Widening Improvement Project (WKE1702)
2: N Fairview Street & W 16th Street 04/26/2018

Intersection						
Int Delay, s/veh	1.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W		W	W	W	W
Traffic Vol, veh/h	9	103	1	1374	1658	1
Future Vol, veh/h	9	103	1	1374	1658	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	0	-	50	-	-	65
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	113	1	1510	1822	1

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	2579	911	1823
Stage 1	1822	-	-
Stage 2	757	-	-
Critical Hdwy	6.84	6.94	4.14
Critical Hdwy Stg 1	5.84	-	-
Critical Hdwy Stg 2	5.84	-	-
Follow-up Hdwy	3.52	3.32	2.22
Pot Cap-1 Maneuver	21	277	332
Stage 1	114	-	-
Stage 2	424	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	21	277	332
Mov Cap-2 Maneuver	104	-	-
Stage 1	114	-	-
Stage 2	424	-	-

Approach	EB	NB	SB
HCM Control Delay, s	33.9	0	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT EBLn1	SBT	SBR
Capacity (veh/h)	332	-	244	-
HCM Lane V/C Ratio	0.003	-	0.504	-
HCM Control Delay (s)	15.9	-	33.9	-
HCM Lane LOS	C	-	D	-
HCM 95th %tile Q(veh)	0	-	2.6	-

HCM 6th TWSC North Fairview Bridge Widening Improvement Project (WKE1702)
3: N Fairview Street & W 12th Street 04/26/2018

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔		↔	↕	↕	↕
Traffic Vol, veh/h	4	14	6	1391	1735	2
Future Vol, veh/h	4	14	6	1391	1735	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	25	-	-	110
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	15	6	1449	1807	2

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	2544	904	1809
Stage 1	1807	-	-
Stage 2	737	-	-
Critical Hdwy	6.84	6.94	4.14
Critical Hdwy Stg 1	5.84	-	-
Critical Hdwy Stg 2	5.84	-	-
Follow-up Hdwy	3.52	3.32	2.22
Pot Cap-1 Maneuver	22	280	336
Stage 1	116	-	-
Stage 2	434	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	22	280	336
Mov Cap-2 Maneuver	89	-	-
Stage 1	114	-	-
Stage 2	434	-	-

Approach	EB	NB	SB
HCM Control Delay, s	26	0.1	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	336	-	190	-	-
HCM Lane V/C Ratio	0.019	-	0.099	-	-
HCM Control Delay (s)	15.9	-	26	-	-
HCM Lane LOS	C	-	D	-	-
HCM 95th %tile Q(veh)	0.1	-	0.3	-	-

HCM 6th TWSC North Fairview Bridge Widening Improvement Project (WKE1702)
4: N Fairview Street & W 9th Street 04/26/2018

Intersection												
Int Delay, s/veh	8.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕	↕	↕	↕	↕
Traffic Vol, veh/h	6	3	52	3	1	20	30	1379	34	61	1679	11
Future Vol, veh/h	6	3	52	3	1	20	30	1379	34	61	1679	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	55	-	-	95	-	145
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	3	53	3	1	20	31	1407	35	62	1713	11

Major/Minor	Minor2	Minor1	Major1	Major2
Conflicting Flow All	2462	3341	857	2469
Stage 1	1837	1837	-	1487
Stage 2	625	1504	-	982
Critical Hdwy	6.99	6.54	6.94	6.99
Critical Hdwy Stg 1	6.54	5.54	-	7.34
Critical Hdwy Stg 2	6.74	5.54	-	6.54
Follow-up Hdwy	3.67	4.02	3.32	3.67
Pot Cap-1 Maneuver	22	8	301	22
Stage 1	77	125	-	92
Stage 2	412	183	-	261
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	13	5	301	7
Mov Cap-2 Maneuver	13	5	-	7
Stage 1	70	92	-	84
Stage 2	350	167	-	154

Approach	EB	WB	NB	SB
HCM Control Delay, s	353.1	232.5	0.3	0.9
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	363	-	-	49	35	238	-	-
HCM Lane V/C Ratio	0.084	-	-	1.27	0.7	0.262	-	-
HCM Control Delay (s)	15.8	-	-	353.1	232.5	25.4	-	-
HCM Lane LOS	C	-	-	F	F	D	-	-
HCM 95th %tile Q(veh)	0.3	-	-	5.7	2.4	1	-	-

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

2021 NP AM Thu Apr 26, 2018 17:16:30 Page 3-1

North Fairview Bridge Widening Improvement Project (WKE1702)
2021 No Project Conditions
AM Peak Hour

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #5 Fairview Street (NS) / West Civic Center Drive (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.664
Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx
Optimal Cycle: 34 Level Of Service: B

Street Name:	Fairview Street				West Civic Center Drive				
Approach:	North Bound		South Bound		East Bound		West Bound		
Movement:	L	T	R	L	T	R	L	T	R
Control:	Protected		Protected		Split Phase		Split Phase		
Rights:	Include		Include		Include		Include		
Min. Green:	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0	2	1	0	1	0	0	1

Volume Module:

Base Vol:	8	1287	403	274	1453	12	5	18	7	271	6	156
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	8	1287	403	274	1453	12	5	18	7	271	6	156
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	8	1287	403	274	1453	12	5	18	7	271	6	156
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	8	1287	403	274	1453	12	5	18	7	271	6	156
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	8	1287	403	274	1453	12	5	18	7	271	6	156

Saturation Flow Module:

Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	0.94	1.00	1.00	0.94	1.00	1.00	1.00	1.00	0.94	0.97	1.00	0.94
Lanes:	1.00	2.28	0.72	1.00	2.98	0.02	0.22	0.78	1.00	1.96	0.04	1.00
Final Sat.:	1598	3884	1216	1598	5058	42	370	1330	1598	3224	74	1598

Capacity Analysis Module:

Vol/Sat:	0.01	0.33	0.33	0.17	0.29	0.29	0.01	0.01	0.00	0.08	0.08	0.10
Crit Moves:	****	****	****	****	****	****	****	****	****	****	****	****

2021 NP PM Thu Apr 26, 2018 17:17:20 Page 2-1

North Fairview Bridge Widening Improvement Project (WKE1702)
2021 No Project Conditions
PM Peak Hour

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #1 Fairview Street (NS) / West 17th Street (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.954
Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx
Optimal Cycle: 135 Level Of Service: E

Street Name:	Fairview Street				West 17th Street				
Approach:	North Bound		South Bound		East Bound		West Bound		
Movement:	L	T	R	L	T	R	L	T	R
Control:	Protected		Protected		Protected		Protected		
Rights:	Include		Include		Include		Include		
Min. Green:	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	2	0	2	0	1	2	0	2	0

Volume Module:

Base Vol:	291	1130	118	362	1058	146	268	804	227	196	1025	418
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	291	1130	118	362	1058	146	268	804	227	196	1025	418
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	291	1130	118	362	1058	146	268	804	227	196	1025	418
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	291	1130	118	362	1058	146	268	804	227	196	1025	418
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	291	1130	118	362	1058	146	268	804	227	196	1025	418

Saturation Flow Module:

Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	0.88	1.00	0.94	0.88	1.00	0.94	0.94	1.00	0.94	0.94	1.00	1.00
Lanes:	2.00	2.00	1.00	2.00	2.00	1.00	1.00	3.00	1.00	1.00	2.13	0.87
Final Sat.:	2992	3400	1598	2992	3400	1598	1598	5100	1598	1598	3623	1477

Capacity Analysis Module:

Vol/Sat:	0.10	0.33	0.07	0.12	0.31	0.09	0.17	0.16	0.14	0.12	0.28	0.28
Crit Moves:	****	****	****	****	****	****	****	****	****	****	****	****

HCM 6th TWSC North Fairview Bridge Widening Improvement Project (WKE1702)
2: N Fairview Street & W 16th Street 04/26/2018

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W		W	↑↑	↑↑	↑
Traffic Vol, veh/h	5	21	9	1562	1582	11
Future Vol, veh/h	5	21	9	1562	1582	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	65
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	99	99	99	99	99	99
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	21	9	1578	1598	11

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	2405	799	1609
Stage 1	1598	-	-
Stage 2	807	-	-
Critical Hdwy	6.84	6.94	4.14
Critical Hdwy Stg 1	5.84	-	-
Critical Hdwy Stg 2	5.84	-	-
Follow-up Hdwy	3.52	3.32	2.22
Pot Cap-1 Maneuver	28	328	402
Stage 1	151	-	-
Stage 2	399	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	27	328	402
Mov Cap-2 Maneuver	132	-	-
Stage 1	148	-	-
Stage 2	399	-	-

Approach	EB	NB	SB
HCM Control Delay, s	20.7	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT EBLn1	SBT	SBR
Capacity (veh/h)	402	-	255	-
HCM Lane V/C Ratio	0.023	-	0.103	-
HCM Control Delay (s)	14.2	-	20.7	-
HCM Lane LOS	B	-	C	-
HCM 95th %tile Q(veh)	0.1	-	0.3	-

HCM 6th TWSC North Fairview Bridge Widening Improvement Project (WKE1702)
3: N Fairview Street & W 12th Street 04/26/2018

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W		W	↑↑	↑↑	↑
Traffic Vol, veh/h	2	9	12	1526	1484	8
Future Vol, veh/h	2	9	12	1526	1484	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	25	-	-	110
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	9	12	1557	1514	8

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	2317	757	1522
Stage 1	1514	-	-
Stage 2	803	-	-
Critical Hdwy	6.84	6.94	4.14
Critical Hdwy Stg 1	5.84	-	-
Critical Hdwy Stg 2	5.84	-	-
Follow-up Hdwy	3.52	3.32	2.22
Pot Cap-1 Maneuver	32	350	434
Stage 1	168	-	-
Stage 2	401	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	31	350	434
Mov Cap-2 Maneuver	116	-	-
Stage 1	163	-	-
Stage 2	401	-	-

Approach	EB	NB	SB
HCM Control Delay, s	19.7	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT EBLn1	SBT	SBR
Capacity (veh/h)	434	-	256	-
HCM Lane V/C Ratio	0.028	-	0.044	-
HCM Control Delay (s)	13.5	-	19.7	-
HCM Lane LOS	B	-	C	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-

HCM 6th TWSC North Fairview Bridge Widening Improvement Project (WKE1702)
4: N Fairview Street & W 9th Street 04/26/2018

Intersection												
Int Delay, s/veh	0.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔ ↔ ↔ ↔ ↔ ↔ ↔ ↔ ↔ ↔ ↔ ↔											
Traffic Vol, veh/h	1	0	38	2	0	13	49	1494	66	25	1450	26
Future Vol, veh/h	1	0	38	2	0	13	49	1494	66	25	1450	26
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	55	-	-	95	-	145
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	0	39	2	0	13	50	1524	67	26	1480	27

