Appendix E

Traffic Impact Analysis

Final Draft Westview Affordable Housing Project: Transportation Impact Analysis

Prepared for:
City of Santa Ana

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OC20-0751

FEHR PEERS

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Introduction

This report documents the analysis and findings of the Transportation Impact Assessment (TIA) completed for Westview Santa Ana (Project) in Santa Ana, California. The Project would construct inter-generational affordable housing on Westminster Avenue just east of the boundary between Santa Ana and Garden Grove.

This assessment evaluated existing and future operations of the transportation system surrounding the Project to determine if the addition of project traffic would degrade operations. Site access to the Project was reviewed and an evaluation of neighborhood intrusion was performed. A screening assessment consistent with Senate Bill (SB 743) was also performed for compliance with the California Environmental Quality Act (CEQA).

This chapter provides an overview of the Project, the locations and scenarios analyzed, the methods used to complete the analysis and the significance criteria used to determine if the Project would result in a negative impact to the transportation system. A detailed discussion of the analysis findings is presented in the following chapters.

Executive Summary

The proposed Project, 85 affordable housing units, is forecast to add a small number of trips to a congested roadway network in northwest Santa Ana. Under Existing (2020) Conditions, the study intersections are near capacity and are forecast to get more congested over time. By General Plan Buildout Year (2045), two of the three study locations are forecast to be over capacity even with assumed improvements in place.

The addition of Project traffic is not estimated to result in a substantial increase for any turning movements or vehicle queues. The proposed Project is also estimated to generate less traffic than development of the site consistent with the approved General Plan Land Use. Most operational calculations under 2045 conditions with the Project provide better LOS and less queuing than with the approved land use.

The intersection of Westminster Avenue/17th Street & North Fairview Street is forecast to degrade to LOS F by 2045. It is assumed this intersection will be widened to three lanes in each north/south direction, consistent with the Orange County Master Plan of Arterial Highways (MPAH), but is still forecast to operate at LOS F. This intersection is built out to capacity within the existing right-of-way and will remain deficient without significant right-of-way acquisition.

The intersection of Mar Les Drive & Westminster Avenue is currently operating at LOS F and is recommended to be signalized, consistent with the City's Traffic Signal Priority List. Queues in the westbound left-turn lane at Mar Les Drive & Westminster Avenue and queues in the eastbound left-turn lane at Westminster Avenue/17th Street & North Fairview Street are both forecast to extend past available

storage. There is approximately 150' of available space to extend either turn pocket in order to provide more storage capacity.

The intersection of West 16th Street & North Fairview Street degrades to LOS F by 2045 without the addition of project traffic. A raised median is proposed at this intersection when Fairview Street is widened to six lanes, which will restrict left-turns at this location. This intersection also meets the peak hour traffic signal warrant, but is spaced within 500' of another signalized intersection so signalization is not recommended. It is anticipated that the adjacent traffic signal will meter traffic and provide sufficient gaps for vehicles turning from 16th Street onto Fairview Street.

The project is presumed to result in a less-than-significant transportation impact related to VMT due to its location in a Low-VMT generating zone, being in a Transit Priority Area (TPA), and being an affordable housing project

Site access for vehicles, pedestrians, bicyclists, and transit were reviewed and determined to be acceptable based on driveway operations, sight distance measurements and the Project not conflicting with existing or proposed facilities.

A neighborhood intrusion assessment was performed to determine if the Project would contribute to substantial increase in traffic on local residential streets that could be used as access for the Project. The addition of Project traffic does not increase the ADT on the neighborhood streets above the local threshold of 2,500 cars per day and the percent increase is below the thresholds established by LADOT. Therefore, the Project is not anticipated to result in a substantial increase to the neighborhood traffic conditions.

Project Description

The Project will construct 85 multifamily dwelling units, which will be affordable housing. The goal of the Project is to construct an inter-generational affordable housing community that integrates into its surrounding neighborhood.

The Project is located at 2514 & 2534 Westminster Avenue, just west of the North Fairview Street intersection. Today, the Project site is vacant and zoned as General Commercial (GC) according to the City of Santa Ana General Plan (2010). The Project requires a General Plan Amendment (GPA). To the west and south of the Project site, the surrounding land use is residential. North of the Project, across Westminster Avenue, the primary land use is local-serving retail including a grocery store and several restaurants. The site directly east of the site also includes a restaurant and auto parts store.

The 85 dwelling units will range from one-bedroom to four-bedroom units and will be constructed in three buildings (Building A, Building B, and Building C). A total of 140 parking spaces will be provided on-site, including six accessible spaces. The Project Site Plan is shown on **Figure 1**, including the locations of Building A, B, and C, and the on-stie parking layout.

LEGEND

- UNIT PLAN A
- UNIT PLAN B
- UNIT PLAN C
- UNIT PLAN D1
- UNIT PLAN D1
- PARKING
- AMENITIES
- SERVICES

N

25' 50' 100'

Figure 1

Project Site Plan

All access to the site will be from Westminster Avenue. Auto access will be limited to right-in, right-out due to the existing center-median on Westminster Avenue and proximity to the signalized intersection with North Fairview Street.

Analysis Locations and Scenarios

A total of five intersections and roadway segments were evaluated as part of this assessment. These facilities were evaluated under six scenarios. Study locations and scenarios are outlined below.

Study Facilities

Through coordination with City staff, three intersections were selected for evaluation. The intersections evaluated include:

1. Westminster Avenue/17th Street & North Fairview Street
2. Westminster Avenue & Mar Les Drive
3. North Fairview Street & West 16th Street

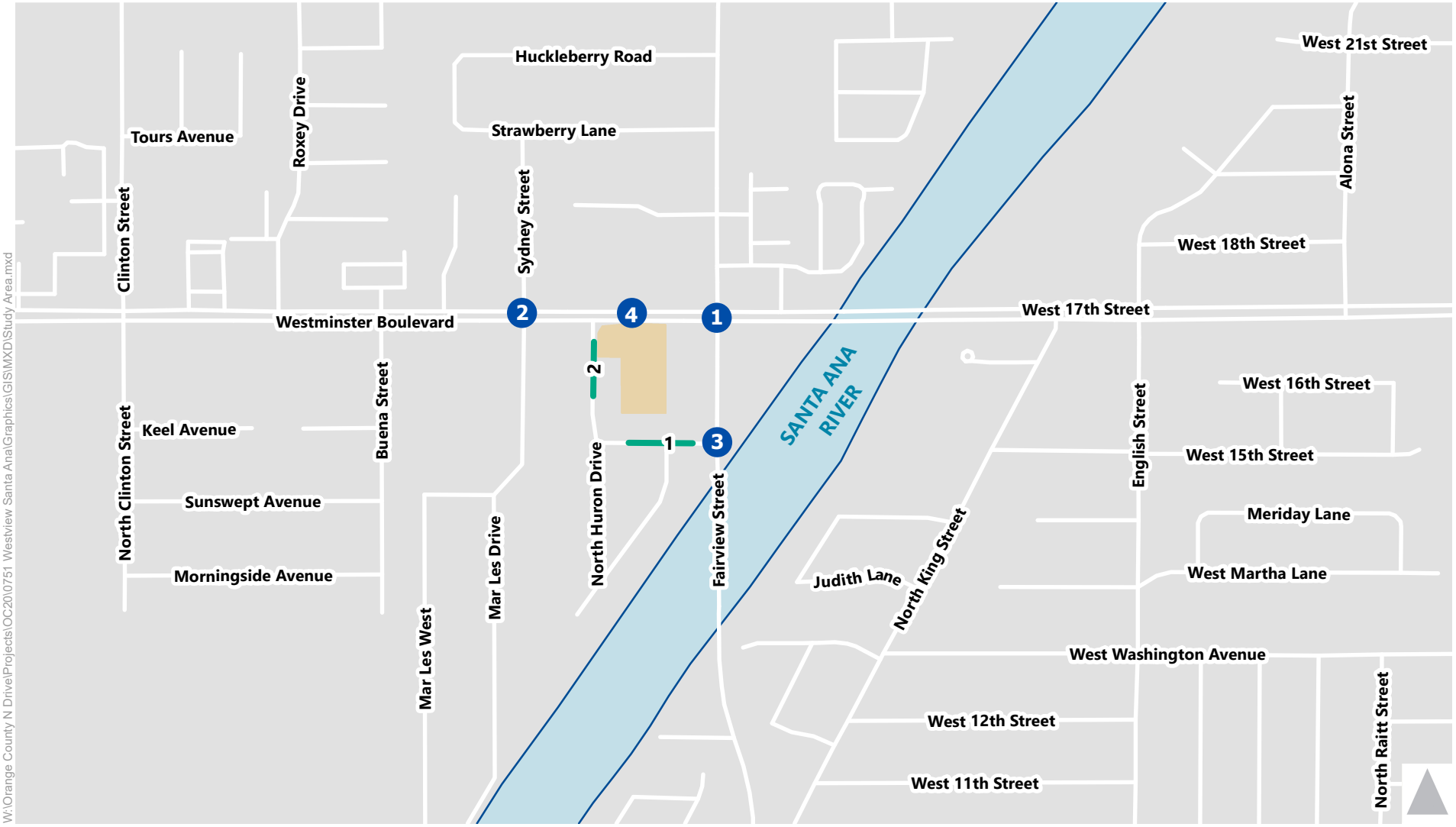
A queueing assessment was also complete to understand how Project traffic would impact left-turn queueing at the following locations:

1. Eastbound left-turn at Westminster Avenue/17th Street & North Fairview Street
2. Westbound left-turn at Westminster Avenue & Mar Les Drive
3. Northbound left-turn at West 16th Street & North Fairview Street

Two roadway segments were also considered to understand if project traffic would result in neighborhood intrusion in the neighborhood adjacent to the Project site. The two segments considered in this evaluation were:

1. West 16th Street west of North Fairview Street
2. Huron Drive south of Westminster Avenue

See **Figure 2** for a map of the facilities evaluated for this assessment.



Study Intersections

Roadway Segments

Project Site

Figure 2

Project Study Area

Study Scenarios

To understand how the transportation system operates today, how it will operate in the future, and the impact of Project trips, six traffic volume scenarios were analyzed. Scenarios evaluated include:

- **Existing (2020)**: Analysis based on traffic counts collected in 2020 and adjusted based on historical data to reflect pre-COVID conditions.
- **Existing Plus Project**: Adjusted 2020 traffic counts plus the addition of Project trips.
- **Opening Year (2023)**: Traffic volume forecasts for 2023 based on apply a 1% per year annual growth rate to 2020 counts. This scenario also includes the addition of trips from approved projects within a two-mile radius of the Project site.
- **Opening Year (2023) Plus Project**: Opening Year forecast plus the addition of Project trips.
- **Cumulative Year (2045)**: Traffic volume forecasts for 2045 developed using the Orange County Traffic Analysis Model (OCTAM). These forecasts assume that Project site is developed for general commercial based on the General Plan zoning.
- **Cumulative Year (2045) Plus Project**: Cumulative Year forecasts plus the addition of Project trips and the subtraction of trips that would occur if the site were developed for general commercial use.

Analysis Methods

To evaluate the study intersections, two methodologies were applied consistent with City guidelines and the County of Orange Congestion Management Program (CMP). For the two unsignalized intersections, the methodology documented in the *Highway Capacity Manual 6th Edition (HCM)* (Transportation Research Board, 2017) was used. For the signalized intersection, Intersection Capacity Utilization (ICU) methodology was applied. All analysis for this assessment was completed using Vistro 2020 software.

ICU Analysis

The ICU method of intersection capacity analysis determines the intersection volume-to-capacity (V/C) ratio and corresponding Level of Service (LOS) for the turning movements and intersection characteristics at signalized intersections. "Capacity" represents the maximum volume of vehicles in the critical lanes that have a reasonable expectation of passing through an intersection in one hour under prevailing roadway and traffic conditions. The ICU method calculates the V/C ratio for each critical movement by dividing volume by capacity. The V/C ratios for each critical movement are summed with an added allowance for yellow clearance to determine the total intersection V/C ratio.

The following assumptions were applied in the assessment, consistent with Santa Ana's Traffic Impact Analysis Site Specific Requirements:

- 1,600 vehicles per hour per lane (vphpl) for turning lanes
- 1,700 vphpl for through lanes
- 5% clearance intervals

HCM Analysis

The HCM methodology was used for evaluating the two-way stop-controlled study intersections. In the HCM method for unsignalized intersections, operations are defined by the average control delay per vehicle (measured in seconds). The control delay incorporates delay associated with deceleration, acceleration, stopping, and moving up in queue. At side-street stop-controlled intersections, the delay is calculated for each stop-controlled movement, the left turn movement from the major street, as well as the intersection average. The intersection average delay and highest movement/approach delay are reported for side-street stop-controlled intersections.

Level of Service

After the quantitative V/C and delay estimates were completed, the methodologies assign a qualitative letter grade that represents the operations of the intersection. These grades range from level of service (LOS) A (minimal delay) to LOS F (excessive congestion). LOS E represents at-capacity operations. Descriptions of the LOS letter grades for intersections are provided in **Table 1**.

Queueing Assessment

A queueing assessment was performed for specific left-turn/U-turn movements to determine if the existing turn pockets would provide enough storage capacity. The HCM methodology was performed to estimate 50th percentile and 95th percentile queues. The 50th percentile queues represent the typical queue throughout the peak hour and the 95th percentile queue represents the maximum queue that could be expected within the peak hour. The 50th percentile queues are only available for signalized intersection analysis.

Performance Criteria

The City of Santa Ana adopted LOS "D" performance criteria at signalized intersections. Signalized intersections that the Project degrades below LOS "D" would be required to be improved to better than pre-project conditions. Unsignalized intersections do not have an established performance criteria for intersections that do not meet traffic signal warrant.

Table 1. Intersection LOS Criteria

Level of Service	Description	ICU Volume to Capacity (V/C) Ratio	Signalized HCM Delay in Seconds	Unsignalized HCM Delay in Seconds
A	Signalized: Operations with very low delay occurring with favorable progression and/or short cycle length. Unsignalized: Little or no delay.	0.000-0.600	< 10.0	≤ 10.0
B	Signalized: Operations with low delay occurring with good progression and/or short cycle lengths. Unsignalized: Short traffic delays.	0.601-0.700	> 10.0 to 20.0	> 10.0 to 15.0
C	Signalized: Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear. Unsignalized: Average traffic delays.	0.701-0.800	> 20.0 to 35.0	> 15.0 to 25.0
D	Signalized: Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, or high V/C ratios. Many vehicles stop and individual cycle failures are noticeable. Unsignalized: Long traffic delays.	0.801-0.900	> 35.0 to 55.0	> 25.0 to 35.0
E	Signalized: Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences. Unsignalized: Very long traffic delays.	0.901-1.000	> 55.0 to 80.0	> 35.0 to 50.0
F	Signalized: Operation with delays unacceptable to most drivers occurring due to over saturation, poor progression, or very long cycle lengths. Unsignalized: Extreme traffic delays with intersection capacity exceeded	Greater than 1.000	> 80.0	> 50.0

Source: Intersection Capacity Utilization, Highway Capacity Manual 6th Edition

Existing Conditions

This chapter describes the existing transportation system near the Project site including the roadway network, bicycle, pedestrian, and transit facilities. Also presented below are the findings from the existing conditions assessment, including the LOS, delay and queuing occurring at study intersections.