Major/Minor	Minor2	Minor1	Major1	Major2
Conflicting Flow All	2242	3223	740	2450
Stage 1	1532	1532	-	1658
Stage 2	710	1691	-	792
Critical Hdwy	6.99	6.54	6.94	6.99
Critical Hdwy Stg 1	6.54	5.54	-	7.34
Critical Hdwy Stg 2	6.74	5.54	-	6.54
Follow-up Hdwy	3.67	4.02	3.32	3.67
Pot Cap-1 Maneuver	32	9	359	23
Stage 1	120	177	-	69
Stage 2	365	148	-	339
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	25	7	359	17
Mov Cap-2 Maneuver	25	7	-	17
Stage 1	106	154	-	61
Stage 2	308	131	-	263

Approach	EB	WB	NB	SB
HCM Control Delay, s	20.8	51.8	0.4	0.4
HCM LOS	C	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	440	-	-	267	92	201	-	-
HCM Lane V/C Ratio	0.114	-	-	0.149	0.166	0.127	-	-
HCM Control Delay (s)	14.2	-	-	20.8	51.8	25.5	-	-
HCM Lane LOS	B	-	-	C	F	D	-	-
HCM 95th %tile Q(veh)	0.4	-	-	0.5	0.6	0.4	-	-

2021 NP PM	Fri Apr 27, 2018 12:57:39	Page 3-1
North Fairview Bridge Widening Improvement Project (WKE1702)		
2021 No Project Conditions		
PM Peak Hour		
Level Of Service Computation Report		
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)		
Intersection #5 Fairview Street (NS) / West Civic Center Drive (EW)		
Cycle (sec): 100 Critical Vol./Cap.(X): 0.651		
Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx		
Optimal Cycle: 33 Level Of Service: B		
Street Name: Fairview Street West Civic Center Drive		
Approach: North Bound South Bound East Bound West Bound		
Movement: L - T - R L - T - R L - T - R L - T - R		
Control: Protected Protected Split Phase Split Phase		
Rights: Include Include Include Include		
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0		
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0		
Lanes: 1 0 2 1 0 1 0 2 1 0 0 1 0 0 1		
Volume Module:		
Base Vol: 10 1394 430 157 1332 1 1 3 4 469 2 193		
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00		
Initial Bse: 10 1394 430 157 1332 1 1 3 4 469 2 193		
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00		
PHF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00		
PHF Volume: 10 1394 430 157 1332 1 1 3 4 469 2 193		
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0		
Reduced Vol: 10 1394 430 157 1332 1 1 3 4 469 2 193		
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00		
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00		
FinalVolume: 10 1394 430 157 1332 1 1 3 4 469 2 193		
Saturation Flow Module:		
Sat/Lane: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700		
Adjustment: 0.94 1.00 1.00 0.94 1.00 1.00 1.00 1.00 0.94 0.97 1.00 0.94		
Lanes: 1.00 2.29 0.71 1.00 2.99 0.01 0.25 0.75 1.00 1.99 0.01 1.00		
Final Sat.: 1598 3898 1202 1598 5096 4 425 1275 1598 3284 14 1598		
Capacity Analysis Module:		
Vol/Sat: 0.01 0.36 0.36 0.10 0.26 0.26 0.00 0.00 0.00 0.14 0.14 0.12		
Crit Moves: **** **** **** ****		

2021 WP AM Thu Apr 26, 2018 17:24:58 Page 2-1

North Fairview Bridge Widening Improvement Project (WKE1702)
2021 With Project Conditions
AM Peak Hour

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #1 Fairview Street (NS) / West 17th Street (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.860
Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx
Optimal Cycle: 68 Level Of Service: D

Street Name: Fairview Street West 17th Street
Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Protected Protected
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0
Lanes: 2 0 2 0 1 2 0 2 0 1 1 0 3 0 1 1 0 2 1 0

Volume Module:
Base Vol: 185 975 259 533 1238 120 211 1081 258 213 431 234
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 185 975 259 533 1238 120 211 1081 258 213 431 234
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Volume: 185 975 259 533 1238 120 211 1081 258 213 431 234
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 185 975 259 533 1238 120 211 1081 258 213 431 234
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
FinalVolume: 185 975 259 533 1238 120 211 1081 258 213 431 234

Saturation Flow Module:
Sat/Lane: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700
Adjustment: 0.88 1.00 0.94 0.88 1.00 0.94 0.94 1.00 0.94 0.94 1.00 0.94
Lanes: 2.00 2.00 1.00 2.00 2.00 1.00 1.00 3.00 1.00 1.00 2.00 1.00
Final Sat.: 2992 3400 1598 2992 3400 1598 1598 5100 1598 1598 3400 1598

Capacity Analysis Module:
Vol/Sat: 0.06 0.29 0.16 0.18 0.36 0.08 0.13 0.21 0.16 0.13 0.13 0.15
Crit Moves: **** **** **** ****

Traffix 8.0.0715 (c) 2008 Dowling Assoc. Licensed to LSA ASSOC. IRVINE, CA

HCM 6th TWSC North Fairview Bridge Widening Improvement Project (WKE1702)
2: N Fairview Street & W 16th Street 04/26/2018

Intersection						
Int Delay, s/veh	2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W		W	W	W	W
Traffic Vol, veh/h	9	103	7	1411	1711	1
Future Vol, veh/h	9	103	7	1411	1711	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	0	-	50	-	-	-
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	113	8	1551	1880	1

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	2517	941	1881
Stage 1	1881	-	-
Stage 2	636	-	-
Critical Hdwy	5.74	7.14	5.34
Critical Hdwy Stg 1	6.64	-	-
Critical Hdwy Stg 2	6.04	-	-
Follow-up Hdwy	3.82	3.92	3.12
Pot Cap-1 Maneuver	49	227	144
Stage 1	68	-	-
Stage 2	446	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	46	227	144
Mov Cap-2 Maneuver	61	-	-
Stage 1	64	-	-
Stage 2	446	-	-

Approach	EB	NB	SB
HCM Control Delay, s	55.7	0.2	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT EBLn1	SBT	SBR
Capacity (veh/h)	144	-	186	-
HCM Lane V/C Ratio	0.053	-	0.662	-
HCM Control Delay (s)	31.4	-	55.7	-
HCM Lane LOS	D	-	F	-
HCM 95th %tile Q(veh)	0.2	-	3.9	-

HCM 6th TWSC North Fairview Bridge Widening Improvement Project (WKE1702)
3: N Fairview Street & W 12th Street 04/26/2018

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↗↗↗↗	↘↘↘↘	
Traffic Vol, veh/h	0	18	0	1438	1788	8
Future Vol, veh/h	0	18	0	1438	1788	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	19	0	1498	1863	8

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	- 936	- 0	- 0
Stage 1	- -	- -	- -
Stage 2	- -	- -	- -
Critical Hdwy	- 7.14	- -	- -
Critical Hdwy Stg 1	- -	- -	- -
Critical Hdwy Stg 2	- -	- -	- -
Follow-up Hdwy	- 3.92	- -	- -
Pot Cap-1 Maneuver	0 229	0 -	- -
Stage 1	0 -	0 -	- -
Stage 2	0 -	0 -	- -
Platoon blocked, %	- -	- -	- -
Mov Cap-1 Maneuver	- 229	- -	- -
Mov Cap-2 Maneuver	- -	- -	- -
Stage 1	- -	- -	- -
Stage 2	- -	- -	- -

Approach	EB	NB	SB
HCM Control Delay, s	22.1	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT EBLn1	SBT	SBR
Capacity (veh/h)	- 229	- -	- -
HCM Lane V/C Ratio	- 0.082	- -	- -
HCM Control Delay (s)	- 22.1	- -	- -
HCM Lane LOS	- C	- -	- -
HCM 95th %tile Q(veh)	- 0.3	- -	- -

HCM 6th TWSC North Fairview Bridge Widening Improvement Project (WKE1702)
4: N Fairview Street & W 9th Street 04/26/2018

Intersection												
Int Delay, s/veh	9.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↗↗↗↗	↘↘↘↘		↗↗↗↗	↘↘↘↘	
Traffic Vol, veh/h	6	3	52	3	1	20	30	1420	34	61	1736	11
Future Vol, veh/h	6	3	52	3	1	20	30	1420	34	61	1736	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	55	-	-	95	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	3	53	3	1	20	31	1449	35	62	1771	11

Major/Minor	Minor2	Minor1	Major1	Major2
Conflicting Flow All	2543 3447 891 2363 3435 742 1782	0 0 1484	0 0	0 0
Stage 1	1901 1901 - 1529 1529 - - -	- - -	- - -	- - -
Stage 2	642 1546 - 834 1906 - - -	- - -	- - -	- - -
Critical Hdwy	6.44 6.54 7.14 6.44 6.54 7.14 5.34	- - 5.34	- -	- -
Critical Hdwy Stg 1	7.34 5.54 - 7.34 5.54 - - -	- - -	- - -	- - -
Critical Hdwy Stg 2	6.74 5.54 - 6.74 5.54 - - -	- - -	- - -	- - -
Follow-up Hdwy	3.82 4.02 3.92 3.82 4.02 3.92 3.12	- - 3.12	- -	- -
Pot Cap-1 Maneuver	29 7 245 38 7 307 161	- - 227	- -	- -
Stage 1	45 116 - 84 178 - - -	- - -	- - -	- - -
Stage 2	391 174 - 298 115 - - -	- - -	- - -	- - -
Platoon blocked, %	- - -	- - -	- - -	- - -
Mov Cap-1 Maneuver	15 4 245 8 4 307 161	- - 227	- -	- -
Mov Cap-2 Maneuver	15 4 - 8 4 - - -	- - -	- - -	- - -
Stage 1	36 84 - 68 144 - - -	- - -	- - -	- - -
Stage 2	293 140 - 164 84 - - -	- - -	- - -	- - -

Approach	EB	WB	NB	SB
HCM Control Delay, s	\$ 410.5	232.5	0.7	0.9
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	161	- -	45 35 227	- -	- -	- -
HCM Lane V/C Ratio	0.19	- -	1.383 0.7 0.274	- -	- -	- -
HCM Control Delay (s)	32.5	- -	\$ 410.5 232.5 26.7	- -	- -	- -
HCM Lane LOS	D	- -	F F D	- -	- -	- -
HCM 95th %tile Q(veh)	0.7	- -	6 2.4 1.1	- -	- -	- -

Notes
 -: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

2021 WP AM Thu Apr 26, 2018 17:24:58 Page 3-1

North Fairview Bridge Widening Improvement Project (WKE1702)
2021 With Project Conditions
AM Peak Hour

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #5 Fairview Street (NS) / West Civic Center Drive (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.691
Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx
Optimal Cycle: 36 Level Of Service: B

Street Name: Fairview Street West Civic Center Drive
Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Split Phase Split Phase
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0
Lanes: 1 0 2 1 0 1 0 2 1 0 0 1 0 0 1 1 1 0 0 1

Volume Module:
Base Vol: 13 1313 391 304 1479 12 5 18 7 261 6 165
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 13 1313 391 304 1479 12 5 18 7 261 6 165
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Volume: 13 1313 391 304 1479 12 5 18 7 261 6 165
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 13 1313 391 304 1479 12 5 18 7 261 6 165
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
FinalVolume: 13 1313 391 304 1479 12 5 18 7 261 6 165