Roadway System

Access to the project site is provided by four roadways. Each of the roadways expected to see an increase in traffic because of the Project are described below.

Westminster Avenue/17th Street is a six-lane divided roadway. Westminster Avenue/17th Street is classified as Major Arterial and connects to Interstate 5 (I-5) to the east of the Project site. Westminster Avenue/17th Street has a 40 mile per hour (MPH) posted speed-limit within the study area.

North Fairview Street is a four-lane roadway with a posted speed limit of 40 MPH. Classified as a Major Arterial, North Fairview Street connects to State Route 22 north of the Project Site.

West 16th Street is a two-lane residential roadway that connects North Huron Drive to North Fairview Street. On-street parking is allowed on both sides of West 16th Street.

North Huron Drive is a two-lane residential roadway, located directly west of the Project site. North Huron Drives provides access from Westminster Avenue to the residential area bounded by Westminster Avenue on the north and the Santa Ana River to the south.

Existing Pedestrian & Bicycle Facilities

Bicycle and pedestrian facilities near the Project site are documented below. These facilities were identified based on field observations and a review of the City of Santa Ana Active Transportation Plan, completed in June 2019.

Pedestrian Facilities

Today, sidewalks are provided on both sides of the following roadways surrounding the Project site:

- Westminster Avenue/17th Street
- Mar Les Drive
- North Huron Drive
- West 16th Street
- North Fairview Street

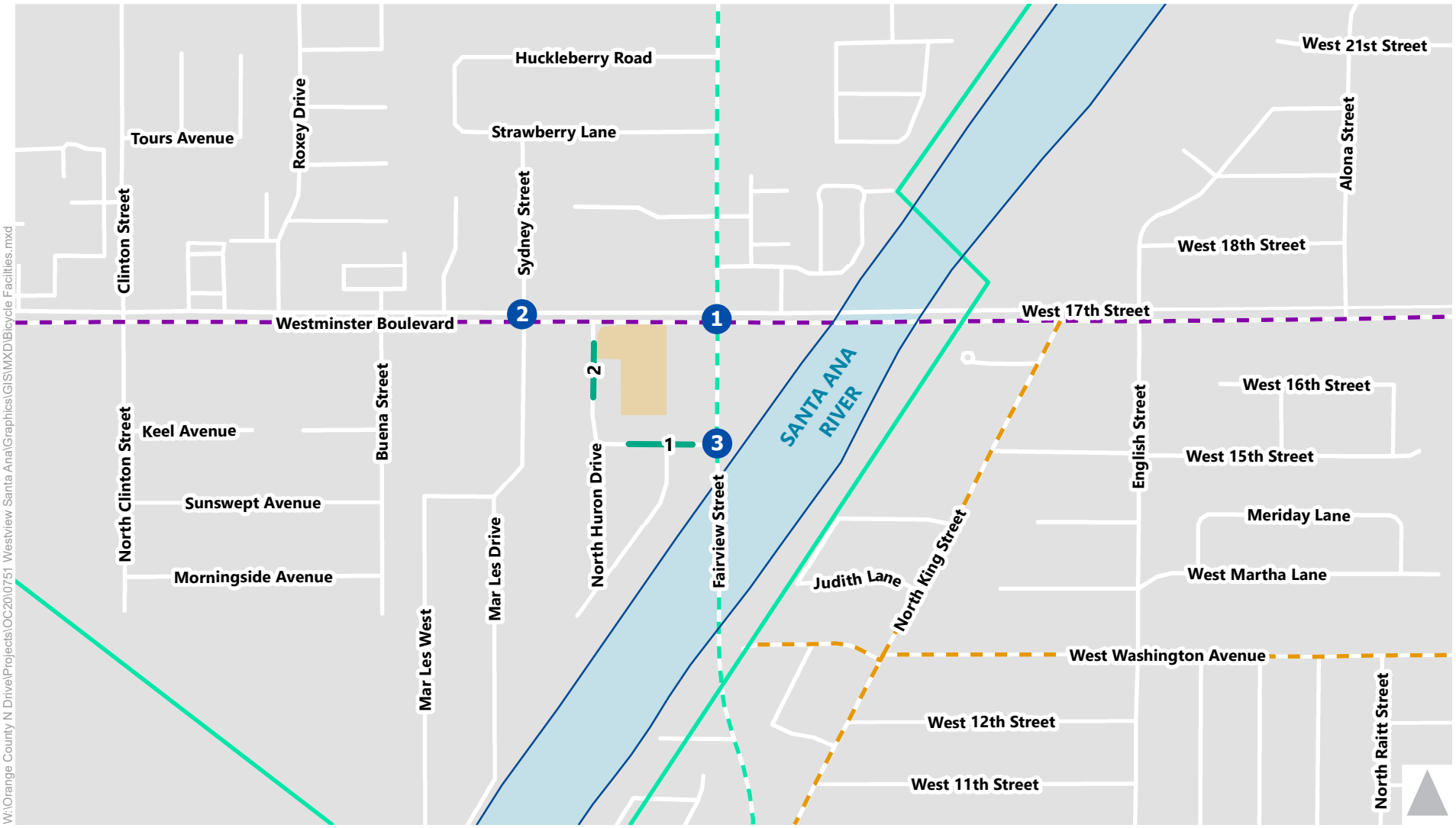
On North Fairview Street, sidewalks end just south of the intersection with West 16th Street and no sidewalks are provided on the bridge crossing the Sana Ana River. Painted crosswalks are provided at nearby signalized intersections but not at most unsignalized intersections.

Bicycle Facilities

The City of Santa Ana classifies bicycle facilities using the four classifications described below.

- **Multi-Use Path (Class I)** – Multi-use paths provide a separate right-of-way and are designated for the exclusive use of people riding bicycles and walking with minimal cross-flow traffic. Such paths can be well situated along creeks, canals, and rail lines. Class I Bikeways can also offer opportunities not provided by the road system by serving as both recreational areas and/or desirable commuter routes.
- **Bike lanes (Class II)** – Bike lanes provide designated street space for bicyclists, typically adjacent to the outer vehicle travel lanes. Bike lanes include special lane markings, pavement legends, and signage. Bike lanes may be enhanced with painted buffers between vehicle lanes and/or parking, and green paint at conflict zones (such as driveways or intersections).
- **Bike routes (Class III)** – Bike routes provide enhanced mixed-traffic conditions for bicyclists through signage, striping, and/or traffic calming treatments, and to provide continuity to a bikeway network. Bike routes are typically designated along gaps between bike trails or bike lanes, or along low-volume, low-speed streets. Bicycle boulevards provide further enhancements to bike routes to encourage slow speeds and discourage non-local vehicle traffic via traffic diverters, chicanes, traffic circles, and/or speed tables. Bicycle boulevards can also feature special wayfinding signage to nearby destinations or other bikeways.
- **Separated Bikeway (Class IV)** – Separated bikeways, also referred to as cycle tracks or protected bikeways, are bikeways for the exclusive use of bicycles which are physically separated from vehicle traffic. Separated Bikeways were recently adopted by Caltrans in 2015. Types of separation may include, but are not limited to, grade separation, flexible posts, physical barriers, or on-street parking.

None of the roadways surrounding the Project site currently provide bicycle facilities. The primary bicycle amenity near the Project site is the Santa Ana River Trail, a multi-use path that follows the Santa Ana River. Near the Project access to the trail is provided on West 17th Street just east of the Westminster Avenue/17th Street & North Fairview Street intersection. To the south, access is provided on the south side of the North Fairview Street. Existing and proposed bicycle facilities are shown on **Figure 3**.



Bicycle Facilities

- Class I Bike Path
- Class II Bike Lane
- Proposed Class I Bike Path
- Proposed Class III Bike Route
- Proposed Class IV Cycle Track
- # Study Intersections
- Roadway Segments
- Project Site

Figure 3

Existing and Proposed Bicycle Facilties

Existing Transit Service

Transit service in the study area is operated by the Orange County Transportation Authority (OCTA). There are three transit stop pairs within one quarter mile of the Project site: two located on Westminster Avenue and one on North Fairview Street. These stops are served by the three routes described below and shown in **Figure 4**. The schedules reported below are based on pre-COVID (typical) operating conditions.

Route 47/47A: Stops with access to Route 47/47A are located on North Fairview Street. This route operates between Fullerton and Newport Beach. Monday through Sunday this route operates between 5:00 AM and 9:00 PM with approximately one-hour headways.

Route 60: Stops with access to Route 60 are located on Westminster Avenue. This route operates between Long Beach and Tustin. Between 4:00 AM to 8:00 AM and 6:00 PM to Midnight this route operates with 20-minute headways. During off-peak hours headways are approximately 40 minutes.

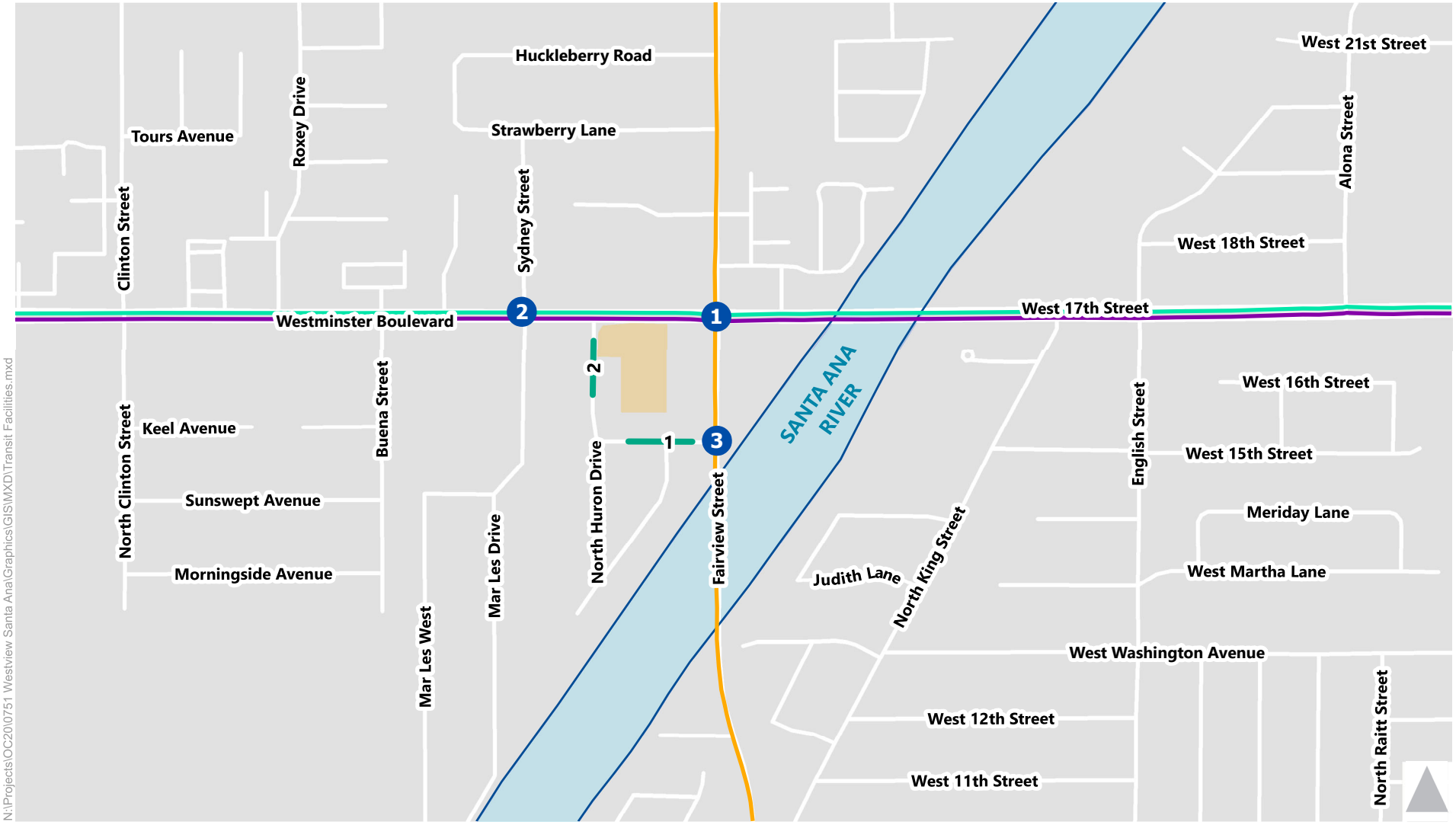
Bravo Route 560: Regular routing and stops with access to Route 560 are located on Westminster Avenue. This route operates between Long Beach and Santa Ana, providing connections to Metrolink and Bravo 543. Between 6:00 AM to 9:30 AM and 3:30 PM to 7:00 PM this route operates with 12-minute headways. During off-peak hours headways are approximately 15 minutes. Since this route operates with at least 15-minute headways in the peak hour, this qualifies the project site as within a Transit Priority Area (TPA).

Existing Traffic Volume

Traffic counts were collected at the study intersections on a Thursday in August during the AM (7:00 to 9:00 AM) and PM (4:00 to 6:00 PM) peak periods. As these counts were collected during the COVID-19 pandemic, which has significantly altered travel patterns due to local Stay-at-Home orders, historical traffic data was reviewed and compared to counts collected in 2020 where data was available. This comparison was then used to determine what adjustment would be applied to 2020 counts to accurately represent 2020 pre-COVID conditions. See **Appendix A** for the unadjusted count data collected in 2020.

A review of recent studies completed in the area found that the *Traffic Impact Analysis Fairview Street Widening and Bridge Replacement Project*, completed in May 2018 included counts collected in 2017 at two of the study intersections (Westminster Avenue/17th Street & North Fairview Street and West 16th Street & North Fairview Street). These counts were grown by 1% per year to represent 2020 conditions. Based on a comparison of datasets, the 2020 traffic volumes at the intersection of Mar Les Drive & Westminster Avenue were adjusted up by 60% in the AM and 35% in the PM on Westminster Avenue and up by 80% in the AM and 30% in the PM on the side streets. A 1% growth rate was then applied to grow that intersection from 2017 to 2020.

The turning movement volume and lane configuration used to evaluate existing conditions is shown on **Figure 5**.