Saturation Flow Module:
Sat/Lane: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700
Adjustment: 0.94 1.00 1.00 0.94 1.00 1.00 1.00 1.00 0.94 0.97 1.00 0.94
Lanes: 1.00 2.31 0.69 1.00 2.98 0.02 0.22 0.78 1.00 1.96 0.04 1.00
Final Sat.: 1598 3930 1170 1598 5059 41 370 1330 1598 3222 76 1598

Capacity Analysis Module:
Vol/Sat: 0.01 0.33 0.33 0.19 0.29 0.29 0.01 0.01 0.00 0.08 0.08 0.10
Crit Moves: ****

2021 WP PM Thu Apr 26, 2018 18:16:49 Page 2-1

North Fairview Bridge Widening Improvement Project (WKE1702)
2021 With Project Conditions
PM Peak Hour

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #1 Fairview Street (NS) / West 17th Street (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.948
Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx
Optimal Cycle: 127 Level Of Service: E

Street Name: Fairview Street West 17th Street
Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Protected Protected
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0
Lanes: 2 0 2 0 1 2 0 2 0 1 1 0 3 0 1 1 0 2 1 0

Volume Module:
Base Vol: 303 1161 124 355 1075 139 253 805 233 204 1020 405
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 303 1161 124 355 1075 139 253 805 233 204 1020 405
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Volume: 303 1161 124 355 1075 139 253 805 233 204 1020 405
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 303 1161 124 355 1075 139 253 805 233 204 1020 405
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
FinalVolume: 303 1161 124 355 1075 139 253 805 233 204 1020 405

Saturation Flow Module:
Sat/Lane: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700
Adjustment: 0.88 1.00 0.94 0.88 1.00 0.94 0.94 1.00 0.94 0.94 1.00 1.00
Lanes: 2.00 2.00 1.00 2.00 2.00 1.00 1.00 3.00 1.00 1.00 2.15 0.85
Final Sat.: 2992 3400 1598 2992 3400 1598 1598 5100 1598 1598 3651 1449

Capacity Analysis Module:
Vol/Sat: 0.10 0.34 0.08 0.12 0.32 0.09 0.16 0.16 0.15 0.13 0.28 0.28
Crit Moves: ****

HCM 6th TWSC North Fairview Bridge Widening Improvement Project (WKE1702)
2: N Fairview Street & W 16th Street 04/26/2018

Intersection						
Int Delay, s/veh	0.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W		W	W	W	W
Traffic Vol, veh/h	5	21	21	1611	1613	11
Future Vol, veh/h	5	21	21	1611	1613	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	-
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	99	99	99	99	99	99
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	21	21	1627	1629	11

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	2328	820	1640
Stage 1	1635	-	-
Stage 2	693	-	-
Critical Hdwy	5.74	7.14	5.34
Critical Hdwy Stg 1	6.64	-	-
Critical Hdwy Stg 2	6.04	-	-
Follow-up Hdwy	3.82	3.92	3.12
Pot Cap-1 Maneuver	62	273	190
Stage 1	97	-	-
Stage 2	416	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	55	273	190
Mov Cap-2 Maneuver	81	-	-
Stage 1	86	-	-
Stage 2	416	-	-

Approach	EB	NB	SB
HCM Control Delay, s	27.2	0.3	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT EBLn1	SBT	SBR
Capacity (veh/h)	190	-	188	-
HCM Lane V/C Ratio	0.112	-	0.14	-
HCM Control Delay (s)	26.3	-	27.2	-
HCM Lane LOS	D	-	D	-
HCM 95th %tile Q(veh)	0.4	-	0.5	-

HCM 6th TWSC North Fairview Bridge Widening Improvement Project (WKE1702)
3: N Fairview Street & W 12th Street 04/26/2018

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations			W	W	W	W
Traffic Vol, veh/h	0	11	0	1589	1515	20
Future Vol, veh/h	0	11	0	1589	1515	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	11	0	1621	1546	20

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	-	783	-
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	7.14	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	3.92	-
Pot Cap-1 Maneuver	0	289	0
Stage 1	0	-	0
Stage 2	0	-	0
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	289	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	18	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT EBLn1	SBT	SBR
Capacity (veh/h)	-	289	-
HCM Lane V/C Ratio	-	0.039	-
HCM Control Delay (s)	-	18	-
HCM Lane LOS	-	C	-
HCM 95th %tile Q(veh)	-	0.1	-

HCM 6th TWSC North Fairview Bridge Widening Improvement Project (WKE1702)
4: N Fairview Street & W 9th Street 04/26/2018

Intersection												
Int Delay, s/veh	1.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔			↔			↔ ↔ ↔			↔ ↔ ↔		
Traffic Vol, veh/h	1	0	38	2	0	13	49	1545	66	25	1483	26
Future Vol, veh/h	1	0	38	2	0	13	49	1545	66	25	1483	26
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	55	-	-	95	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	0	39	2	0	13	50	1577	67	26	1513	27

Major/Minor	Minor2	Minor1	Major1	Major2
Conflicting Flow All	2310	3323	770	2368
Stage 1	1579	1579	-	1711
Stage 2	731	1744	-	657
Critical Hdwy	6.44	6.54	7.14	6.44
Critical Hdwy Stg 1	7.34	5.54	-	7.34
Critical Hdwy Stg 2	6.74	5.54	-	6.74
Follow-up Hdwy	3.82	4.02	3.92	3.82
Pot Cap-1 Maneuver	41	8	295	37
Stage 1	78	168	-	62
Stage 2	345	139	-	383
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	29	5	295	24
Mov Cap-2 Maneuver	29	5	-	24
Stage 1	60	145	-	47
Stage 2	251	106	-	287

Approach	EB	WB	NB	SB
HCM Control Delay, s	23	41.4	0.8	0.4
HCM LOS	C	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	213	-	-	239	114	189	-	-
HCM Lane V/C Ratio	0.235	-	-	0.167	0.134	0.135	-	-
HCM Control Delay (s)	27	-	-	23	41.4	27	-	-
HCM Lane LOS	D	-	-	C	E	D	-	-
HCM 95th %tile Q(veh)	0.9	-	-	0.6	0.4	0.5	-	-

2021 WP PM	Thu Apr 26, 2018 18:16:50	Page 3-1
North Fairview Bridge Widening Improvement Project (WKE1702) 2021 With Project Conditions PM Peak Hour		
Level Of Service Computation Report		
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)		
Intersection #5 Fairview Street (NS) / West Civic Center Drive (EW)		
Cycle (sec):	100	Critical Vol./Cap.(X): 0.665
Loss Time (sec):	5	Average Delay (sec/veh): xxxxxx
Optimal Cycle:	34	Level Of Service: B
Street Name: Fairview Street West Civic Center Drive		
Approach: North Bound South Bound East Bound West Bound		
Movement: L - T - R L - T - R L - T - R L - T - R		
Control:	Protected	Protected
Rights:	Include	Include
Min. Green:	0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0
Y+R:	4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0	4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0
Lanes:	1 0 2 1 0 1 0 2 1 0 0 1 0 0 1	1 1 0 0 1 1 1 0 0 1 1 1 0 0 1
Volume Module:		
Base Vol:	10 1445 417 172 1347 1 1 3 4 458 2 220	
Growth Adj:	1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00	
Initial Bse:	10 1445 417 172 1347 1 1 3 4 458 2 220	
User Adj:	1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00	
PHF Adj:	1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00	
PHF Volume:	10 1445 417 172 1347 1 1 3 4 458 2 220	
Reduct Vol:	0 0 0 0 0 0 0 0 0 0 0 0	
Reduced Vol:	10 1445 417 172 1347 1 1 3 4 458 2 220	
PCE Adj:	1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00	
MLF Adj:	1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00	
FinalVolume:	10 1445 417 172 1347 1 1 3 4 458 2 220	
Saturation Flow Module:		
Sat/Lane:	1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700	
Adjustment:	0.94 1.00 1.00 0.94 1.00 1.00 1.00 1.00 0.94 0.97 1.00 0.94	
Lanes:	1.00 2.33 0.67 1.00 2.99 0.01 0.25 0.75 1.00 1.99 0.01 1.00	
Final Sat.:	1598 3958 1142 1598 5096 4 425 1275 1598 3283 15 1598	
Capacity Analysis Module:		
Vol/Sat:	0.01 0.37 0.37 0.11 0.26 0.26 0.00 0.00 0.00 0.14 0.14 0.14	
Crit Moves:	**** **** **** ****	

2040 NP AM Thu Apr 26, 2018 17:36:35 Page 2-1

North Fairview Bridge Widening Improvement Project (WKE1702)
2040 No Project Conditions
AM Peak Hour

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #1 Fairview Street (NS) / West 17th Street (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 1.071
Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx
Optimal Cycle: 180 Level Of Service: F

Street Name: Fairview Street West 17th Street
Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	2	0	2	0	2	0	1	0	3	0	1	0

Volume Module:

Base Vol:	154	1230	187	755	1517	195	330	968	202	145	387	321
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	154	1230	187	755	1517	195	330	968	202	145	387	321
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	154	1230	187	755	1517	195	330	968	202	145	387	321
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	154	1230	187	755	1517	195	330	968	202	145	387	321
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Volume:	154	1230	187	755	1517	195	330	968	202	145	387	321

Saturation Flow Module:

Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	0.88	1.00	0.94	0.88	1.00	0.94	0.94	1.00	0.94	0.94	1.00	0.94
Lanes:	2.00	2.00	1.00	2.00	2.00	1.00	1.00	3.00	1.00	1.00	2.00	1.00
Final Sat.:	2992	3400	1598	2992	3400	1598	1598	5100	1598	1598	3400	1598

Capacity Analysis Module:

Vol/Sat:	0.05	0.36	0.12	0.25	0.45	0.12	0.21	0.19	0.13	0.09	0.11	0.20
Crit Moves:	****	****	****	****	****	****	****	****	****	****	****	****

Traffix 8.0.0715 (c) 2008 Dowling Assoc. Licensed to LSA ASSOC. IRVINE, CA

HCM 6th TWSC North Fairview Bridge Widening Improvement Project (WKE1702)
2: N Fairview Street & W 16th Street 01/26/2018

Intersection						
Int Delay, s/veh	1.5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔		↔	↕↕	↕↕	↕
Traffic Vol, veh/h	9	103	1	1563	1866	1
Future Vol, veh/h	9	103	1	1563	1866	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	0	-	50	-	-	65
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	113	1	1718	2051	1

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	2912	1026	2052
Stage 1	2051	-	-
Stage 2	861	-	-
Critical Hdwy	6.84	6.94	4.14
Critical Hdwy Stg 1	5.84	-	-
Critical Hdwy Stg 2	5.84	-	-
Follow-up Hdwy	3.52	3.32	2.22
Pot Cap-1 Maneuver	12	232	270
Stage 1	85	-	-
Stage 2	374	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	12	232	270
Mov Cap-2 Maneuver	78	-	-
Stage 1	85	-	-
Stage 2	374	-	-

Approach	EB	NB	SB
HCM Control Delay, s	48.1	0	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT EBLn1	SBT	SBR
Capacity (veh/h)	270	-	200	-
HCM Lane V/C Ratio	0.004	-	0.615	-
HCM Control Delay (s)	18.4	-	48.1	-
HCM Lane LOS	C	-	E	-
HCM 95th %tile Q(veh)	0	-	3.5	-