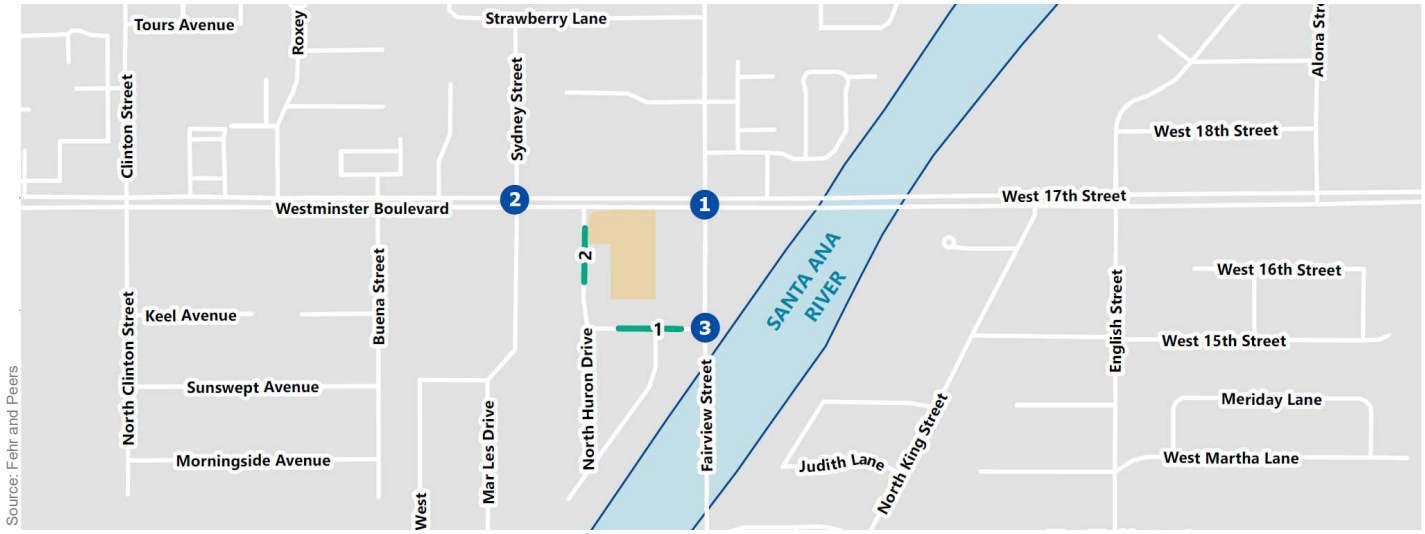
Transit Routes

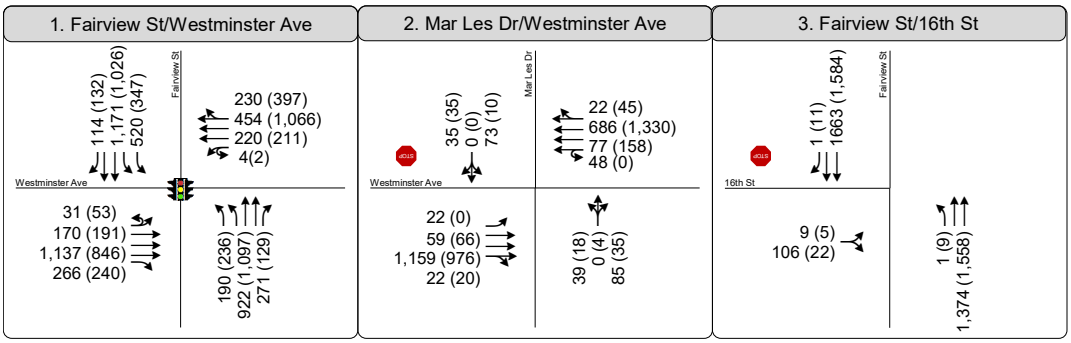
- 47/47 A
- 60
- 560

- # Study Intersections
- Roadway Segments
- Project Site

Figure 4

Transit Facilties





LEGEND

#	Study Intersection
AM (PM)	Peak Hour Traffic Volume
STOP	Stop Sign
	Signalized

Figure 5

Peak Hour Traffic Volumes and Lane Configurations - Existing (2020) Conditions

Existing (2020) Operations Analysis

Findings for the existing conditions assessment, including V/C, delay, LOS and queueing evaluation are documented below.

Intersection Operations

The LOS for the study intersections are presented in **Table 2**. As shown, two of the study intersections operate at or above capacity (LOS E or F). Technical calculations are included in **Appendix B**.

Field observations confirmed high traffic volumes during the peak hours along Westminster Avenue/17th Street and North Fairview Street. Queues of traffic often build several hundred feet behind the stop bar between each traffic signal cycle at Westminster Avenue/17th Street & North Fairview Street. In most cases, the queues clear out between each 140 second cycle, though some left-turning vehicles have to wait two cycles. This intersection is operating at capacity (LOS E) in both AM and PM peak hours.

At the intersection of Westminster Avenue & Mar Les Drive, the LOS F operations are a result of the high delay estimated for vehicles on Mar Les Drive and Sydney Street turning onto Westminster Avenue, as well as drivers making left-turns and U-turns from Westminster to the side-streets, as gaps in traffic are limited by the high traffic volumes on Westminster Avenue. The signal at North Fairview Street typically meters traffic and creates gaps in the traffic flow; this is not captured in the isolated intersection analysis using the HCM methodology. In addition, the HCM methodology cannot take into account the "Keep Clear" striping at the intersection, which was installed at this intersection to provide space for vehicles to merge onto Westminster Avenue when queues spill back from the signalized intersection of Westminster Avenue/17th Street & North Fairview Street. Delay is reported as greater than 120 second due to limitations of the HCM methodology for side-street stop-controlled intersections on multi-lane roadways with high-volume.

Table 2. Existing (2020) Intersection LOS Summary

Intersection			AM Peak Hour		PM Peak Hour	
		Control	Delay (s/veh)/ V/C	LOS	Delay (s/veh)/ V/C	LOS
1	Westminster Ave/17th St & N Fairview St	Signalized	**0.913**	**E**	**0.913**	**E**
2	Westminster Ave & Mar Les Dr	SSSC[1]	**>120**[4]	**F**	**>120**[4]	**F**
3	W 16th St & N Fairview St	SSSC[1]	34	D	23	C

Notes:
1. SSSC = Side-street stop-controlled intersection.
2. **Bold text** indicates intersection operates at or above capacity (LOS E).
3. Delay is reported for unsignalized intersections and V/C is reported for signalized intersections.
4. Delay is reported as greater than 120 second due to limitations of the HCM methodology for side-street stop control intersections on multi-lane roadways with high-volume.

Queueing

The queueing analysis results are presented in **Table 3**. As shown, the existing turn-pockets provide enough storage capacity throughout each peak hour except for the maximum queue (95th percentile queue) estimated for the eastbound left-turn/U-turn during the PM peak hour at Westminster Avenue/17th Street & North Fairview Street. As shown, while the typical (50th percentile queue) queue fits within the available storage some peak cycles exceed storage by an estimated 200 feet during the PM peak hour.

Table 3. Existing (2020) Queueing Summary

	Intersection (Movement)	Available Storage (ft)	AM Peak Hour Queue (ft)	PM Peak Hour Queue (ft)
1	Westminster Ave/17th St & N Fairview St (EBL/EBU)	350	180 (290)	350 **(550)**
2	Westminster Ave & Mar Les Dr (WBL/WBU)	195	(60)	(60)
3	W 16th St & N Fairview St (NBL)	75	(10)	(10)

XX (XX) - 50th Percentile Queue (95th Percentile Queue)
Bold text indicates queue exceeds storage.

Signal Warrants

The peak hour signal warrant outlined in the MUTCD was evaluated to determine if the stop-controlled study intersections would meet the warrant for installation of a traffic signal under existing conditions. As shown in **Table 4,** both intersections would meet the signal warrant during the AM peak hour under existing conditions[1]. Signal warrant worksheets are provided in **Appendix C**.

Table 4. Existing (2020) Signal Warrant Summary

	Intersection	AM Peak Hour	PM Peak Hour
2	Westminster Avenue & Mar Les Drive	Met	Not Met
3	W 16th Street & N Fairview Street	Met	Not Met

Notes: Based on evaluation of Warrant #3, Peak Hour, in the MUTCD.

[1] This analysis is reviewed existing traffic compared against a sub-set of the standard traffic signal warrants recommended in the Federal Highway Administration Manual on Uniform Traffic Control Devices and associated State guidelines. This analysis should not serve as the only basis for deciding whether and when to install a signal. To reach such a decision, the full set of warrants should be investigated based on field-measured, rather than forecast, traffic data and a thorough study of traffic and roadway conditions by an experienced engineer. Furthermore, the decision to install a signal should not be based solely upon the warrants, since the installation of signals can lead to certain types of collisions. The responsible state or local agency should undertake regular monitoring of actual traffic conditions and accident data, and timely re-evaluation of the full set of warrants in order to prioritize and program intersections for signalization.

Project Characteristics

This section describes the trip generation data used to calculate the number of new trips expected to occur based on the Project land use and the distribution used to adding new project trips to the roadway network.

Project Trip Generation

Trip generation refers to the process of estimating the amount of vehicular traffic a project would add to the surrounding roadway network. Estimates are created for the daily condition and for the peak one-hour period during the morning and evening commute when traffic volumes on the adjacent streets are typically the highest. Project trip generation was estimated using rates from the Institute of Transportation Engineers (ITE) *Trip Generation Manual* (10th Edition) and are presented in **Table 5**.

Through coordination with the City, Multifamily Mid-Rise (Land Use Code 221) was determined to be the most appropriate land use for this assessment. It is assumed that this will provide a more conservative trip generation estimate than using lower rates measured for affordable housing projects.

Table 5. Project Trip Generation

Land Use Code	Land Use Name	Size	Unit	Method	Daily	AM Peak			PM Peak		
						In	Out	Total	In	Out	Total
221	Multi-family Mid Rise	85	Dwelling Units	Average	462	8	23	31	23	14	37

Source: ITE Trip Generation Manual 10th Edition

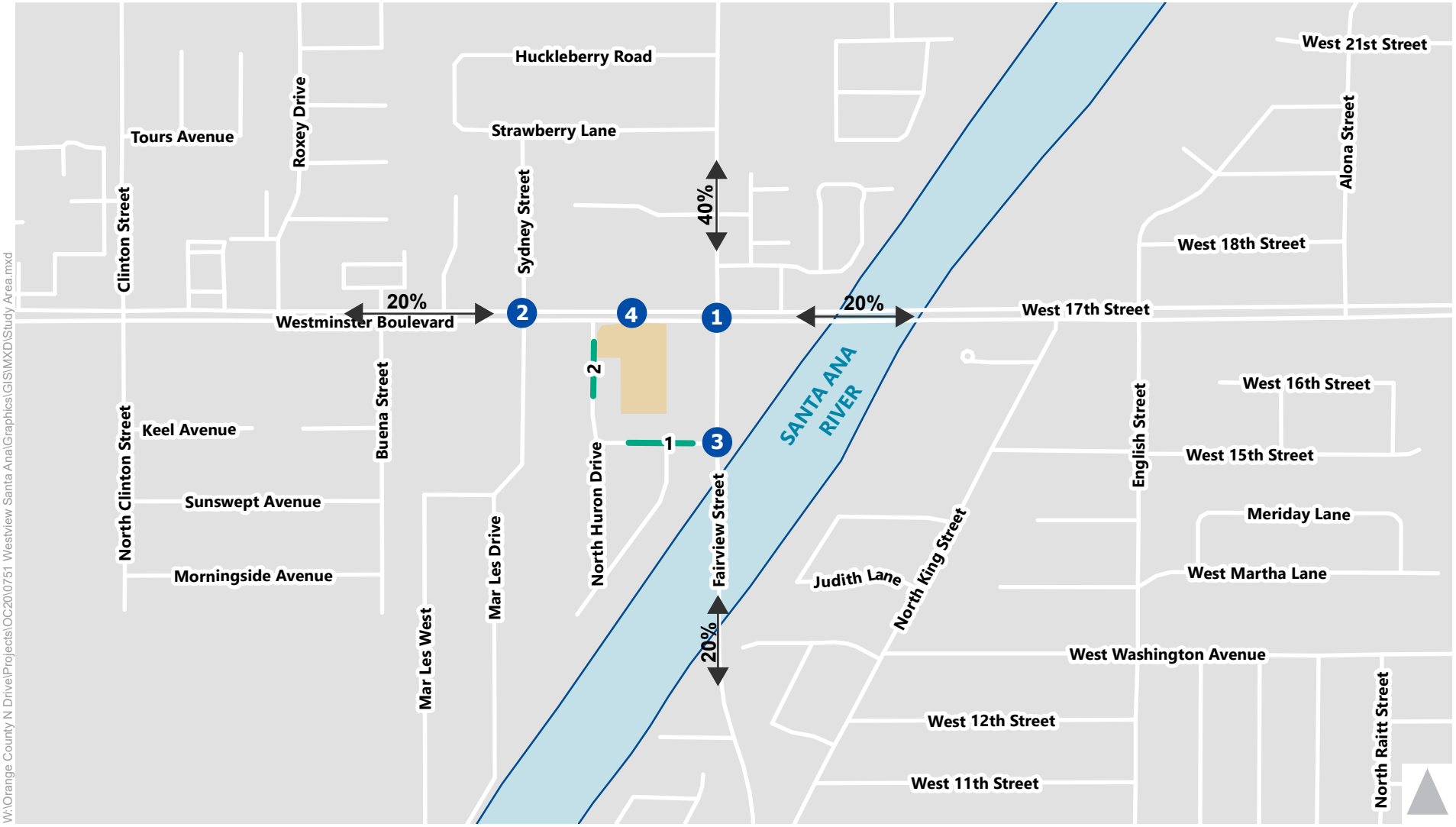
Daily: T = 5.44(X)

AM Peak Hour: T = 0.36(X) (21% in, 79% out)

PM Peak Hour: T = 0.44(X) (65% in, 35% out)

Project Trip Distribution & Assignment

Project trip distribution refers to the directions of approach and departure that vehicles would use to travel to and from the Project. The geographic distribution of trips generated by the Project is dependent on characteristics of the street system serving the Project site, the level of accessibility of routes to and from the proposed Project site, and the locations of employment and residential areas to which patrons of the Project would be drawn. The trip distribution was finalized through conversations with City officials to ensure that the assumptions made were realistic and vetted. The resulting trip distribution percentages are shown on **Figure 6**. Project trips were then assigned to the roadway network based on the directions of approach and departure, as presented on **Figure 7**. Under 2045 conditions, a raised median is assumed to limit access to 16th Street and project trips were routed according to **Figure 8**.



X% Project Trip Distribution

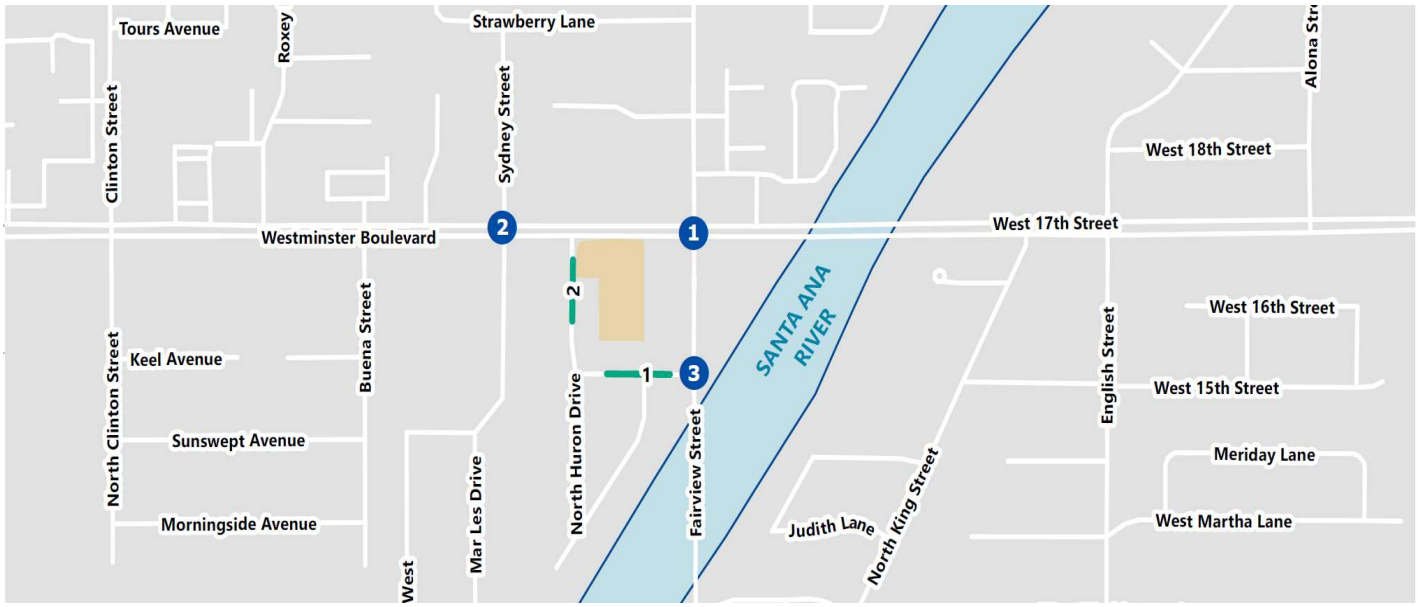
Study Intersections

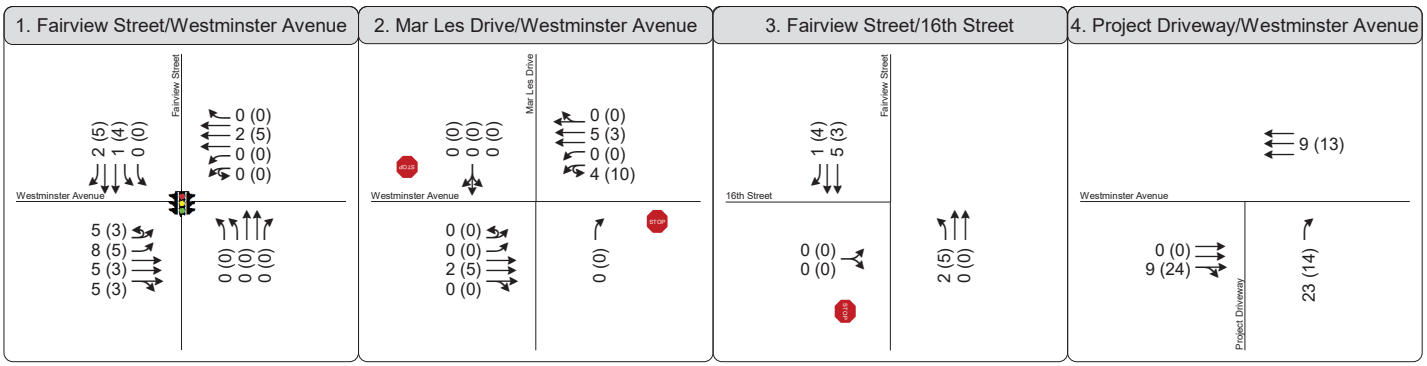
Roadway Segments

Project Site

Figure 6

Project Trip Distribution



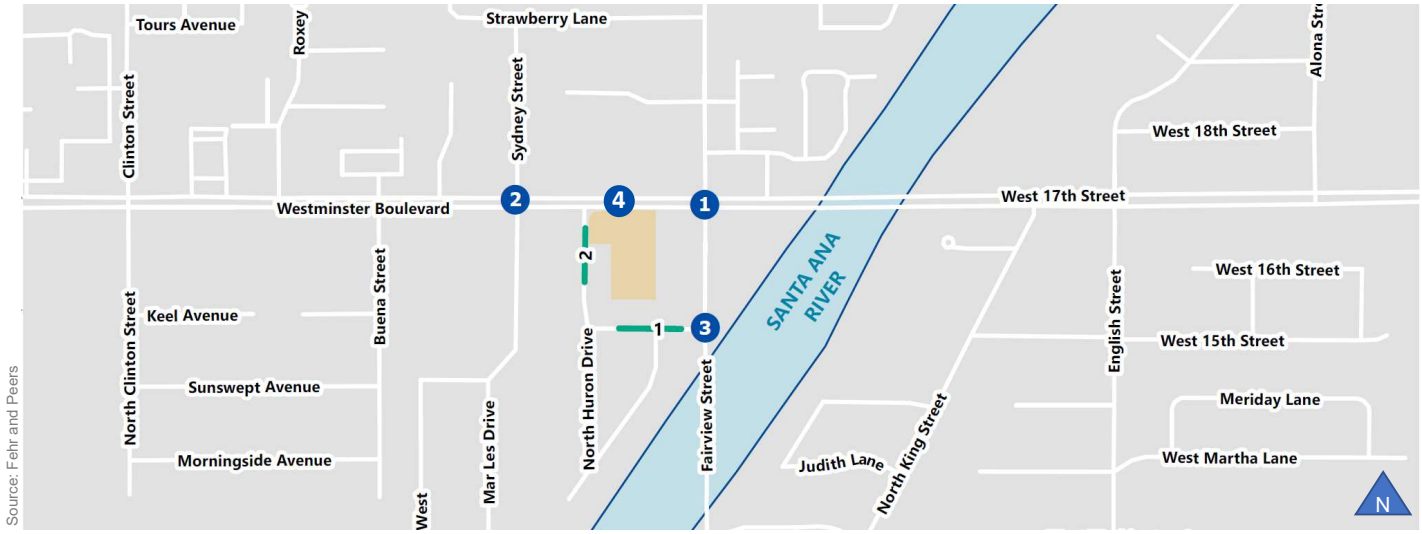


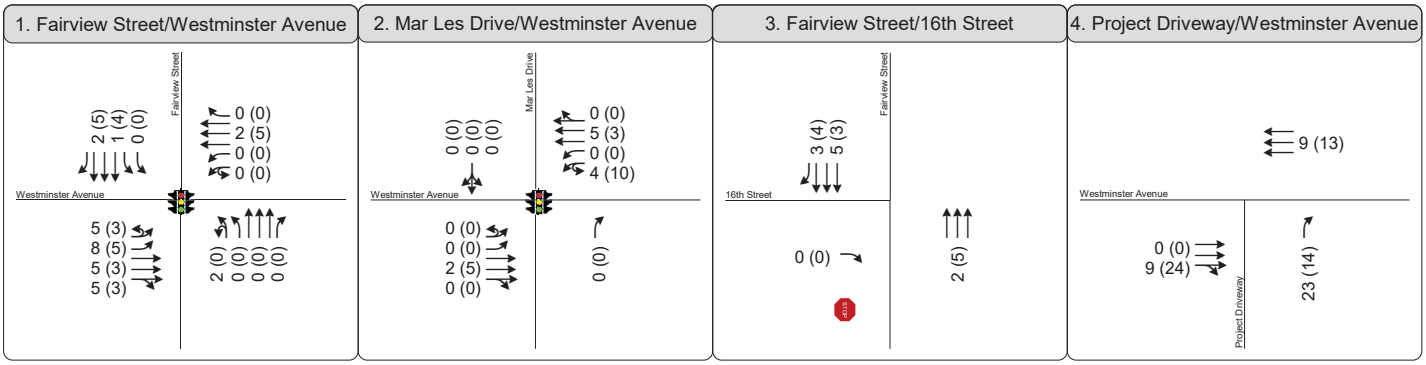
LEGEND

- # — Study Intersection
- AM (PM) — Peak Hour Traffic Volume
- STOP — Stop Sign
- Signalized

Figure 7

Existing Year (2020) and Opening Year (2023) Conditions
Project Trip Assignment





LEGEND

#	Study Intersection
AM (PM)	Peak Hour Traffic Volume
	Stop Sign
	Signalized

Figure 8

Future Year (2040) Conditions
Project Trip Assignment

Existing Plus Project Conditions

This chapter presents the findings of the Existing Plus Project operations assessment.

Existing (2020) Plus Project Traffic Volume

Traffic volume information used to evaluate Existing Plus Project conditions was developed by adding the Project generated trips to the turning movement volume developed for existing conditions. Traffic volume and lane configurations used to evaluate this scenario are shown on **Figure 9**.

Existing (2020) Plus Project Conditions Findings

Intersection Operations

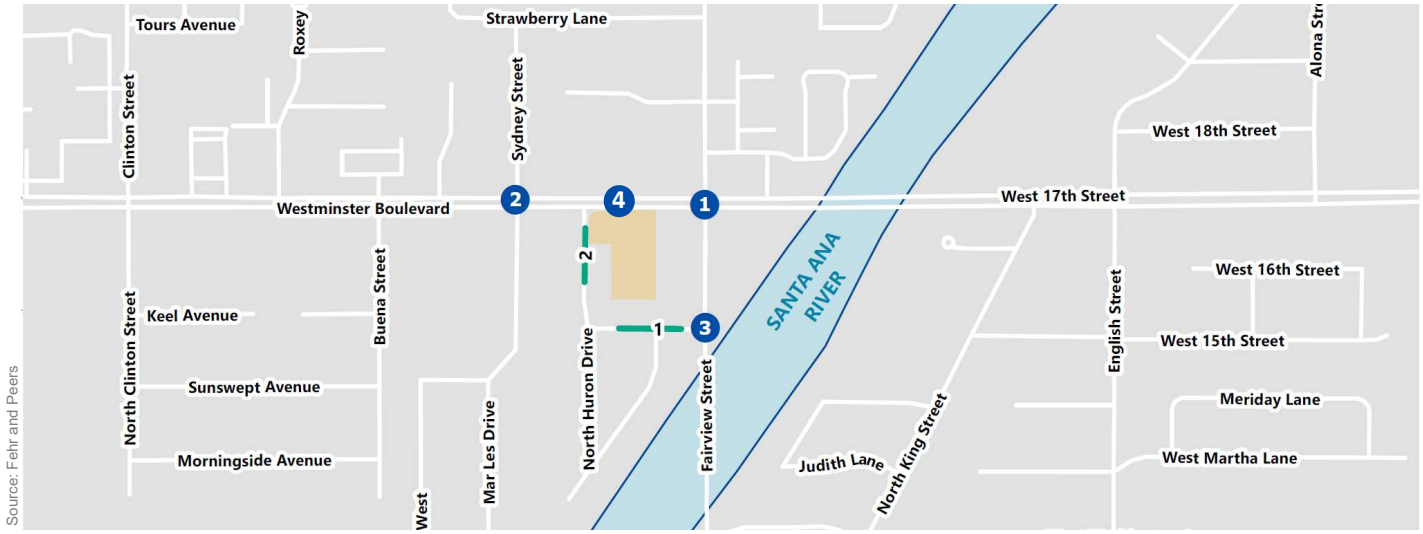
The LOS for the study intersections is presented in **Table 6**. As shown, the same two study intersections operate at or above capacity (LOS E or F) as did in Existing (2020) Conditions. Technical calculations are included in **Appendix B**.

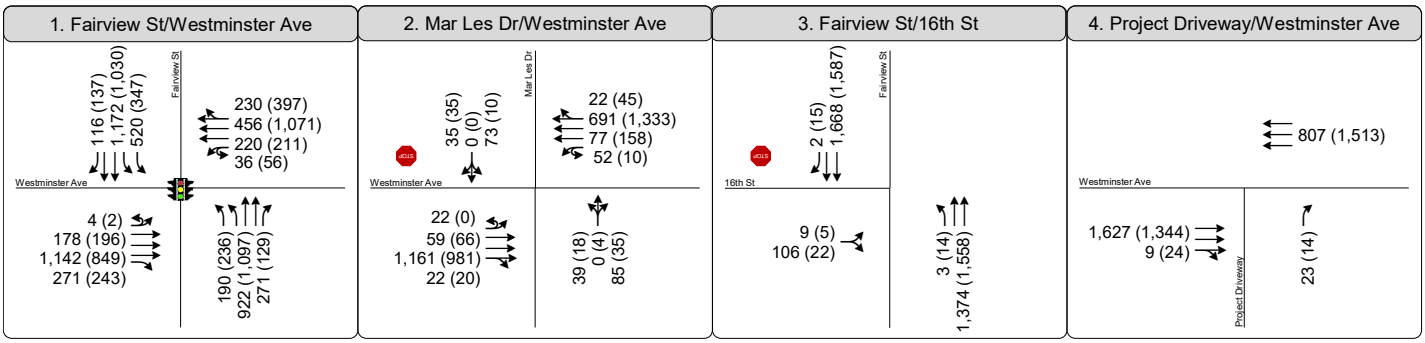
The addition of Project traffic would not result in changes in LOS at any of the study intersections under Existing Plus Project conditions.

At the Westminster Avenue/17th Street & North Fairview Street intersection, the V/C ratio would be increased by 0.001 and 0.003 during the AM and PM peak hour, respectively. The Project increases traffic volumes at the intersection by 0.5% in the AM and PM peak hours.

The Project adds a small number of trips (11 in the AM, a 0.5% increase, and 18 trips in the PM, a 0.7% increase) to the Westminster Avenue & Mar Les Drive intersection. The increase in delay is assumed to be negligible. As mentioned previously, gaps are expected within every 140 second traffic cycle length at Westminster Avenue/17th Street & North Fairview Street with the "Keep Clear" striping.