5:00 pm 01/23/2018 2040 NP - AM Peak Hour
LSA - DL

Synchro 10 Report
Page 1

HCM 6th TWSC North Fairview Bridge Widening Improvement Project (WKE1702)
3: N Fairview Street & W 12th Street 01/26/2018

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔		↔	↕↕	↕↕	↕
Traffic Vol, veh/h	4	14	6	1580	1943	2
Future Vol, veh/h	4	14	6	1580	1943	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	25	-	-	110
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	15	6	1646	2024	2

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	2859	1012	2026
Stage 1	2024	-	-
Stage 2	835	-	-
Critical Hdwy	6.84	6.94	4.14
Critical Hdwy Stg 1	5.84	-	-
Critical Hdwy Stg 2	5.84	-	-
Follow-up Hdwy	3.52	3.32	2.22
Pot Cap-1 Maneuver	13	237	276
Stage 1	88	-	-
Stage 2	386	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	13	237	276
Mov Cap-2 Maneuver	67	-	-
Stage 1	86	-	-
Stage 2	386	-	-

Approach	EB	NB	SB
HCM Control Delay, s	32	0.1	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	276	-	152	-	-
HCM Lane V/C Ratio	0.023	-	0.123	-	-
HCM Control Delay (s)	18.3	-	32	-	-
HCM Lane LOS	C	-	D	-	-
HCM 95th %tile Q(veh)	0.1	-	0.4	-	-

HCM 6th TWSC North Fairview Bridge Widening Improvement Project (WKE1702)
4: N Fairview Street & W 9th Street 01/26/2018

Intersection												
Int Delay, s/veh	19.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕↕↕	↕↕↕		↕	↕↕	↕
Traffic Vol, veh/h	6	3	52	3	1	20	30	1568	34	61	1887	11
Future Vol, veh/h	6	3	52	3	1	20	30	1568	34	61	1887	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	55	-	-	95	-	145
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	3	53	3	1	20	31	1600	35	62	1926	11

Major/Minor	Minor2	Minor1	Major1	Major2
Conflicting Flow All	2753	3747	963	2769
Stage 1	2050	2050	-	1680
Stage 2	703	1697	-	1089
Critical Hdwy	6.99	6.54	6.94	6.99
Critical Hdwy Stg 1	6.54	5.54	-	7.34
Critical Hdwy Stg 2	6.74	5.54	-	6.54
Follow-up Hdwy	3.67	4.02	3.32	3.67
Pot Cap-1 Maneuver	14	4	256	14
Stage 1	56	97	-	67
Stage 2	368	147	-	225
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	~ 6	~ 2	256	-
Mov Cap-2 Maneuver	~ 6	~ 2	-	2
Stage 1	50	65	-	60
Stage 2	303	132	-	115

Approach	EB	WB	NB	SB
HCM Control Delay, \$ 1126.8			0.3	1
HCM LOS	F	-		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	300	-	-	23	-	191	-	-
HCM Lane V/C Ratio	0.102	-	-	2.706	-	0.326	-	-
HCM Control Delay (s)	18.4	-	-	\$ 1126.8	-	32.7	-	-
HCM Lane LOS	C	-	-	F	-	D	-	-
HCM 95th %tile Q(veh)	0.3	-	-	7.9	-	1.3	-	-

Notes
~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

2040 NP AM Thu Apr 26, 2018 17:36:35 Page 3-1

North Fairview Bridge Widening Improvement Project (WKE1702)
2040 No Project Conditions
AM Peak Hour

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #5 Fairview Street (NS) / West Civic Center Drive (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.766
Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx
Optimal Cycle: 46 Level Of Service: C

Street Name:	Fairview Street				West Civic Center Drive				
Approach:	North Bound		South Bound		East Bound		West Bound		
Movement:	L	T	R	L	T	R	L	T	R
Control:	Protected		Protected		Split Phase		Split Phase		
Rights:	Include		Include		Include		Include		
Min. Green:	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0	2	1	0	1	0	2	1

Volume Module:

Base Vol:	8	1449	383	357	1541	12	5	18	7	229	6	192
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	8	1449	383	357	1541	12	5	18	7	229	6	192
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	8	1449	383	357	1541	12	5	18	7	229	6	192
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	8	1449	383	357	1541	12	5	18	7	229	6	192
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	8	1449	383	357	1541	12	5	18	7	229	6	192

Saturation Flow Module:

Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	0.94	1.00	1.00	0.94	1.00	1.00	1.00	1.00	0.94	0.97	1.00	0.94
Lanes:	1.00	2.37	0.63	1.00	2.98	0.02	0.22	0.78	1.00	1.95	0.05	1.00
Final Sat.:	1598	4034	1066	1598	5061	39	370	1330	1598	3211	87	1598

Capacity Analysis Module:

Vol/Sat:	0.01	0.36	0.36	0.22	0.30	0.30	0.01	0.01	0.00	0.07	0.07	0.12
Crit Moves:	****	****	****	****	****	****	****	****	****	****	****	****

2040 NP PM Thu Apr 26, 2018 17:37:00 Page 2-1

North Fairview Bridge Widening Improvement Project (WKE1702)
2040 No Project Conditions
PM Peak Hour

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #1 Fairview Street (NS) / West 17th Street (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 1.258
Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx
Optimal Cycle: 180 Level Of Service: F

Street Name:	Fairview Street				West 17th Street				
Approach:	North Bound		South Bound		East Bound		West Bound		
Movement:	L	T	R	L	T	R	L	T	R
Control:	Protected		Protected		Protected		Protected		
Rights:	Include		Include		Include		Include		
Min. Green:	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	2	0	2	0	1	2	0	2	0

Volume Module:

Base Vol:	254	1437	83	480	1355	233	422	721	196	145	975	577
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	254	1437	83	480	1355	233	422	721	196	145	975	577
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	254	1437	83	480	1355	233	422	721	196	145	975	577
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	254	1437	83	480	1355	233	422	721	196	145	975	577
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	254	1437	83	480	1355	233	422	721	196	145	975	577

Saturation Flow Module:

Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	0.88	1.00	0.94	0.88	1.00	0.94	0.94	1.00	0.94	0.94	1.00	0.94
Lanes:	2.00	2.00	1.00	2.00	2.00	1.00	1.00	3.00	1.00	1.00	2.00	1.00
Final Sat.:	2992	3400	1598	2992	3400	1598	1598	5100	1598	1598	3400	1598

Capacity Analysis Module:

Vol/Sat:	0.08	0.42	0.05	0.16	0.40	0.15	0.26	0.14	0.12	0.09	0.29	0.36
Crit Moves:	****	****	****	****	****	****	****	****	****	****	****	****

HCM 6th TWSC North Fairview Bridge Widening Improvement Project (WKE1702)
2: N Fairview Street & W 16th Street 01/26/2018

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W		W	W	W	W
Traffic Vol, veh/h	5	21	9	1797	1797	11
Future Vol, veh/h	5	21	9	1797	1797	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	50	-	-	65
Veh in Median Storage, #	2	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	99	99	99	99	99	99
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	21	9	1815	1815	11

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	2741	908	1826
Stage 1	1815	-	-
Stage 2	926	-	-
Critical Hdwy	6.84	6.94	4.14
Critical Hdwy Stg 1	5.84	-	-
Critical Hdwy Stg 2	5.84	-	-
Follow-up Hdwy	3.52	3.32	2.22
Pot Cap-1 Maneuver	16	278	331
Stage 1	115	-	-
Stage 2	346	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	16	278	331
Mov Cap-2 Maneuver	100	-	-
Stage 1	112	-	-
Stage 2	346	-	-

Approach	EB	NB	SB
HCM Control Delay, s	24.9	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	331	-	207	-	-
HCM Lane V/C Ratio	0.027	-	0.127	-	-
HCM Control Delay (s)	16.2	-	24.9	-	-
HCM Lane LOS	C	-	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.4	-	-

HCM 6th TWSC North Fairview Bridge Widening Improvement Project (WKE1702)
3: N Fairview Street & W 12th Street 01/26/2018

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W		W	W	W	W
Traffic Vol, veh/h	2	9	12	1761	1699	8
Future Vol, veh/h	2	9	12	1761	1699	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	25	-	-	110
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	9	12	1797	1734	8

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	2657	867	1742
Stage 1	1734	-	-
Stage 2	923	-	-
Critical Hdwy	6.84	6.94	4.14
Critical Hdwy Stg 1	5.84	-	-
Critical Hdwy Stg 2	5.84	-	-
Follow-up Hdwy	3.52	3.32	2.22
Pot Cap-1 Maneuver	18	296	357
Stage 1	127	-	-
Stage 2	347	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	17	296	357
Mov Cap-2 Maneuver	88	-	-
Stage 1	123	-	-
Stage 2	347	-	-

Approach	EB	NB	SB
HCM Control Delay, s	23.4	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	357	-	207	-	-
HCM Lane V/C Ratio	0.034	-	0.054	-	-
HCM Control Delay (s)	15.4	-	23.4	-	-
HCM Lane LOS	C	-	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.2	-	-

HCM 6th TWSC North Fairview Bridge Widening Improvement Project (WKE1702)
4: N Fairview Street & W 9th Street 01/26/2018

Intersection												
Int Delay, s/veh	1.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔ ↔ ↔ ↔ ↔ ↔ ↔ ↔ ↔ ↔ ↔ ↔											
Traffic Vol, veh/h	1	0	38	2	0	13	49	1729	66	25	1665	26
Future Vol, veh/h	1	0	38	2	0	13	49	1729	66	25	1665	26
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	55	-	-	95	-	145
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	0	39	2	0	13	50	1764	67	26	1699	27

Major/Minor	Minor2	Minor1	Major1	Major2
Conflicting Flow All	2557	3682	850	2800
Stage 1	1751	1751	-	1898
Stage 2	806	1931	-	902
Critical Hdwy	6.99	6.54	6.94	6.99
Critical Hdwy Stg 1	6.54	5.54	-	7.34
Critical Hdwy Stg 2	6.74	5.54	-	6.54
Follow-up Hdwy	3.67	4.02	3.32	3.67
Pot Cap-1 Maneuver	19	5	304	13
Stage 1	87	138	-	46
Stage 2	318	112	-	291
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	14	4	304	9
Mov Cap-2 Maneuver	14	4	-	9
Stage 1	75	114	-	40
Stage 2	259	97	-	210

Approach	EB	WB	NB	SB
HCM Control Delay, s	27.6	96.2	0.4	0.5
HCM LOS	D	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	362	-	-	199	54	152	-	-
HCM Lane V/C Ratio	0.138	-	-	0.2	0.283	0.168	-	-
HCM Control Delay (s)	16.5	-	-	27.6	96.2	33.4	-	-
HCM Lane LOS	C	-	-	D	F	D	-	-
HCM 95th %tile Q(veh)	0.5	-	-	0.7	1	0.6	-	-