Delay at the West 16th Street & North Fairview Street intersection would increase on average by one second during the AM peak hour and would continue to operate at LOS D with the addition of Project traffic. No change is expected in delay or LOS during the PM peak hour.





LEGEND

#	Study Intersection
AM (PM)	Peak Hour Traffic Volume
STOP	Stop Sign
	Signalized

Figure 9

Peak Hour Traffic Volumes and Lane Configurations - Existing (2020) Plus Project Conditions

Table 6. Existing (2020) Plus Project Intersection LOS Summary

	Intersection	Control	Existing (2020)				Existing Plus Project			
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
			Delay (s/veh)/ V/C	LOS	Delay (s/veh)/ V/C	LOS	Delay (s/veh)/ V/C	LOS	Delay (s/veh)/ V/C	LOS
1	Westminster Ave/17th St & N Fairview St	Signalized	**0.913**	**E**	**0.913**	**E**	**0.914**	**E**	**0.917**	**E**
2	Westminster Ave & Mar Les Dr	SSSC[1]	**>120**[4]	**F**	**>120**[4]	**F**	**>120**[4]	**F**	**>120**[4]	**F**
3	W 16th St & N Fairview St	SSSC[1]	34	D	23	C	35	D	23	C

Notes:
1. SSSC = Side-street stop-controlled intersection.
2. **Bold text** indicates intersection operates at or above capacity (LOS E).
3. Delay is reported for unsignalized intersections and V/C is reported for signalized intersections.
4. Delay is reported as greater than 120 second due to limitations of the HCM methodology for side-street stop control intersections on multi-lane roadways with high-volume.

Signal Warrants

The peak hour signal warrant outlined in the MUTCD was evaluated to determine if the stop-controlled study intersections would meet the warrant for installation of a traffic signal with the addition of new trips resulting from the Project. As shown in **Table 7** both intersections would meet signal warrants under both Existing and Existing Plus Project conditions[2]. As this condition is met under existing conditions, this is not the result of the Project.

A detailed engineering study should be performed prior to installation of a traffic signal to fully understand the implications of signalization of either of these intersections. Meeting a single traffic signal warrant should not be the sole basis of recommending a traffic signal as engineering judgement is required. A key consideration for both intersections, is the proximity of existing signals. Signalization of West 16th Street would construct a signal less than 500 feet from an existing signal. Signalization of intersections so closely spaced along major arterials is typically discouraged.

[2] This analysis is intended to examine the general correlation between the planned level of future development and the need to install new traffic signals. It estimates future development-generated traffic compared against a sub-set of the standard traffic signal warrants recommended in the Federal Highway Administration Manual on Uniform Traffic Control Devices and associated State guidelines. This analysis should not serve as the only basis for deciding whether and when to install a signal. To reach such a decision, the full set of warrants should be investigated based on field-measured, rather than forecast, traffic data and a thorough study of traffic and roadway conditions by an experienced engineer. Furthermore, the decision to install a signal should not be based solely upon the warrants, since the installation of signals can lead to certain types of collisions. The responsible state or local agency should undertake regular monitoring of actual traffic conditions and accident data, and timely re-evaluation of the full set of warrants in order to prioritize and program intersections for signalization.

For additional consideration, traffic signalization at either of these intersections may not substantially decrease delays for the minor legs as both traffic signals would need to be coordinated with the adjacent signal at Westminster Avenue/17th Street & North Fairview Street. Given the traffic volumes on Westminster Avenue and North Fairview Street, the majority of the green time would be devoted to the major directions and left-turn phases would provide approximately the same gaps currently provided by the "Keep Clear" striping and metering the existing signal provides.

Table 7. Existing (2020) Plus Project Signal Warrant Summary

Intersection		Existing (2020)		Existing Plus Project	
		AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
2	Westminster Ave & Mar Les Dr	Met	Not Met	Met	Not Met
3	W 16th St & N Fairview St	Met	Not Met	Met	Not Met

Note: Based on evaluation of Warrant #3, Peak Hour, in the MUTCD.

Queueing

A queueing assessment was completed to evaluate if queueing in dedicated left-turn pockets would exceed available storage. The queueing analysis results are presented in **Table 8**.

During the PM peak hour, the addition of project trips is forecast to increase the maximum queue for the eastbound left-turn/U-turn movement at the Westminster Avenue/17th Street & North Fairview Street by 35 feet (the length of approximately two vehicles). While there is median right-of-way available to extend the turn-pocket for the eastbound left-turn/U-turns by up to 150 feet, this would extend the left-turn pocket past the North Huron Drive intersection which is currently marked "Keep Clear". Extension of the turn-pocket would make it harder for vehicles turning from North Huron Drive to access the turn lane to make a U-turn, which is the only option for drivers attempting to travel westbound on Westminster Avenue.

Table 8. Existing (2020) Plus Project Queueing Summary

Intersection (Movement)		Available Storage (ft)	Existing (2020)		Existing Plus Project	
			AM Peak Hour Queue (ft)	PM Peak Hour Queue (ft)	AM Peak Hour Queue (ft)	PM Peak Hour Queue (ft)
1	Westminster Ave/17th St & N Fairview St (EBL/EBU)	350	180 (290)	350 **(550)**	200 (315)	**375 (585)**
2	Westminster Ave & Mar Les Dr (WBL/WBU)	195	60	60	65	65
3	W 16th St & N Fairview St (NBL)	75	10	10	10	10

Notes:

1. XX (XX) - 50th Percentile Queue (95th Percentile Queue)
2. **Bold text** indicates queue exceeds storage.

Future Year Traffic Conditions

This section presents the findings of the future year scenarios evaluated: Opening Year (2023) and Cumulative Year (2045). The findings for each scenario, with and without the proposed Project are presented below.

Opening Year (2023)

Findings for the Opening Year (2023) are presented below. This includes traffic forecasts used to evaluate 2023 conditions, followed by the operational assessment with and with Project traffic.

Traffic Forecasts

Traffic volume forecasts for Opening Year conditions were developed by applying an annual growth rate of one percent per year to the adjusted traffic counts collected in 2020. The annual growth rate was based on coordination with the City.

Background Projects

To account for the increase in traffic from other development projects near the Project site that have been approved but not yet constructed, trips from these projects were also added to the 2020 traffic volumes. Projects within a two-mile radius were included. The list of projects and their associated trip generation estimates are included as **Appendix D**.

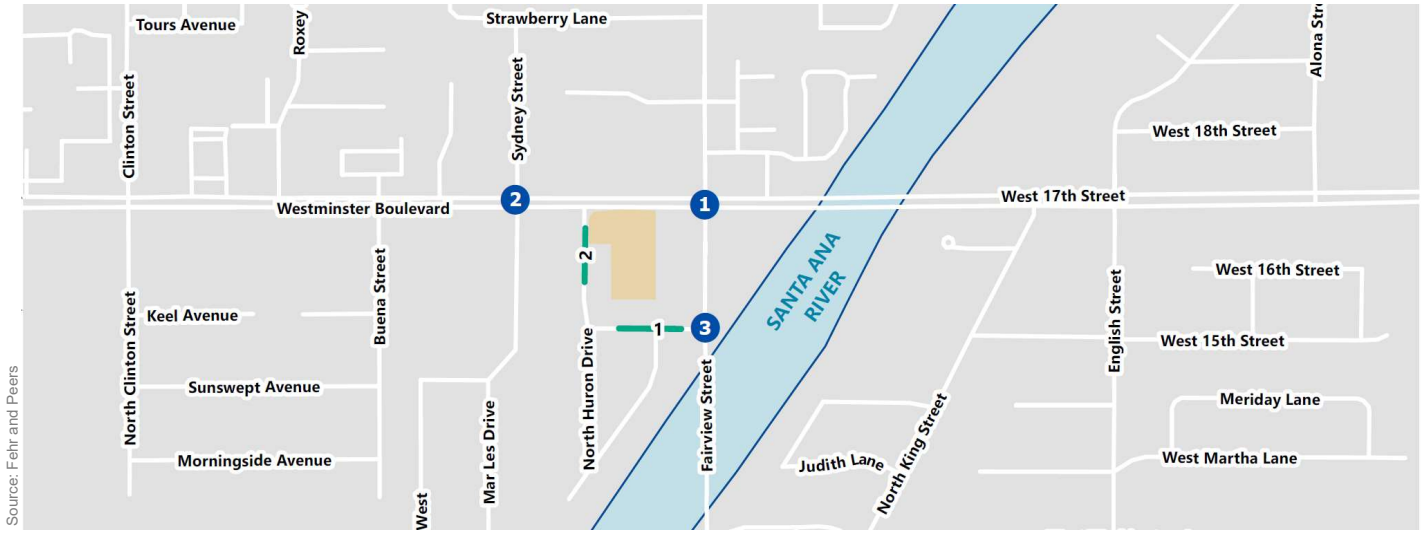
Traffic volume and lane configurations used in the Opening Year and Opening Year Plus Project scenarios are presented on **Figure 10** and **Figure 11**.

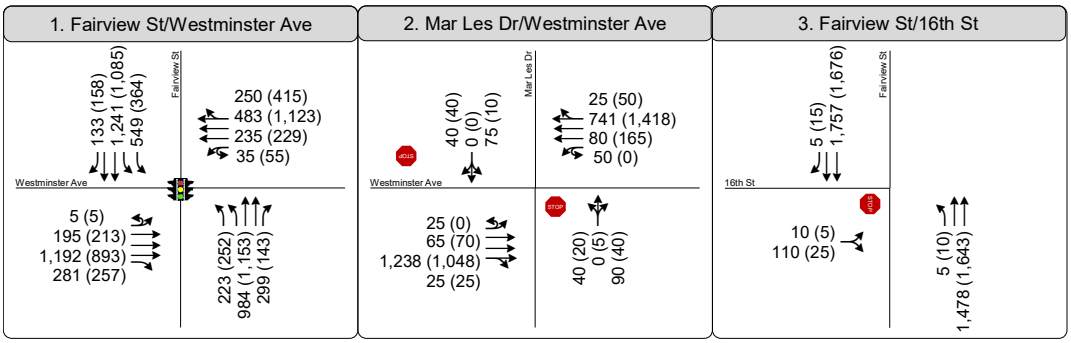
Intersection Operations

The delay and LOS for the study intersections are presented in **Table 9**. As shown, all three of the study intersections are forecast to operate at or above capacity (LOS E or F) during at least one peak hour. Technical calculations are included in **Appendix B**. The results presented below are consistent with the findings in the *Traffic Impact Analysis Fairview Street Widening and Bridge Replacement Project*.

In 2023, the Westminster Avenue/17th Street & North Fairview Street intersection is still forecast to operate at LOS E during the AM and PM peak hour. The Project is forecast to increase traffic volumes at this location by less than 0.5% The addition of Project traffic will contribute to a 0.001 increase in the V/C ratio for the intersection during the AM peak hour. During the PM peak hour, the V/C ratio is increased by 0.003 with the addition of Project traffic, while LOS grade is unchanged.

At the Westminster Avenue & Mar Les Drive intersection, operations are forecast to be worse than Existing Conditions and still operate at LOS F (over 50 seconds of delay from the side-streets). However, as mentioned previously, the HCM methodology cannot take into account the "Keep Clear" striping and gaps are anticipated to continue to provide left turn access at this intersection.



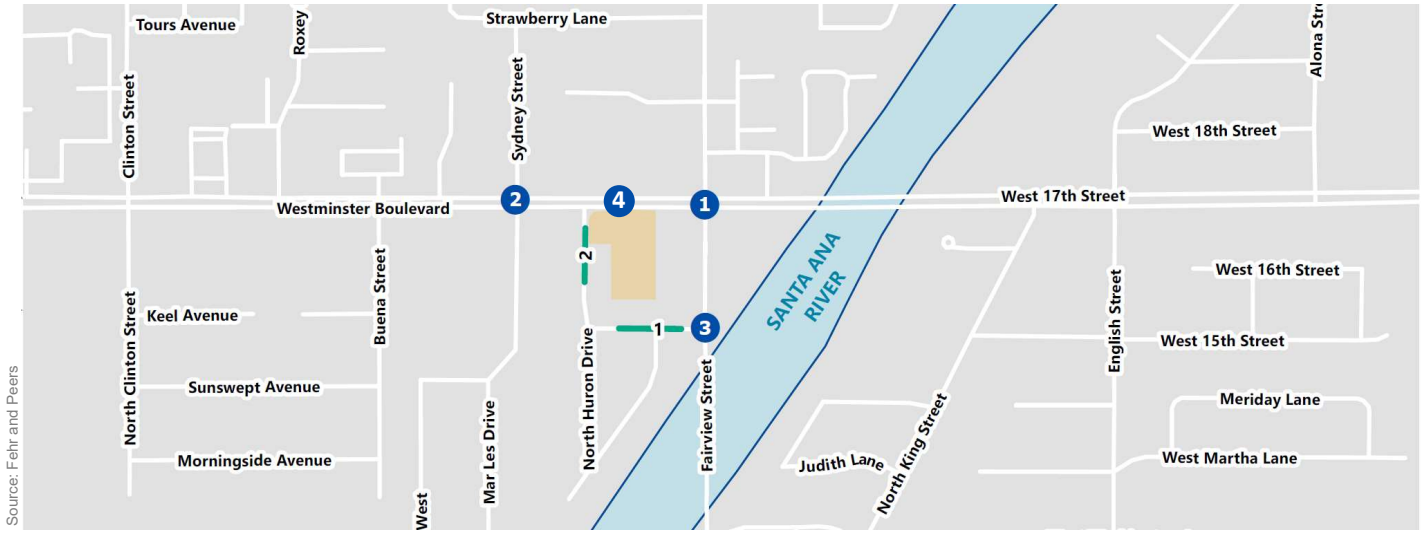


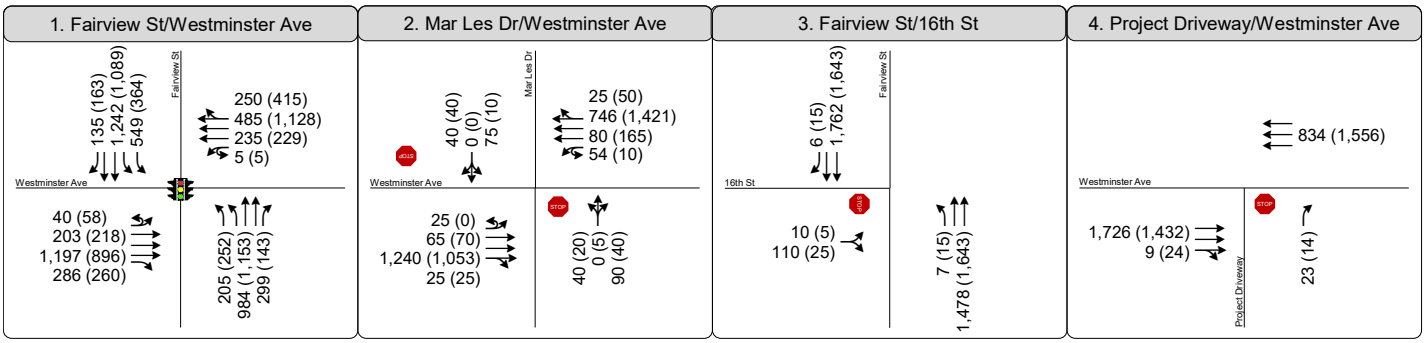
LEGEND

#	Study Intersection
AM (PM)	Peak Hour Traffic Volume
	Stop Sign
	Signalized

Figure 10

Peak Hour Traffic Volumes and Lane Configurations - Opening Year (2023)





LEGEND

#	Study Intersection
AM (PM)	Peak Hour Traffic Volume
STOP	Stop Sign
	Signalized

Figure 11

Peak Hour Traffic Volumes and Lane Configurations - Opening Year (2023) Plus Project Conditions

The West 16th Street & North Fairview Street intersection is forecast to operate at LOS E by 2023 during the AM peak hour. With the addition of project traffic, delay is forecast to increase by one second. During the PM peak hour, the intersection operates at LOS C. Delay and LOS are unchanged with the addition of Project traffic during the PM peak hour.

Table 9. Opening Year (2023) Intersection LOS Summary

	Intersection	Control	Opening Year (2023)				Opening Year (2023) Plus Project			
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
			Delay (s/veh)/ V/C	LOS	Delay (s/veh)/ V/C	LOS	Delay (s/veh)/ V/C	LOS	Delay (s/veh)/ V/C	LOS
1	Westminster Ave/17th St & N Fairview St	Signalized	**0.944**	**E**	**0.943**	**E**	**0.945**	**E**	**0.947**	**E**
2	Westminster Ave & Mar Les Dr	SSSC[1]	**>120**[4]	**F**	**>120**[4]	**F**	**>120**[4]	**F**	**>120**[4]	**F**
3	W 16th St & N Fairview St	SSSC[1]	**39**	**E**	24	C	**40**	**E**	24	C

Notes:
1. SSSC = Side-street stop-controlled intersection.
2. **Bold text** indicates intersection operates at or above capacity (LOS E).
3. Delay is reported for unsignalized intersections and V/C is reported for signalized intersections.
4. Delay is reported as greater than 120 second due to limitations of the HCM methodology for side-street stop control intersections on multi-lane roadways with high-volume.

Signal Warrants

The peak hour signal warrant outlined in the MUTCD was evaluated to determine if the stop-controlled study intersections would meet the warrant for installation of a traffic signal. As shown in **Table 10** both intersections would meet signal warrants under both Opening Year (2023) and Opening Year (2023) Plus Project conditions[3].

As described above, a detailed engineering study is recommended prior to installation of a traffic signal to fully understand the implications of signalization at these intersections.

[3] This analysis is intended to examine the general correlation between the planned level of future development and the need to install new traffic signals. It estimates future development-generated traffic compared against a sub-set of the standard traffic signal warrants recommended in the Federal Highway Administration Manual on Uniform Traffic Control Devices and associated State guidelines. This analysis should not serve as the only basis for deciding whether and when to install a signal. To reach such a decision, the full set of warrants should be investigated based on field-measured, rather than forecast, traffic data and a thorough study of traffic and roadway conditions by an experienced engineer. Furthermore, the decision to install a signal should not be based solely upon the warrants, since the installation of signals can lead to certain types of collisions. The responsible state or local agency should undertake regular monitoring of actual traffic conditions and accident data, and timely re-evaluation of the full set of warrants in order to prioritize and program intersections for signalization.

Table 10. Opening Year (2023) Signal Warrant Summary

Intersection		Opening Year (2023)		Opening Year (2023) Plus Project	
		AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
2	Westminster Avenue & Mar Les Drive	Met	Not Met	Met	Not Met
3	W 16th Street & N Fairview Street	Met	Not Met	Met	Not Met

Note: Based on evaluation of Warrant #3, Peak Hour, in the MUTCD.

Queueing

A queueing assessment was completed to evaluate if queueing in dedicated left-turn pockets would exceed available storage. The queueing analysis results are presented in **Table 11**.

In 2023, the average and maximum queues are anticipated to lengthen. During the PM peak hour, the addition of project trips in forecast to increase the maximum queue for the eastbound left-turn/U-turn movement at the Westminster Avenue/17th Street & North Fairview Street by 35 feet (the length of approximately two vehicles).

Table 11. Opening Year (2023) Queueing Summary

Intersection (Movement)		Available Storage (ft)	Opening Year (2023)		Opening Year (2023) Plus Project	
			AM Peak Hour Queue (ft)	PM Peak Hour Queue (ft)	AM Peak Hour Queue (ft)	PM Peak Hour Queue (ft)
1	Westminster Ave/17th St & N Fairview St (EBL/EBU)	350	205 (325)	**385 (600)**	225 (350)	**410 (635)**
2	Westminster Ave & Mar Les Dr (WBL/WBU)	195	80	75	85	80
3	W 16th St & N Fairview St (NBL)	75	10	10	10	10

Notes:
1. XX (XX) - 50th Percentile Queue (95th Percentile Queue).
2. **Bold text** indicates queue exceeds storage.

Cumulative Year (2045) Findings

Findings for the Cumulative Year (2045) are presented below. This includes traffic forecasts used to evaluate 2045 conditions, followed by the operational assessment with and with Project traffic.

Future Improvements

The City of Santa Ana assumes the following projects will be completed by 2045:

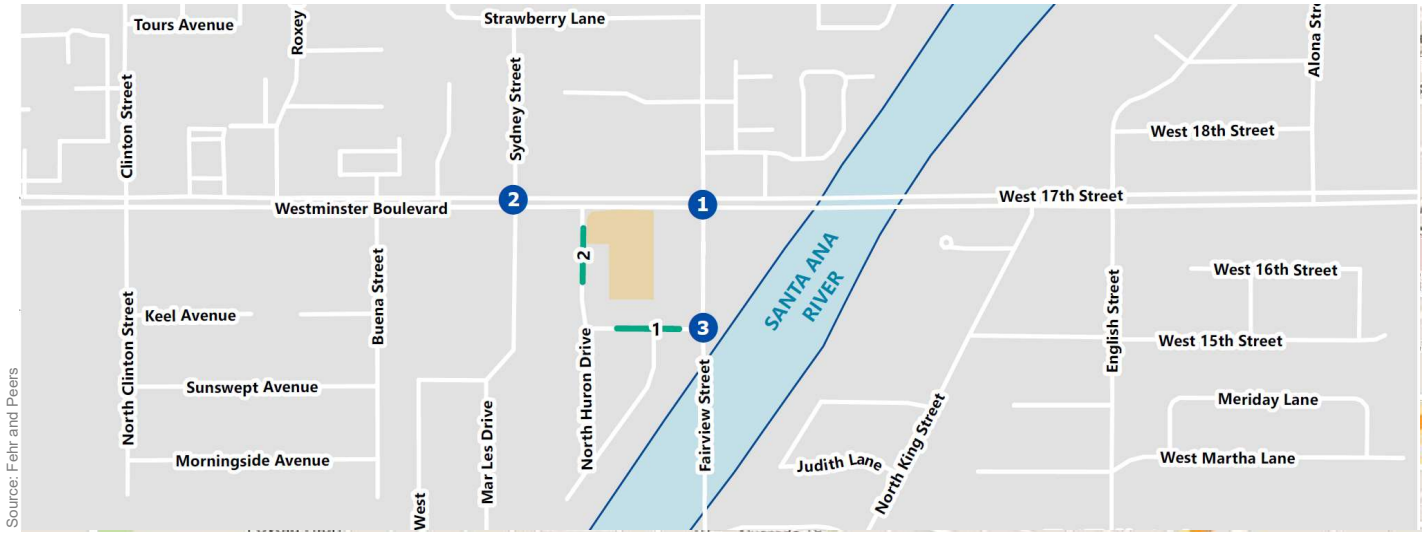
- The Fairview Street Widening and Bridge Replacement Project proposes to widen the Fairview Street crossing over the Santa Ana River from four lanes (two lanes in each direction) to six lanes (three lanes in each direction) between the intersections of 16th Street and 9th Street
- Consistent with the MPAH, six lanes (three lanes in each direction) are assumed on Fairview Street
- A raised center median will be constructed concurrent with the Fairview Street Widening and Bridge Replacement Project that would restrict left-turns in and out of 16th Street to and from Fairview Street
- The intersection of Mar Les Drive and Westminster Avenue is on the Traffic Signal Priority List and will be signalized

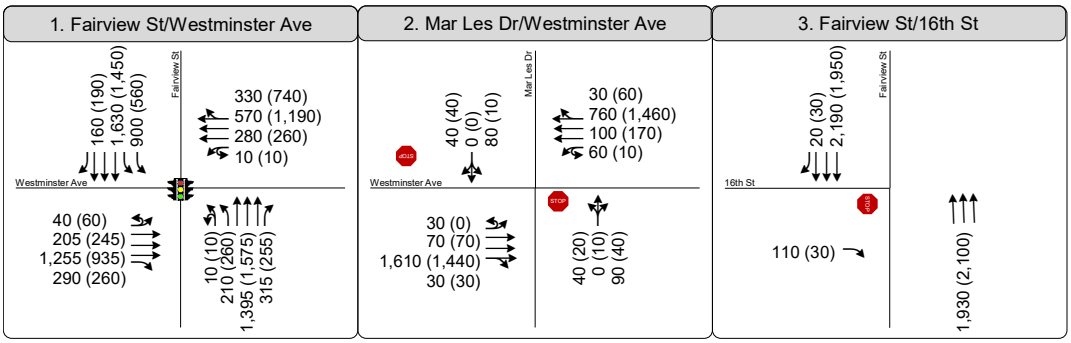
Traffic Forecasts

Traffic forecasts for 2045 were developed referencing OCTAM and historical travel patterns in the City. Using the growth projected to occur between the model base year 2016 and model future year 2045, growth was applied to 2020 traffic volume using the Difference Method. In some cases, such as along Westminster Avenue, OCTAM growth was determined to be too low. As no capacity enhancements on parallel facilities are planned, and no other programs that would result in this change in volume on Westminster Avenue, a growth rate of 0.5 percent per year was applied to 2020 traffic volumes in order to provide a conservative forecasting assessment.

As shown on **Figure 12** traffic volume on North Fairview Street is forecast to increase substantially by 2045. This is due partially to additional capacity planned on North Fairview Street south of the study area (bridge widening). Consistent with the land use in the travel demand model, the Cumulative Year forecasts assume development of the Project site as a commercial site.

Under the Plus Project conditions, trips associated with development of the site for commercial uses were removed. Using the size of the site (2.178) and an industry standard Floor-to-Area ratio of 0.25 for retail, ITE Trip Generation rates for retail were used to estimate the number of trips that would occur were calculated and removed and are provided as **Appendix E**. During the AM peak hour, 22 peak hour trips were subtracted, and 90 trips were subtracted during the PM peak hour before trips associated with the Project were added to 2045 traffic forecasts. Cumulative Year (2045) Plus Project Conditions traffic volumes are shown on **Figure 13**.



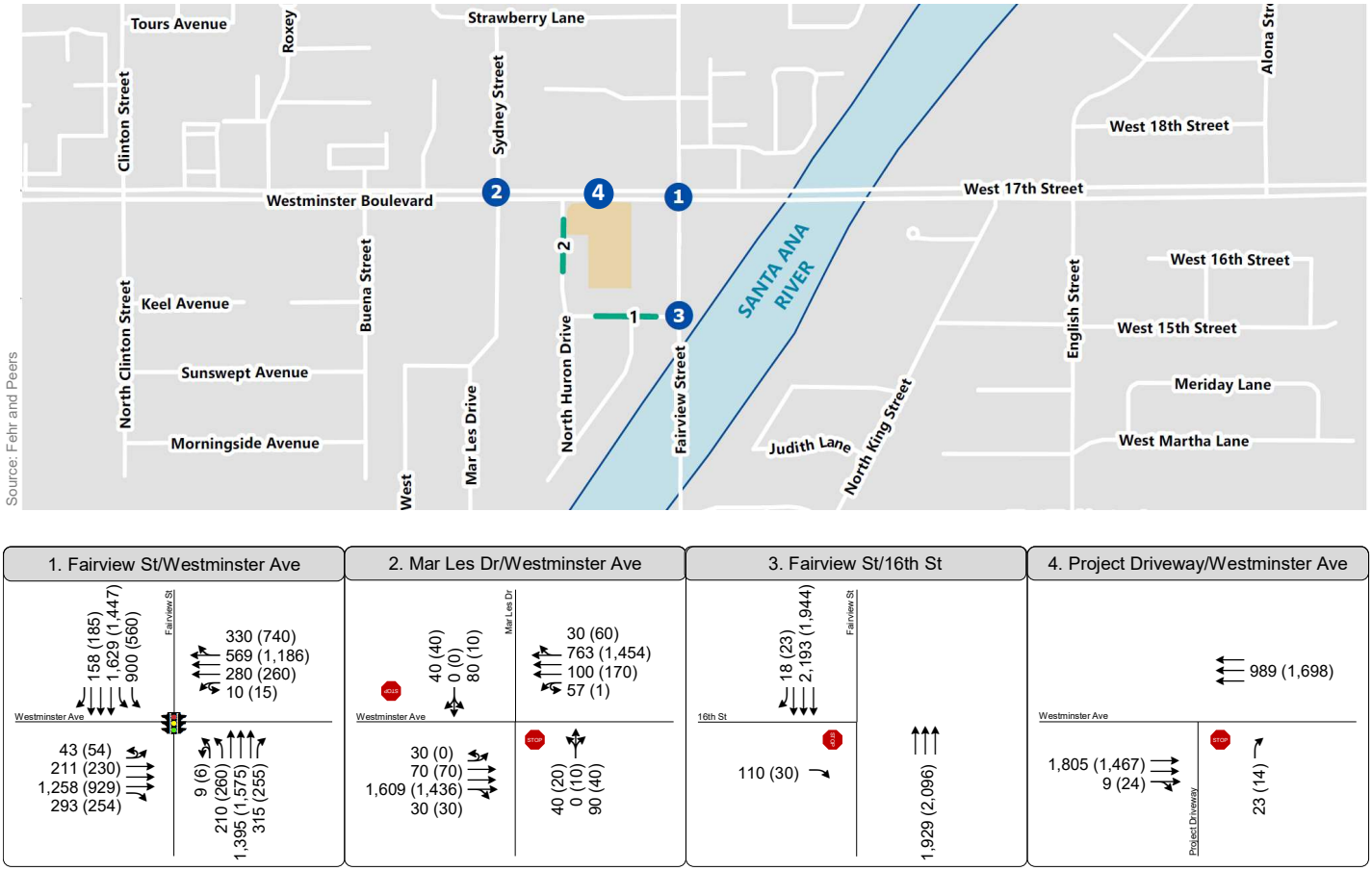


LEGEND

#	Study Intersection
AM (PM)	Peak Hour Traffic Volume
STOP	Stop Sign
	Signalized

Figure 12

Peak Hour Traffic Volumes and Lane Configurations - Cumulative Year (2045)



LEGEND

- # — Study Intersection
- AM (PM) — Peak Hour Traffic Volume
- Stop Sign
- Signalized

Figure 13

Peak Hour Traffic Volumes and Lane Configurations - Cumulative Year (2045) Plus Project Conditions

Intersection Operations

The LOS for the study intersections is presented in **Table 12.** As shown, all of the study and intersections are forecast to operate at or above capacity (LOS E or F) in year 2045. Technical calculations are included in **Appendix B**.