2040 NP PM	Thu Apr 26, 2018 17:37:00	Page 3-1
North Fairview Bridge Widening Improvement Project (WKE1702) 2040 No Project Conditions PM Peak Hour		
Level Of Service Computation Report		
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)		
Intersection #5 Fairview Street (NS) / West Civic Center Drive (EW)		
Cycle (sec):	100	Critical Vol./Cap.(X): 0.705
Loss Time (sec):	5	Average Delay (sec/veh): xxxxxx
Optimal Cycle:	38	Level Of Service: C
Street Name: Fairview Street West Civic Center Drive		
Approach: North Bound South Bound East Bound West Bound		
Movement: L - T - R L - T - R L - T - R L - T - R		
Control:	Protected	Protected
Rights:	Include	Include
Min. Green:	0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0
Y+R:	4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0	4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0
Lanes:	1 0 2 1 0 1 0 2 1 0 0 1 0 0 1	1 1 0 0 1 1 1 0 0 1 1 1 0 0 1
Volume Module:		
Base Vol:	10 1524 418 169 1533 1 1 3 4 545 2 233	10 1524 418 169 1533 1 1 3 4 545 2 233
Growth Adj:	1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00	1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse:	10 1524 418 169 1533 1 1 3 4 545 2 233	10 1524 418 169 1533 1 1 3 4 545 2 233
User Adj:	1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00	1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj:	1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00	1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Volume:	10 1524 418 169 1533 1 1 3 4 545 2 233	10 1524 418 169 1533 1 1 3 4 545 2 233
Reduct Vol:	0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol:	10 1524 418 169 1533 1 1 3 4 545 2 233	10 1524 418 169 1533 1 1 3 4 545 2 233
PCE Adj:	1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00	1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj:	1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00	1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Final Volume:	10 1524 418 169 1533 1 1 3 4 545 2 233	10 1524 418 169 1533 1 1 3 4 545 2 233
Saturation Flow Module:		
Sat/Lane:	1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700	1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700
Adjustment:	0.94 1.00 1.00 0.94 1.00 1.00 1.00 1.00 0.94 0.97 1.00 0.94	0.94 1.00 1.00 0.94 1.00 1.00 1.00 1.00 0.94 0.97 1.00 0.94
Lanes:	1.00 2.35 0.65 1.00 2.99 0.01 0.25 0.75 1.00 1.99 0.01 1.00	1.00 2.35 0.65 1.00 2.99 0.01 0.25 0.75 1.00 1.99 0.01 1.00
Final Sat.:	1598 4002 1098 1598 5097 3 425 1275 1598 3286 12 1598	1598 4002 1098 1598 5097 3 425 1275 1598 3286 12 1598
Capacity Analysis Module:		
Vol/Sat:	0.01 0.38 0.38 0.11 0.30 0.30 0.00 0.00 0.00 0.17 0.16 0.15	0.01 0.38 0.38 0.11 0.30 0.30 0.00 0.00 0.00 0.17 0.16 0.15
Crit Moves:	****	****

2040 WP AM Thu Apr 26, 2018 17:37:34 Page 2-1

North Fairview Bridge Widening Improvement Project (WKE1702)
2040 With Project Conditions
AM Peak Hour

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #1 Fairview Street (NS) / West 17th Street (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 1.031
Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx
Optimal Cycle: 180 Level Of Service: F

Street Name:	Fairview Street				West 17th Street				
Approach:	North Bound		South Bound		East Bound		West Bound		
Movement:	L	T	R	L	T	R	L	T	R
Control:	Protected		Protected		Protected		Protected		
Rights:	Include		Include		Include		Include		
Min. Green:	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	2	0	2	0	1	2	0	2	1

Volume Module:

Base Vol:	188	1357	238	665	1716	165	287	969	260	191	382	287
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	188	1357	238	665	1716	165	287	969	260	191	382	287
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	188	1357	238	665	1716	165	287	969	260	191	382	287
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	188	1357	238	665	1716	165	287	969	260	191	382	287
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	188	1357	238	665	1716	165	287	969	260	191	382	287

Saturation Flow Module:

Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	0.88	1.00	0.94	0.88	1.00	0.94	0.94	1.00	0.94	0.94	1.00	0.94
Lanes:	2.00	2.00	1.00	2.00	2.00	1.00	1.00	3.00	1.00	1.00	2.00	1.00
Final Sat.:	2992	3400	1598	2992	3400	1598	1598	5100	1598	1598	3400	1598

Capacity Analysis Module:

Vol/Sat:	0.06	0.40	0.15	0.22	0.50	0.10	0.18	0.19	0.16	0.12	0.11	0.18
Crit Moves:	****	****	****	****	****	****	****	****	****	****	****	****

Traffix 8.0.0715 (c) 2008 Dowling Assoc. Licensed to LSA ASSOC. IRVINE, CA

HCM 6th TWSC North Fairview Bridge Widening Improvement Project (WKE1702)
2: N Fairview Street & W 16th Street 01/26/2018

Intersection									
Int Delay, s/veh	5.5								
Movement	EBL	EBR	NBU	NBL	NBT	SBT	SBR		
Lane Configurations	W				W	W	W	W	W
Traffic Vol, veh/h	9	103	6	1	1775	2169	1		
Future Vol, veh/h	9	103	6	1	1775	2169	1		
Conflicting Peds, #/hr	0	0	0	0	0	0	0		
Sign Control	Stop	Stop	Free	Free	Free	Free	Free		
RT Channelized	-	None	-	-	None	-	None		
Storage Length	0	-	-	50	-	-	-		
Veh in Median Storage, #	2	-	-	-	0	0	-		
Grade, %	0	-	-	-	0	0	-		
Peak Hour Factor	91	91	92	91	91	91	91		
Heavy Vehicles, %	2	2	2	2	2	2	2		
Mvmt Flow	10	113	7	1	1951	2384	1		

Major/Minor	Minor2	Major1	Major2		
Conflicting Flow All	3181	1193	1741	2385	0 - 0
Stage 1	2385	-	-	-	-
Stage 2	796	-	-	-	-
Critical Hdwy	5.74	7.14	5.64	5.34	- - -
Critical Hdwy Stg 1	6.64	-	-	-	-
Critical Hdwy Stg 2	6.04	-	-	-	-
Follow-up Hdwy	3.82	3.92	2.32	3.12	- - -
Pot Cap-1 Maneuver	21	154	169	79	- - -
Stage 1	32	-	-	-	-
Stage 2	367	-	-	-	-
Platoon blocked, %					- - -
Mov Cap-1 Maneuver	18	154	58	58	- - -
Mov Cap-2 Maneuver	26	-	-	-	- - -
Stage 1	28	-	-	-	- - -
Stage 2	367	-	-	-	- - -

Approach	EB	NB	SB
HCM Control Delay, s	195.6	0.3	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	58	-	110	-	-
HCM Lane V/C Ratio	0.131	-	1.119	-	-
HCM Control Delay (s)	75.6	-	195.6	-	-
HCM Lane LOS	F	-	F	-	-
HCM 95th %tile Q(veh)	0.4	-	7.7	-	-

HCM 6th TWSC North Fairview Bridge Widening Improvement Project (WKE1702)
3: N Fairview Street & W 12th Street 01/26/2018

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗		↗↗↗↗	↘↘↘↘	
Traffic Vol, veh/h	0	18	0	1802	2246	8
Future Vol, veh/h	0	18	0	1802	2246	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	19	0	1877	2340	8

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	- 1174	- 0	- 0
Stage 1	- -	- -	- -
Stage 2	- -	- -	- -
Critical Hdwy	- 7.14	- -	- -
Critical Hdwy Stg 1	- -	- -	- -
Critical Hdwy Stg 2	- -	- -	- -
Follow-up Hdwy	- 3.92	- -	- -
Pot Cap-1 Maneuver	0 159	0 -	- -
Stage 1	0 -	0 -	- -
Stage 2	0 -	0 -	- -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	- 159	- -	- -
Mov Cap-2 Maneuver	- -	- -	- -
Stage 1	- -	- -	- -
Stage 2	- -	- -	- -

Approach	EB	NB	SB
HCM Control Delay, s	30.6	0	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBT EBLn1	SBT	SBR
Capacity (veh/h)	- 159	- -	- -
HCM Lane V/C Ratio	- 0.118	- -	- -
HCM Control Delay (s)	- 30.6	- -	- -
HCM Lane LOS	- D	- -	- -
HCM 95th %tile Q(veh)	- 0.4	- -	- -

HCM 6th TWSC North Fairview Bridge Widening Improvement Project (WKE1702)
4: N Fairview Street & W 9th Street 01/26/2018

Intersection												
Int Delay, s/veh	1.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↗↗↗↗	↘↘↘↘		↗↗↗↗	↘↘↘↘	
Traffic Vol, veh/h	6	3	52	3	1	20	30	1784	34	61	2194	11
Future Vol, veh/h	6	3	52	3	1	20	30	1784	34	61	2194	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	55	-	-	95	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	3	53	3	1	20	31	1820	35	62	2239	11

Major/Minor	Minor2	Minor1	Major1	Major2
Conflicting Flow All	3160 4286 1125 2921 4274 928 2250	0 0 1855	0 0	
Stage 1	2369 2369 - 1900 1900	- - -	- - -	
Stage 2	791 1917 - 1021 2374	- - -	- - -	
Critical Hdwy	6.44 6.54 7.14 6.44 6.54 7.14 5.34	- - 5.34	- -	
Critical Hdwy Stg 1	7.34 5.54 - 7.34 5.54	- - -	- - -	
Critical Hdwy Stg 2	6.74 5.54 - 6.74 5.54	- - -	- - -	
Follow-up Hdwy	3.82 4.02 3.92 3.82 4.02 3.92 3.12	- - 3.12	- -	
Pot Cap-1 Maneuver	11 ~ 2 171 16 2 232 93	- - 148	- -	
Stage 1	21 67 - 46 116	- - -	- - -	
Stage 2	317 114 - 228 66	- - -	- - -	
Platoon blocked, %	-	-	-	
Mov Cap-1 Maneuver	- ~ 1 171 - ~ 1 232 93	- - 148	- -	
Mov Cap-2 Maneuver	- ~ 1 - - ~ 1 - -	- - -	- - -	
Stage 1	14 39 - 31 77	- - -	- - -	
Stage 2	190 76 - 84 38	- - -	- - -	

Approach	EB	WB	NB	SB
HCM Control Delay, s			1	1.2
HCM LOS	-	-		

Minor Lane/Major Mvmt	NBL	NBT	NBR EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	93	- -	- - 148	- -	- -	- -
HCM Lane V/C Ratio	0.329	- -	- - 0.421	- -	- -	- -
HCM Control Delay (s)	61.6	- -	- - 45.9	- -	- -	- -
HCM Lane LOS	F	- -	- - E	- -	- -	- -
HCM 95th %tile Q(veh)	1.3	- -	- - 1.9	- -	- -	- -

Notes
~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

2040 WP AM Thu Apr 26, 2018 17:37:34 Page 3-1

North Fairview Bridge Widening Improvement Project (WKE1702)
2040 With Project Conditions
AM Peak Hour

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #5 Fairview Street (NS) / West Civic Center Drive (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.908
Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx
Optimal Cycle: 92 Level Of Service: E

Street Name:	Fairview Street				West Civic Center Drive				
Approach:	North Bound		South Bound		East Bound		West Bound		
Movement:	L	T	R	L	T	R	L	T	R
Control:	Protected		Protected		Split Phase		Split Phase		
Rights:	Include		Include		Include		Include		
Min. Green:	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	1	0	2	1	0	1	0	0	1