At all three intersections, the V/C and delay in the AM are unchanged with the project. In the PM, the V/C and delay are forecast to decrease. This decrease is associated with the lower trip generation of the proposed residential use compared to the retail use assumed to occur by 2045.

The intersection of Westminster Avenue/17th Street and North Fairview Street is forecast to operate at LOS F in 2045 conditions, even with the assumed intersection improvements. The intersection of Westminster Avenue and Mar Les Drive is forecast to operate at LOS B or better as a signalized intersection in 2045.

West 16th Street & North Fairview is forecast to operate at LOS F by 2045 during the AM peak hour due to the high volume on North Fairview Street limiting gaps for side-street traffic to turn right onto North Fairview Street. Similar to the intersection of Westminster Avenue & Mar Les Drive, the intersection of Westminster Avenue/17th Street & North Fairview Street is anticipated to meter traffic and provide gaps.

Table 12. Cumulative Year (2045) Intersection LOS Summary

	Intersection	Control	Cumulative Year (2045)				Cumulative Year (2045) Plus Project			
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
			Delay (s/veh)/ V/C	LOS	Delay (s/veh)/ V/C	LOS	Delay (s/veh)/ V/C	LOS	Delay (s/veh)/ V/C	LOS
1	Westminster Ave/17th St & N Fairview St	Signalized	**1.129**	**F**	**1.176**	**F**	**1.129**	**F**	**1.106**	**F**
2	Westminster Ave & Mar Les Dr	Signalized	0.671	B	0.556	A	0.671	B	0.555	A
3	W 16th St & N Fairview St	SSSC[1]	**75.6**	**F**	26.5	D	**76.0**	**F**	26.4	D

Notes:
1. SSSC = Side-street stop-controlled intersection.
2. **Bold text** indicates intersection operates at or above capacity (LOS E).
3. Delay is reported for unsignalized intersections and V/C is reported for signalized intersections.
4. Delay is reported as greater than 120 second due to limitations of the HCM methodology for side-street stop control intersections on multi-lane roadways with high-volume.

Signal Warrants

The peak hour signal warrant outlined in the MUTCD was evaluated to determine if the stop-controlled study intersection would meet the warrant for installation of a traffic signal. As shown in **Table 13**, the

intersection would meet signal warrant under both Cumulative Year and Cumulative Year Plus Project conditions[4].

As described above, a detailed engineering study is recommended prior to installation of a traffic signal to fully understand the implications of signalization at these intersections.

Table 13. Cumulative Year (2045) Signal Warrant Summary

Intersection		Cumulative Year (2045)		Cumulative Year (2045) Plus Project	
		AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
3	W 16th St & N Fairview St	Met	Not Met	Met	Not Met

Note: Based on evaluation of Warrant #3, Peak Hour, in the MUTCD.

Queueing

A queueing assessment was completed to evaluate if queueing in dedicated left-turn pockets would exceed available storage. The queueing results are presented in **Table 14**.

By 2045, queueing for the eastbound left-turn/U-turn at Westminster Avenue/17th Street & North Fairview Street is forecast to exceed the available storage during the AM and PM peak hour. The addition of Project trips is forecast to extend the queue by 20 feet (the length of approximately one vehicle) in the AM. However, queues are expected to decrease in the PM with the change in land use.

The lower trip generation associated with the Project is also forecast to decrease the westbound left-turn queue by 10-15 feet under the Plus Project scenario at the intersection of Westminster Ave & Mar Les Dr. However, this pocket is still not forecast to provide enough storage capacity in the AM peak hour with the reduction in queue associated with the Project.

These two turn pockets are back-to-back. Either turn pocket could be extended by approximately 150' in order to accommodate the forecast queues.

[4] This analysis is intended to examine the general correlation between the planned level of future development and the need to install new traffic signals. It estimates future development-generated traffic compared against a sub-set of the standard traffic signal warrants recommended in the Federal Highway Administration Manual on Uniform Traffic Control Devices and associated State guidelines. This analysis should not serve as the only basis for deciding whether and when to install a signal. To reach such a decision, the full set of warrants should be investigated based on field-measured, rather than forecast, traffic data and a thorough study of traffic and roadway conditions by an experienced engineer. Furthermore, the decision to install a signal should not be based solely upon the warrants, since the installation of signals can lead to certain types of collisions. The responsible state or local agency should undertake regular monitoring of actual traffic conditions and accident data, and timely re-evaluation of the full set of warrants in order to prioritize and program intersections for signalization.

Table 14. Cumulative Year (2045) Queueing Summary

	Intersection (Movement)	Available Storage (ft)	Cumulative Year (2045)		Cumulative Year (2045) Plus Project	
			AM Peak Hour Queue (ft)	PM Peak Hour Queue (ft)	AM Peak Hour Queue (ft)	PM Peak Hour Queue (ft)
1	Westminster Ave/17th St & N Fairview St (EBL/EBU)	350	250 **(380)**	**455 (695)**	270 **(400)**	**375 (560)**
2	Westminster Ave & Mar Les Dr (WBL/WBU)	195	**210 (375)**	**210 (375)**	**210 (375)**	**200 (355)**

Notes:
1. XX (XX) - 50th Percentile Queue (95th Percentile Queue).
2. **Bold text** indicates queue exceeds storage.

Recommendations

Westminster Avenue at North Fairview Street

The intersection of Westminster Avenue at North Fairview Street currently operates at LOS E and is forecast to operate at LOS F under future conditions. The Orange County Master Plan of Arterial Highways (MPAH) designates Fairview Street as a Major Arterial that provides three lanes in each direction. Adding the additional through lanes at the intersection of Westminster Avenue at North Fairview Street would improve operations to LOS D or better under Existing Conditions. However, the intersection is forecast to degrade to LOS F by 2045. The queues in the westbound left-turn pocket are forecast to extend past available capacity. The turn-pocket could be extended by up to 150' to accommodate future conditions. The project's fair share contribution towards these improvements would be 0.5%.

Mar Les Drive at Westminster Avenue

The intersection of Mar Les Drive at Westminster Avenue currently operates at LOS F and meets warrant for a traffic signal during the AM peak hour. This intersection is also on the Santa Ana Signal Priority List. Signalizing this intersection would improve operations to LOS B or better during the peak hours. The queues in the eastbound left-turn pocket are forecast to extend past available capacity. The turn-pocket could be extended by up to 150' to accommodate future conditions. However, there is not space available to extend both left-turn pockets since they are back-to-back. The project's fair share contribution towards these improvements would be 0.7%.

West 16th Street at North Fairview Street

The intersection of West 16th Street at North Fairview Street is forecast to operate at LOS E under 2023 conditions. The addition of a center median would restrict left-turns at the intersection and would improve operations. The project's fair share contribution towards this improvement would be 0.7%.

However, by 2045 the intersection is forecast to degrade to LOS F in the AM due to delays for vehicles turning right onto Fairview Street.

While this intersection meets peak hour signal warrant, a traffic signal is not recommended at this location. The close proximity to the adjacent traffic signal at Westminster Avenue at North Fairview Street is not typically recommended. The northbound left-turn pocket is estimated to require more storage than could be provided with a traffic signal at 16th Street. There are also concerns over the horizontal line of sight driving northbound over the Fairview Avenue bridge.

Westminster Avenue at North Huron Drive

Treatments at Westminster Avenue at North Huron Drive were considered in response to the additional traffic due to the Project. A cul-de-sac was considered that would close North Huron Drive from Westminster Avenue. This would restrict access of Project trips from using the neighborhood street to access the Project and require traffic to use Westminster Avenue. However, this would also restrict access for existing residents in the neighborhood. In addition, a closure of this type would make it difficult for large vehicles, including trash trucks, to serve the street, requiring them to back out of the street which is a safety issue. A proper cul-de-sac design would require right-of-way and property acquisition. Lasty, the proposed median along North Fairview Street would further restrict access for current residents.

Since the neighborhood intrusion assessment did not show any significant impacts to the existing neighborhood, no improvements at Westminster Avenue at North Huron Drive are recommended.

Additional Analysis

Additional analysis was completed to understand how the Vehicle-Miles Traveled (VMT) would compare to the VMT in the region, how access to and from the project site would function, and if the neighborhoods surrounding the Project will be negatively impacted by an increase in traffic using residential streets to access the Project. The findings from each assessment are documented below.

VMT Assessment

This project was screened from a VMT Assessment based on the City of Santa Ana Traffic Impact Study Guidelines (September 2019) and is anticipated to result in a **less-than-significant impact**.

Per the City's guidelines, the projects located in a Transit Priority Area (TPA) are determined to have the potential to reduce VMT per Service Population (VMT/SP) and result in a less-than-significant transportation impact.

Appendix A of the City's guidelines was used to confirm the Project is located within a TPA, indicating that the Project is within a half-mile of a high-quality transit stop. A high-quality transit stop would be a stop along a transit route that provides at least 15-minute headways. The Bravo 560 route runs on 12-minute headways and stops along Westminster Avenue approximately 100 feet from the Project site.

Per the City's guidelines, projects located in a low-VMT generating Traffic Analysis Zone (TAZ) are determined to have the potential to reduce VMT/SP and result in a less-than-significant transportation impact.

Appendix B of the City's guidelines was used to confirm the Project is located in an area generating VMT/SP 15% below the Orange County average. This was followed by a review of the Regional Transportation Plan/Sustainable Community Strategy (RTP/SCS) to confirm that the Project land use was either consistent with or would result in lower VMT/SP than the land use assumed for the RTP/SCS.

The RTP/SCS land use assumed for the Project site was commercial, consistent with the City General Plan zoning. As affordable housing would be expected to generate a lower VMT/SP than a commercial use, no VMT assessment was required.

In addition, though not specified in the City's guidelines, the Technical Advisory on Evaluating Transportation Impacts in CEQA (December 2018) recommends that affordable projects should be screened from assessment and presumed to result in a **less-than-significant impact**.

Site Access

The Project site was reviewed to confirm that adequate access to the site is provided for all modes and the sight distance for vehicles accessing Westminster Avenue from the Project site is met.

Vehicle Access

Vehicle access is provided by one driveway from Westminster Avenue, which will be located 117 feet east of North Huron Drive and 329 feet west of the Westminster Avenue/17th Street & North Fairview Drive intersection. The driveway will be located 56 feet west of the existing turn-pocket for vehicles turning right on North Fairview Drive. The driveway will act as a side-street stop-controlled intersection and provide only right-in, right-out access.

Vistro software was used to evaluate the Project driveway delay and LOS consistent with the methodology applied at other stop-controlled study intersections. That evaluation found that the Project driveway would operate at LOS C during the AM and PM peak hour under all Plus Project scenarios, indicating that the proposed driveway can accommodate all Project trips.

Pedestrian Access

Sidewalks on Westminster Avenue near the Project site are 10 feet wide, while sidewalks on North Huron Drive are 12 feet wide. The Project will provide six-foot sidewalks connecting the proposed buildings to both North Huron Drive and Westminster Avenue. Therefore, sufficient pedestrian access would be provided to the Project site.

Bicycle Access

Today, no bicycle facilities are provided near the Project site. The City of Santa Ana's Active Transportation Plan proposes a Class IV Cycle Track on Westminster Avenue near the Project site. This Project does not change or prohibit any proposed bicycle facilities.

Transit Access

There is a transit stop located 120 feet west of the Project site on Westminster Avenue, providing riders access to eastbound routes. The westbound transit stop is located directly across Westminster Avenue from the Project site. This Project does not change or prohibit bus facilities or transit routes.

Driveway Length and Entrance

Drivers will be able to access the site from a driveway that is 210 feet long and provides access to parking near the Project entrance. The driveway connects to the 140 parking spaces provided in the parking lot behind the proposed buildings. The length of the driveway will be sufficient to accommodate the small number of trips resulting from the Project, resulting in no impacts to the surrounding roadway network.