Volume Module:

Base Vol:	13	1600	315	507	1690	12	5	18	7	168	6	243
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	13	1600	315	507	1690	12	5	18	7	168	6	243
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	13	1600	315	507	1690	12	5	18	7	168	6	243
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	13	1600	315	507	1690	12	5	18	7	168	6	243
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	13	1600	315	507	1690	12	5	18	7	168	6	243

Saturation Flow Module:

Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	0.94	1.00	1.00	0.94	1.00	1.00	1.00	0.94	0.97	1.00	0.94	
Lanes:	1.00	2.51	0.49	1.00	2.98	0.02	0.22	0.78	1.00	1.93	0.07	1.00
Final Sat.:	1598	4261	839	1598	5064	36	370	1330	1598	3181	117	1598

Capacity Analysis Module:

Vol/Sat:	0.01	0.38	0.38	0.32	0.33	0.33	0.01	0.01	0.00	0.05	0.05	0.15
Crit Moves:	****	****	****	****	****	****	****	****	****	****	****	****

2040 WP PM Thu Apr 26, 2018 17:46:52 Page 2-1

North Fairview Bridge Widening Improvement Project (WKE1702)
2040 With Project Conditions
PM Peak Hour

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #1 Fairview Street (NS) / West 17th Street (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 1.195
Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx
Optimal Cycle: 180 Level Of Service: F

Street Name:	Fairview Street				West 17th Street				
Approach:	North Bound		South Bound		East Bound		West Bound		
Movement:	L	T	R	L	T	R	L	T	R
Control:	Protected		Protected		Protected		Protected		
Rights:	Include		Include		Include		Include		
Min. Green:	0	0	0	0	0	0	0	0	0
Y+R:	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lanes:	2	0	2	0	1	2	0	2	0

Volume Module:

Base Vol:	322	1618	118	438	1449	190	336	727	231	187	950	499
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	322	1618	118	438	1449	190	336	727	231	187	950	499
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	322	1618	118	438	1449	190	336	727	231	187	950	499
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	322	1618	118	438	1449	190	336	727	231	187	950	499
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
FinalVolume:	322	1618	118	438	1449	190	336	727	231	187	950	499

Saturation Flow Module:

Sat/Lane:	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700	1700
Adjustment:	0.88	1.00	0.94	0.88	1.00	0.94	0.94	1.00	0.94	0.94	1.00	0.94
Lanes:	2.00	2.00	1.00	2.00	2.00	1.00	1.00	3.00	1.00	1.00	2.00	1.00
Final Sat.:	2992	3400	1598	2992	3400	1598	1598	5100	1598	1598	3400	1598

Capacity Analysis Module:

Vol/Sat:	0.11	0.48	0.07	0.15	0.43	0.12	0.21	0.14	0.14	0.12	0.28	0.31
Crit Moves:	****	****	****	****	****	****	****	****	****	****	****	****

HCM 6th TWSC North Fairview Bridge Widening Improvement Project (WKE1702)
2: N Fairview Street & W 16th Street 01/26/2018

Intersection							
Int Delay, s/veh	0.4						
Movement	EBL	EBR	NBU	NBL	NBT	SBT	SBR
Lane Configurations	W			W	W	W	W
Traffic Vol, veh/h	5	21	12	9	2081	1968	11
Future Vol, veh/h	5	21	12	9	2081	1968	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free	Free
RT Channelized	-	None	-	-	None	-	None
Storage Length	0	-	-	50	-	-	-
Veh in Median Storage, #	2	-	-	-	0	0	-
Grade, %	0	-	-	-	0	0	-
Peak Hour Factor	99	99	92	99	99	99	99
Heavy Vehicles, %	2	2	2	2	2	2	2
Mvmt Flow	5	21	13	9	2102	1988	11

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	2879	1000	1459	1999	0	- 0
Stage 1	1994	-	-	-	-	-
Stage 2	885	-	-	-	-	-
Critical Hdwy	5.74	7.14	5.64	5.34	-	- -
Critical Hdwy Stg 1	6.64	-	-	-	-	-
Critical Hdwy Stg 2	6.04	-	-	-	-	-
Follow-up Hdwy	3.82	3.92	2.32	3.12	-	- -
Pot Cap-1 Maneuver	31	207	243	125	-	- -
Stage 1	57	-	-	-	-	-
Stage 2	329	-	-	-	-	-
Platoon blocked, %					-	- -
Mov Cap-1 Maneuver	27	207	167	167	-	- -
Mov Cap-2 Maneuver	46	-	-	-	-	-
Stage 1	49	-	-	-	-	-
Stage 2	329	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	41.7	0.3	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT EBLn1	SBT	SBR
Capacity (veh/h)	167	- 124	-	-
HCM Lane V/C Ratio	0.133	- 0.212	-	-
HCM Control Delay (s)	29.8	- 41.7	-	-
HCM Lane LOS	D	- E	-	-
HCM 95th %tile Q(veh)	0.4	- 0.8	-	-

HCM 6th TWSC North Fairview Bridge Widening Improvement Project (WKE1702)
3: N Fairview Street & W 12th Street 01/26/2018

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations			W	W	W	W
Traffic Vol, veh/h	0	11	0	2059	1870	20
Future Vol, veh/h	0	11	0	2059	1870	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	11	0	2101	1908	20

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	- 964	-	0	-	- 0	
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	- 7.14	-	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	- 3.92	-	-	-	-	-
Pot Cap-1 Maneuver	0	219	0	-	- -	
Stage 1	0	- 0	-	-	-	-
Stage 2	0	- 0	-	-	-	-
Platoon blocked, %				-	- -	
Mov Cap-1 Maneuver	- 219	-	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	22.3	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT EBLn1	SBT	SBR
Capacity (veh/h)	- 219	-	-
HCM Lane V/C Ratio	- 0.051	-	-
HCM Control Delay (s)	- 22.3	-	-
HCM Lane LOS	- C	-	-
HCM 95th %tile Q(veh)	- 0.2	-	-

HCM 6th TWSC North Fairview Bridge Widening Improvement Project (WKE1702)
4: N Fairview Street & W 9th Street 01/26/2018

Intersection												
Int Delay, s/veh	1.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔			↔			↔			↔		
Traffic Vol, veh/h	1	0	38	2	0	13	49	2015	66	25	1838	26
Future Vol, veh/h	1	0	38	2	0	13	49	2015	66	25	1838	26
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	55	-	-	95	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	0	39	2	0	13	50	2056	67	26	1876	27

Major/Minor	Minor2	Minor1	Major1	Major2
Conflicting Flow All	2864	4165	952	2992
Stage 1	1942	1942	-	2190
Stage 2	922	2223	-	802
Critical Hdwy	6.44	6.54	7.14	6.44
Critical Hdwy Stg 1	7.34	5.54	-	7.34
Critical Hdwy Stg 2	6.74	5.54	-	6.74
Follow-up Hdwy	3.82	4.02	3.92	3.82
Pot Cap-1 Maneuver	18	2	223	15
Stage 1	42	110	-	28
Stage 2	263	79	-	312
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	10	1	223	7
Mov Cap-2 Maneuver	10	1	-	7
Stage 1	27	83	-	18
Stage 2	157	51	-	196

Approach	EB	WB	NB	SB
HCM Control Delay, s	39.3	133.5	1	0.6
HCM LOS	E	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	140	-	-	144	42	108	-	-
HCM Lane V/C Ratio	0.357	-	-	0.276	0.364	0.236	-	-
HCM Control Delay (s)	44.4	-	-	39.3	133.5	48.4	-	-
HCM Lane LOS	E	-	-	E	F	E	-	-
HCM 95th %tile Q(veh)	1.5	-	-	1.1	1.3	0.9	-	-

2040 WP PM	Thu Apr 26, 2018 17:46:52	Page 3-1
North Fairview Bridge Widening Improvement Project (WKE1702) 2040 With Project Conditions PM Peak Hour		
Level Of Service Computation Report		
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)		
Intersection #5 Fairview Street (NS) / West Civic Center Drive (EW)		
Cycle (sec):	100	Critical Vol./Cap.(X): 0.876
Loss Time (sec):	5	Average Delay (sec/veh): xxxxxx
Optimal Cycle:	75	Level Of Service: D
Street Name: Fairview Street West Civic Center Drive		
Approach: North Bound South Bound East Bound West Bound		
Movement: L - T - R L - T - R L - T - R L - T - R		
Control:	Protected	Protected
Rights:	Include	Include
Min. Green:	0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0
Y+R:	4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0	4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0
Lanes:	1 0 2 1 0 1 0 2 1 0 0 1 0 0 1	0 1 0 0 1 1 1 0 0 1 1 1 0 0 1
Volume Module:		
Base Vol:	10 1817 343 246 1619 1 1 3 4 482 2 393	
Growth Adj:	1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00	
Initial Bse:	10 1817 343 246 1619 1 1 3 4 482 2 393	
User Adj:	1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00	
PHF Adj:	1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00	
PHF Volume:	10 1817 343 246 1619 1 1 3 4 482 2 393	
Reduct Vol:	0 0 0 0 0 0 0 0 0 0 0 0	
Reduced Vol:	10 1817 343 246 1619 1 1 3 4 482 2 393	
PCE Adj:	1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00	
MLF Adj:	1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00	
Final Volume:	10 1817 343 246 1619 1 1 3 4 482 2 393	
Saturation Flow Module:		
Sat/Lane:	1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700	
Adjustment:	0.94 1.00 1.00 0.94 1.00 1.00 1.00 1.00 0.94 0.97 1.00 0.94	
Lanes:	1.00 2.52 0.48 1.00 2.99 0.01 0.25 0.75 1.00 1.99 0.01 1.00	
Final Sat.:	1598 4290 810 1598 5097 3 425 1275 1598 3284 14 1598	
Capacity Analysis Module:		
Vol/Sat:	0.01 0.42 0.42 0.15 0.32 0.32 0.00 0.00 0.00 0.15 0.14 0.25	
Crit Moves:	**** **** **** ****	

2040 WP AM WIMP Wed Jun 6, 2018 14:09:30 Page 2-1

North Fairview Bridge Widening Improvement Project (WKE1702)
2040 With Project Conditions WITH IMPROVEMENTS
AM Peak Hour

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #5 Fairview Street (NS) / West Civic Center Drive (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.842
Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx
Optimal Cycle: 63 Level Of Service: D

Street Name: Fairview Street West Civic Center Drive
Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Split Phase Split Phase
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0
Lanes: 1 0 2 1 0 1 0 2 1 0 0 1 0 0 1 1 0 1 0 1

Volume Module:
Base Vol: 13 1600 315 507 1690 12 5 18 7 168 6 243
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 13 1600 315 507 1690 12 5 18 7 168 6 243
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Volume: 13 1600 315 507 1690 12 5 18 7 168 6 243
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 13 1600 315 507 1690 12 5 18 7 168 6 243
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
FinalVolume: 13 1600 315 507 1690 12 5 18 7 168 6 243

Saturation Flow Module:
Sat/Lane: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700
Adjustment: 0.94 1.00 1.00 0.94 1.00 1.00 1.00 1.00 0.94 0.95 1.00 0.97
Lanes: 1.00 2.51 0.49 1.00 2.98 0.02 0.22 0.78 1.00 1.21 0.04 1.75
Final Sat.: 1598 4261 839 1598 5064 36 370 1330 1598 1953 73 2870

Capacity Analysis Module:
Vol/Sat: 0.01 0.38 0.38 0.32 0.33 0.33 0.01 0.01 0.00 0.09 0.08 0.08
Crit Moves: ****

2040 WP PM WIMP Wed Jun 6, 2018 14:10:15 Page 2-1

North Fairview Bridge Widening Improvement Project (WKE1702)
2040 With Project Conditions WITH IMPROVEMENTS
PM Peak Hour

Level Of Service Computation Report
ICU 1(Loss as Cycle Length %) Method (Base Volume Alternative)

Intersection #5 Fairview Street (NS) / West Civic Center Drive (EW)

Cycle (sec): 100 Critical Vol./Cap.(X): 0.810
Loss Time (sec): 5 Average Delay (sec/veh): xxxxxx
Optimal Cycle: 54 Level Of Service: D

Street Name: Fairview Street West Civic Center Drive
Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R

Control: Protected Protected Split Phase Split Phase
Rights: Include Include Include Include
Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0
Y+R: 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0
Lanes: 1 0 2 1 0 1 0 2 1 0 0 1 0 0 1 1 0 1 0 1

Volume Module:
Base Vol: 10 1817 343 246 1619 1 1 3 4 482 2 393
Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
Initial Bse: 10 1817 343 246 1619 1 1 3 4 482 2 393
User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
PHF Volume: 10 1817 343 246 1619 1 1 3 4 482 2 393
Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0
Reduced Vol: 10 1817 343 246 1619 1 1 3 4 482 2 393
PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00
FinalVolume: 10 1817 343 246 1619 1 1 3 4 482 2 393

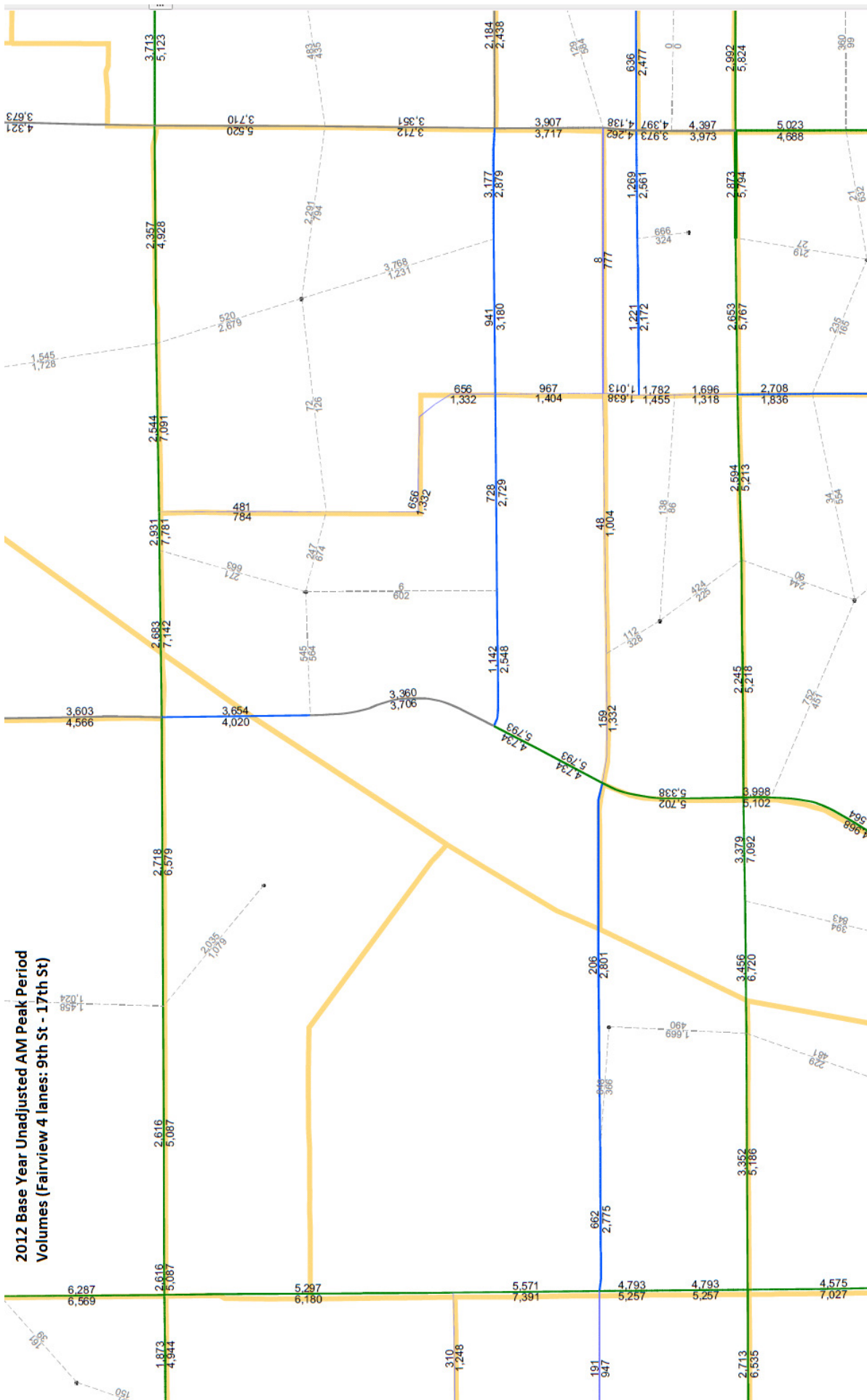
Saturation Flow Module:
Sat/Lane: 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700 1700
Adjustment: 0.94 1.00 1.00 0.94 1.00 1.00 1.00 1.00 0.94 0.96 1.00 0.96
Lanes: 1.00 2.52 0.48 1.00 2.99 0.01 0.25 0.75 1.00 1.65 0.01 1.34
Final Sat.: 1598 4290 810 1598 5097 3 425 1275 1598 2701 12 2183

Capacity Analysis Module:
Vol/Sat: 0.01 0.42 0.42 0.15 0.32 0.32 0.00 0.00 0.00 0.18 0.17 0.18
Crit Moves: ****

APPENDIX C

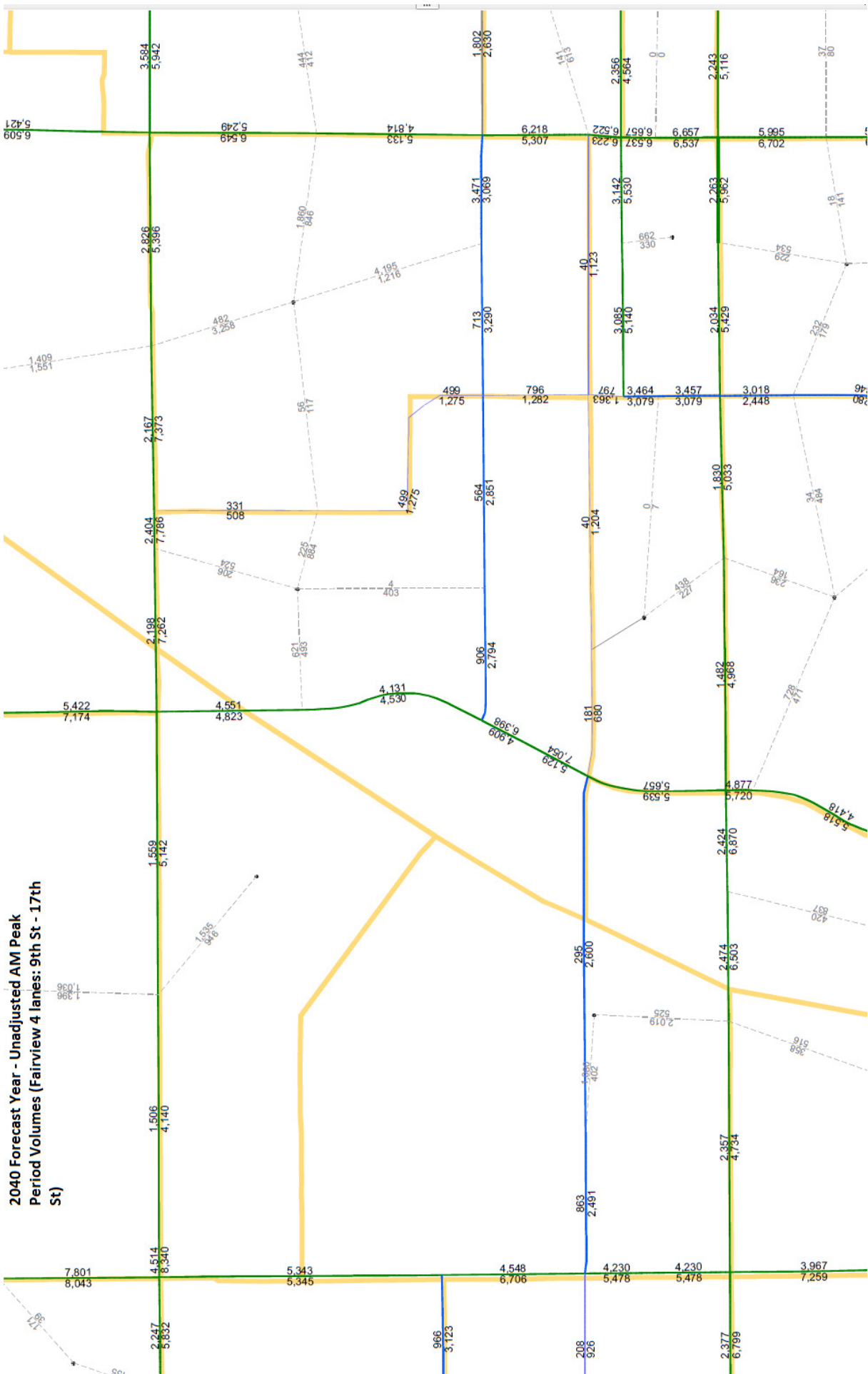
OCTAM FORECAST PLOTS

2012 Base Year - Unadjusted Daily Volumes
(Fairview 4 lanes: 9th St - 17th St)

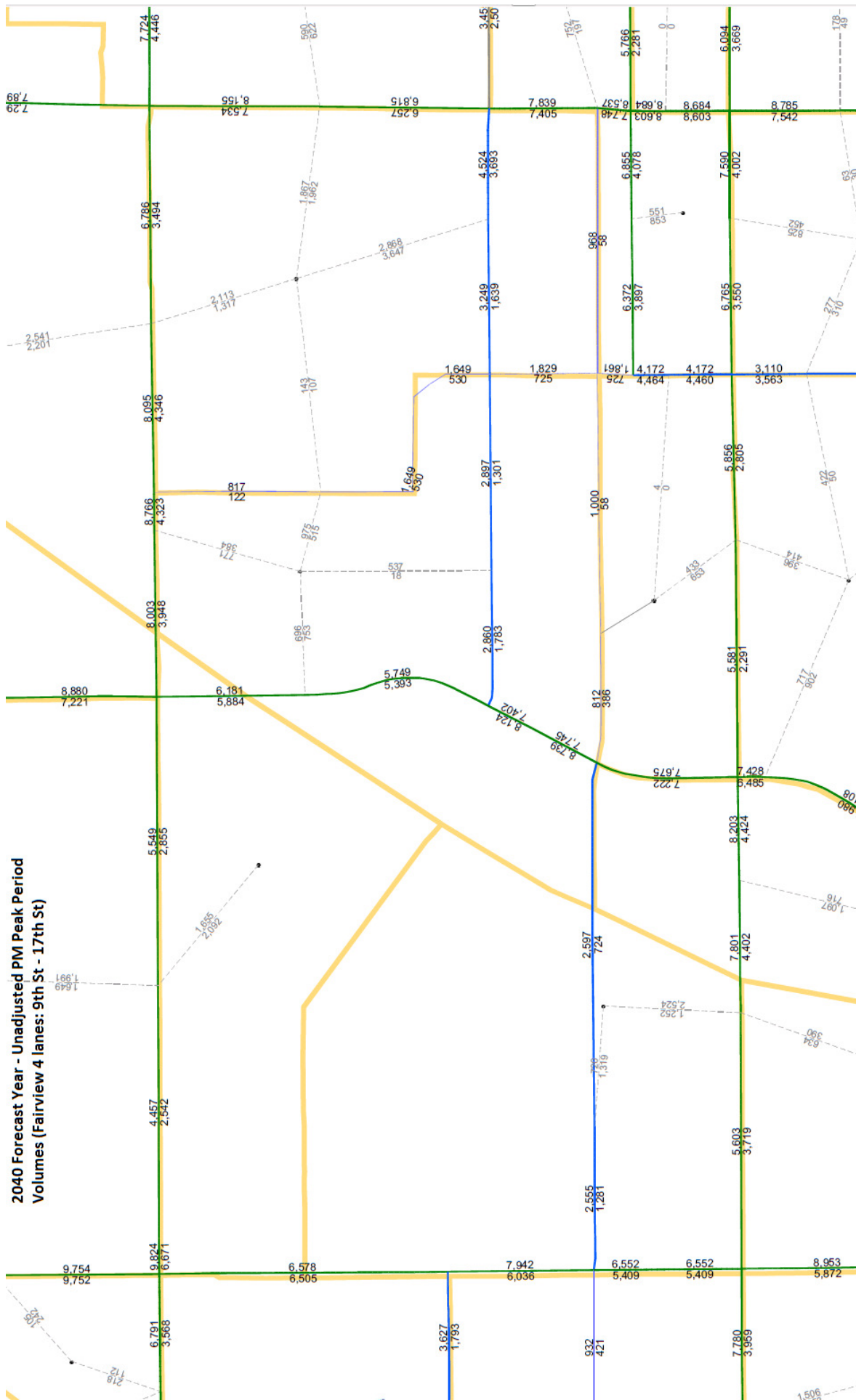


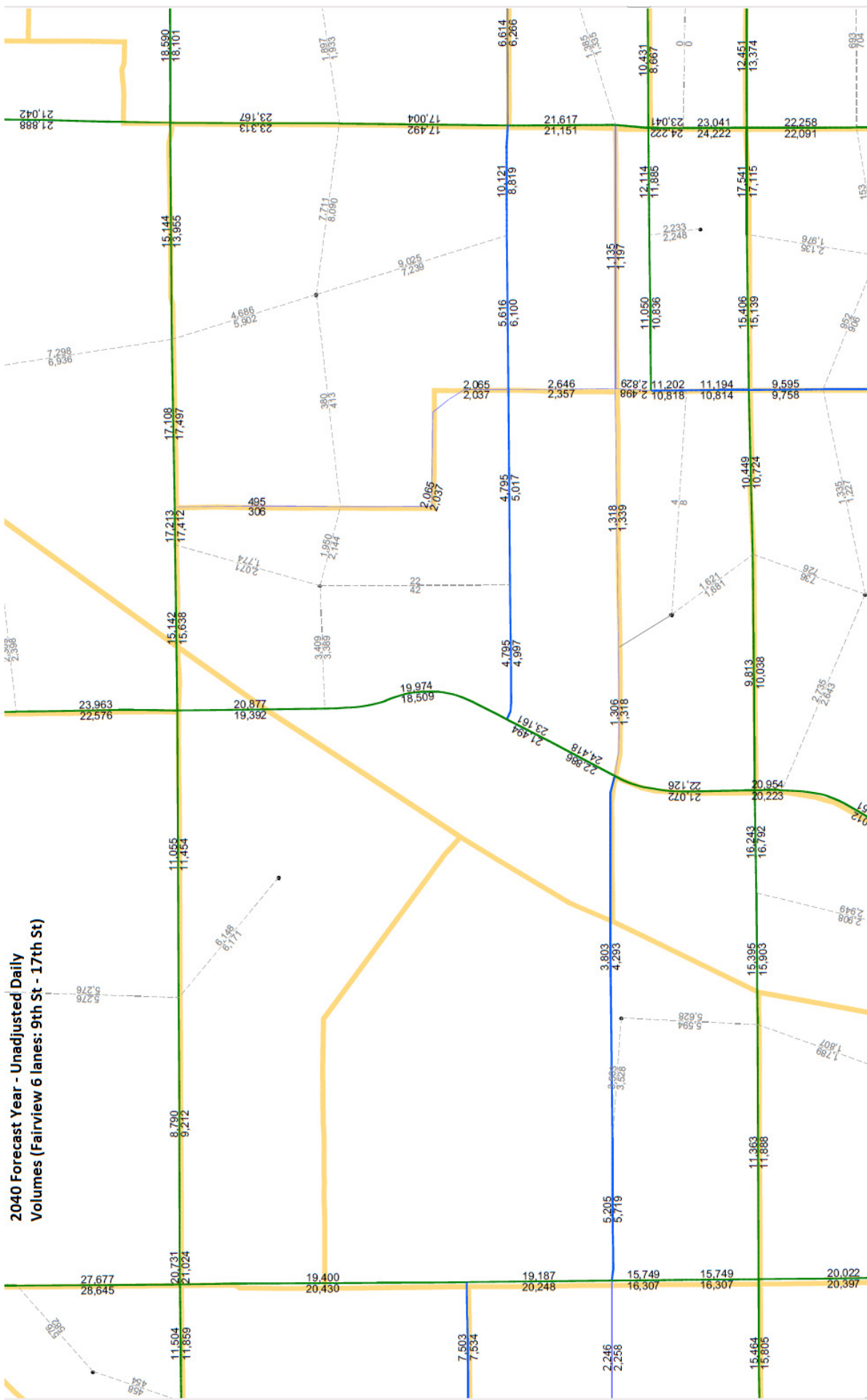
2040 Forecast Year - Unadjusted Daily Volumes (Fairview 4 lanes: 9th St - 17th St)

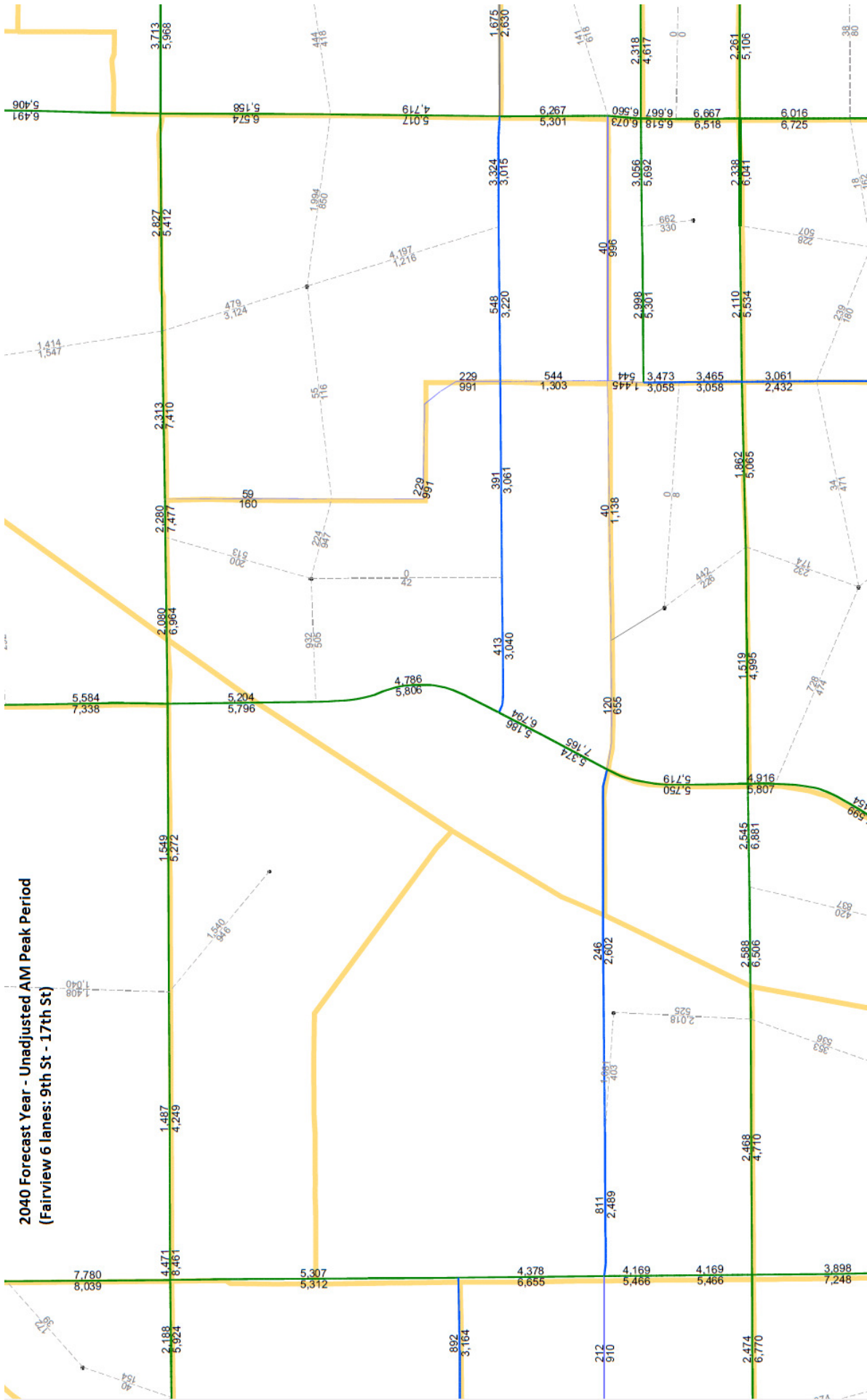
2040 Forecast Year - Unadjusted AM Peak
Period Volumes (Fairview 4 lanes: 9th St - 17th
St)



2040 Forecast Year - Unadjusted PM Peak Period
 Volumes (Fairview 4 lanes: 9th St - 17th St)







2040 Forecast Year - Unadjusted PM Peak
Period (Fairview 6 lanes: 9th St - 17th St)