Line of Sight Analysis

AASHTO guidelines were used to evaluate the sight distance requirements for vehicles exiting the Project site by turning right onto Westminster Avenue. When making a right-turn at intersection onto a roadway with a design speed of 40 MPH, the driver must be able to clearly see feet (sight distance) to their left in order to safely complete the movement. **Figure 14** shows the area that should be kept clear to provide enough visibility for the driver to proceed with a right-turn. Vegetation over 30 inches should be reduced

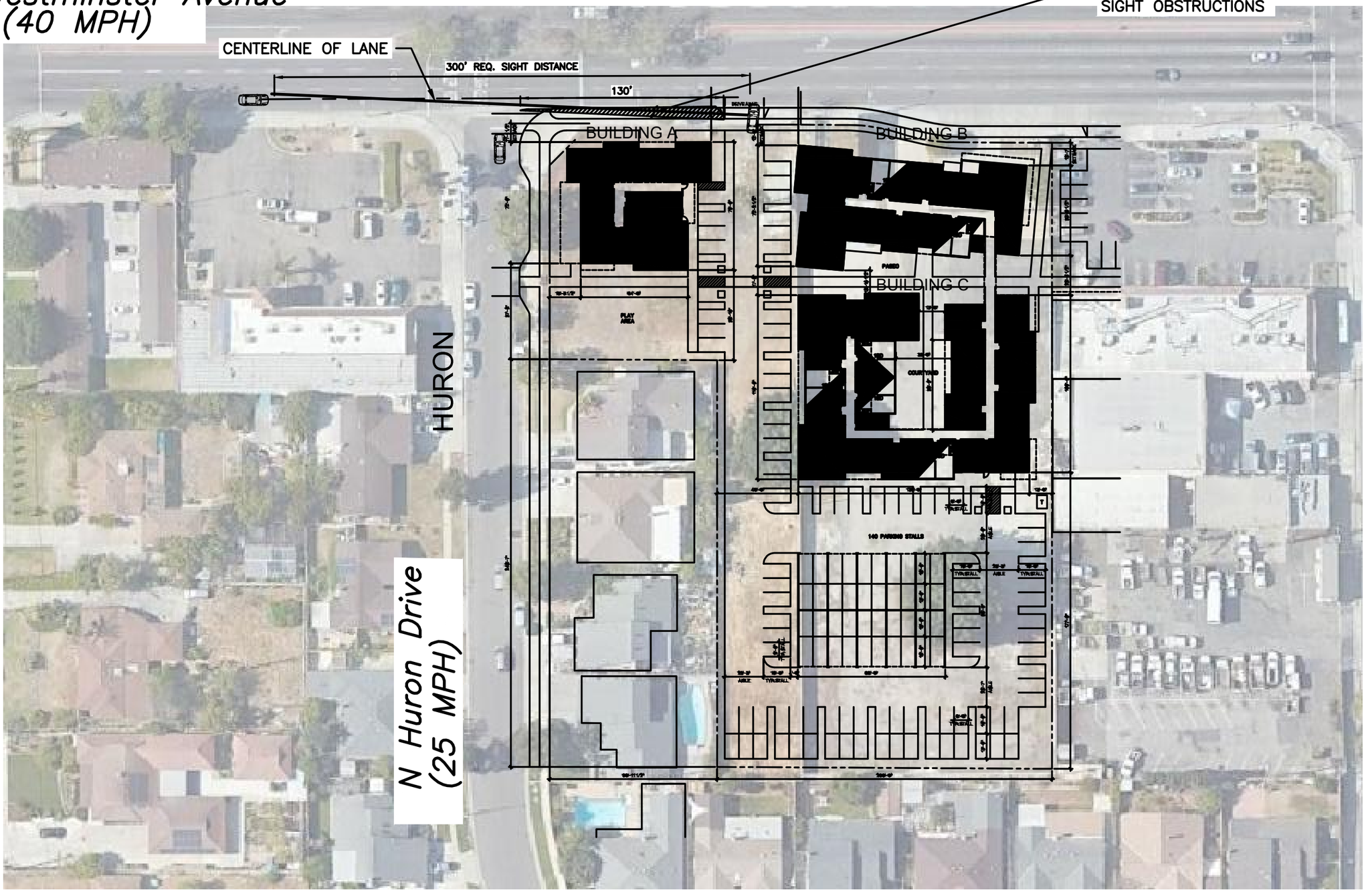


Figure 14
Sight Distance Exhibit
Westview Santa Ana

or removed within the shared areas shown on the figure. Sight triangles indicate obstruction of visibility by existing landscape elements. The Project does not include any additional vegetation on the sidewalk that may cause visual obstructions and it is recommended that the existing landscape elements be removed.

Safety

As discussed in the intersection operations analysis, the increase in traffic due to the project is minimal and there are no significant changes to the performance at any study intersections. The addition of project trips increases intersection volumes at study intersections by approximately half a percent. The small increase in traffic is not anticipated to exacerbate any safety conditions at nearby intersections.

There could be a slight increase in pedestrian activity at Westminster Avenue and Fairview Street, but because the intersection is already signalized with protected left-turn phases, which provide protected pedestrian crossing movements, the infrastructure already in place is sufficient to manage traffic operations at this intersection.

Neighborhood Intrusion Assessment

Some Project trips are anticipated to utilize the residential streets of 16th Street and Huron Drive to access the Project site since access from Westminster Avenue is restricted to right-in/right-out by a raised median. The purpose of this analysis is to estimate the potential impact the Project may have on the surrounding residential streets due to the increase in traffic.

It should be noted that a raised median is anticipated concurrent with the Fairview Bridge Widening project. This will restrict left-turns in and out of 16th Street and is anticipated to divert trips towards Westminster Avenue away from the neighborhood.

Project Trip Distribution

In order to access the Project for inbound trips heading northbound on North Fairview Street, either one of the following routes is required:

- A left-turn at Westminster Avenue/17th Street & Fairview Street followed by a U-turn at Mar Les Drive onto eastbound Westminster Avenue
- A left-turn at 16th Street through the residential neighborhood, followed by a right-turn at Huron Street and a right turn onto eastbound Westminster Avenue

Given the low delay and short queues at the left-turn pocket on North Fairview Street to access 16th Street, and the shorter distance and time needed to make the maneuver, this study assumed that 100% of traffic accessing the Project from the south would use the neighborhood streets to access the Project.

In order to access the Project for inbound trips heading southbound on North Fairview Street, either one of the following routes is required:

- A right-turn at Westminster Avenue/17th Street & Fairview Street followed by a U-turn at Mar Les Drive onto eastbound Westminster Avenue
- Drive through the intersection of Westminster Avenue/17th Street & Fairview Street, followed by a right-turn at 16th Street through the residential neighborhood, a right-turn at Huron Street and a right-turn onto eastbound Westminster Avenue

Of these two routes, the U-turn at Mar Les Drive was judged to be the preferred route based on estimated delay, time and distance, but that the alternative route through the neighborhood would still be utilized. Therefore, the Project trips were estimated to use the neighborhood route 40% of the time.

Applying the assumptions above, the Project is estimated to add 83 trips per day to the residential neighborhood, including approximately three trips in the AM and nine trips in the PM peak hour.

Outbound vehicles are not assumed to use the residential streets.

Neighborhood ADT Capacity

ADT counts (24-hour tube counts) were collected on Thursday, August 06, 2020. As these counts were collected during the COVID-19 pandemic, which has significantly altered travel patterns due to local Stay-at-Home orders, historical traffic data was reviewed and compared to ADT collected in 2020 where data was available. This comparison was then used to determine that an 80% adjustment should be applied to 2020 counts to conservatively represent a 2020 pre-COVID baseline. for See **Appendix A** for the unadjusted count data collected in 2020.

The City of Santa Ana and the Orange County Master Plan for Arterial Highways (MPAH) have not defined capacities for local roadways. Few agencies have defined local residential roadway capacities because the capacity varies based on a variety of factors related to roadway design, as well as community expectations. The neighboring City of Garden Grove has conservatively determined that a reasonable upper limit for local residential roadways is 2,500 vehicles per day (vpd).

The same capacities were used to analyze the existing residential streets near the project before and after the addition of project traffic. **Table 15** shows that both Huron Drive and 16th Street would operate below the upper limit of desirable volume, indicating that the addition of project traffic to the neighborhood will be less-than-significant from a capacity perspective.

Table 15. Neighborhood Capacity Summary

Roadway	Segment	Roadway Type	Existing (2020) Conditions		
			Upper Limit of Desired ADT	ADT	Above or Below Upper Limit
Huron Dr	Between Westminster Ave and 16th St	2- Lane Local	2500	640	Below
16th St	West of Fairview St	2- Lane Local	2500	1,180	Below
Roadway	**Segment**	**Roadway Type**	**Existing (2020) Plus Project Conditions**		
			Upper Limit of Desired ADT	**ADT**	**Above or Below Upper Limit**
Huron Dr	Between Westminster Ave and 16th St	2- Lane Local	2500	723	Below
16th St	West of Fairview St	2- Lane Local	2500	1,263	Below

Notes: Upper limit of residential traffic volume comfortability was determined by the City of Garden Grove.

Neighborhood Residential Street Impact

Most cities do not have thresholds or guidelines specifically regarding the impact of a proposed project on residential streets, including Santa Ana. Los Angeles Department of Transportation (LA DOT) established criteria to study to determine the potential impact of a proposed project, outlined below in the **Table 16**.

Table 16. LA DOT Substantial Residential Local Street Diversion Criteria

Projected ADT with Project (Final ADT)	Project-Related Increase in ADT
1 to 999	120 or more
1,000 to 1,999	12 % or more of final ADT
2,000 to 2,999	10 % or more of final ADT
3,000 or more	8% percent or more of final ADT

Source: LADOT Transportation Assessment Guidelines, July 2019

The two residential roadway segments Huron Drive and 16th Street were analyzed under Existing Conditions with the addition of Project. The results of the residential impact analysis are presented in **Table 17**. As shown in **Table 17**, the project would not result in a substantial increase to the study residential roadway segments based on the LA DOT's threshold of significance. Based on these assumptions above, it is assumed that the project will not negatively impact the adjacent residential streets.

Table 17. Residential Street Impacts Existing No Project and Plus Project Conditions

Roadway	Segment	Time of Day	Existing	Project Only	Existing Plus Project	Percent Change	Impact
Huron Dr	Between Westminster Ave and 16th St	ADT	640	83	723	13%	NO
16th St	West of Fairview St	ADT	1,180	83	1,263	7%	NO

Notes: ADT = Average Daily Traffic
Source: Fehr & Peers, 2020

Conclusions

The proposed Project, 85 affordable housing units, is forecast to add a small number of trips to a congested roadway network in northwest Santa Ana. Under Existing (2020) Conditions, the study intersections are near capacity and are forecast to get more congested over time. By General Plan Buildout Year (2045), all the study locations are over capacity based on traffic forecasts.

The addition of Project traffic is not estimated to result in a substantial increase for any turning movements or vehicle queues. The proposed Project is also estimated to generate less traffic than development of the site consistent with the approved General Plan Land Use. Most operational calculations under 2045 conditions with the Project provide better LOS and less queuing than with the approved land use.

The intersection of Westminster Avenue/17th Street & North Fairview Street is forecast to degrade to LOS F by 2045. It is assumed this intersection will be widened to three lanes in each north/south direction, consistent with the Orange County Master Plan of Arterial Highways (MPAH), but is still forecast to operate at LOS F. This intersection is built out to capacity within the existing right-of-way and will remain deficient without significant right-of-way acquisition.

The intersection of Mar Les Drive & Westminster Avenue is currently operating at LOS F and is recommended to be signalized, consistent with the City's Traffic Signal Priority List. Queues in the westbound left-turn lane at Mar Les Drive & Westminster Avenue and queues in the eastbound left-turn lane at Westminster Avenue/17th Street & North Fairview Street are both forecast to extend past available storage. There is approximately 150' of available space to extend either turn pocket in order to provide more storage capacity.

The intersection of West 16th Street & North Fairview Street degrades to LOS F by 2045 without the addition of project traffic. A raised median is proposed at this intersection when Fairview Street is widened to six lanes, which will restrict left-turns at this location. This intersection also meets the peak hour traffic signal warrant, but is spaced within 500' of another signalized intersection so signalization is not recommended. It is anticipated that the adjacent traffic signal will meter traffic and provide sufficient gaps for vehicles turning from 16th Street onto Fairview Street.

The project is presumed to result in a less-than-significant transportation impact related to VMT due to its location in a Low-VMT generating zone and being an affordable housing project

Site access for vehicles, pedestrians, bicyclists, and transit were reviewed and determined to be acceptable based on driveway operations, sight distance measurements and the Project not conflicting with existing or proposed facilities.

A neighborhood intrusion assessment was performed to determine if the Project would contribute to substantial increase in traffic on local residential streets that could be used as access for the Project. The

addition of Project traffic does not increase the ADT on the neighborhood streets above the local threshold of 2,500 cars per day and the percent increase is below the thresholds established by LADOT. Therefore, the Project is not anticipated to result in a substantial increase to the neighborhood traffic conditions.

Appendix A: Traffic Counts

INTERSECTION TURNING MOVEMENT COUNTS

T218

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE: Thu, Aug 6, 20

LOCATION: Santa Ana
NORTH & SOUTH: Fairview
EAST & WEST: Westminster

PROJECT #: SC
LOCATION #: 1
CONTROL: SIGNAL

NOTES:

AM
PM
MD
OTHER
OTHER

▲ N
◄ W
E ►
S ▼

Add U-Turns to Left Turns

		NORTHBOUND Fairview			SOUTHBOUND Fairview			EASTBOUND Westminster			WESTBOUND Westminster				U-TURNS				
	LANES:	NL 2	NT 2	NR 1	SL 2	ST 2	SR 1	EL 1	ET 3	ER 1	WL 1	WT 3	WR 0	TOTAL	NB 0	SB 0	EB 0	WB 0	TTL
AM	7:00 AM	22	214	15	33	174	8	30	81	30	11	30	15	663	0	0	4	0	4
	7:15 AM	16	202	16	44	175	16	32	78	28	23	50	24	704	0	0	4	0	4
	7:30 AM	32	215	34	41	170	15	38	106	27	34	53	25	790	0	0	5	1	6
	7:45 AM	24	150	29	41	208	18	26	89	35	37	54	25	736	0	0	9	0	9
	8:00 AM	21	136	17	28	164	11	27	76	29	22	62	29	622	0	0	8	0	8
	8:15 AM	22	160	23	39	139	11	37	85	23	38	53	25	655	0	0	8	1	9
	8:30 AM	29	142	26	43	152	18	25	63	36	33	62	33	662	0	0	5	0	5
	8:45 AM	23	130	34	34	183	25	29	81	31	29	80	27	706	0	0	9	1	10
	VOLUMES	189	1,349	194	303	1,365	122	244	659	239	227	444	203	5,538	0	0	52	3	55
	APPROACH %	11%	78%	11%	17%	76%	7%	21%	58%	21%	26%	51%	23%						
	APP/DEPART	1,732	/	1,744	1,790	/	1,828	1,142	/	1,159	874	/	807	0					
	BEGIN PEAK HR		7:00 AM																
	VOLUMES	94	781	94	159	727	57	126	354	120	105	187	89	2,893					
	APPROACH %	10%	81%	10%	17%	77%	6%	21%	59%	20%	28%	49%	23%						
	PEAK HR FACTOR		0.862			0.883			0.877			0.821		0.916					
	APP/DEPART	969	/	974	943	/	951	600	/	608	381	/	360	0					
PM	4:00 PM	63	239	46	59	228	31	49	124	45	29	131	54	1,098	0	0	18	3	21
	4:15 PM	57	227	34	59	245	35	42	94	48	41	153	64	1,099	0	0	11	1	12
	4:30 PM	73	251	40	51	232	38	42	98	47	51	154	57	1,134	0	0	16	2	18
	4:45 PM	59	248	45	66	225	25	43	141	39	47	166	77	1,181	0	0	13	2	15
	5:00 PM	48	246	44	66	259	22	50	91	43	52	147	62	1,130	0	0	6	0	6
	5:15 PM	79	218	47	50	232	34	59	119	32	55	161	66	1,152	0	0	17	1	18
	5:30 PM	51	226	49	65	239	28	50	95	48	51	154	43	1,099	0	0	14	3	17
	5:45 PM	62	252	41	54	278	29	49	108	38	41	131	52	1,135	0	0	12	0	12
	VOLUMES	492	1,907	346	470	1,938	242	384	870	340	367	1,197	475	9,028	0	0	107	12	119
	APPROACH %	18%	69%	13%	18%	73%	9%	24%	55%	21%	18%	59%	23%						
	APP/DEPART	2,745	/	2,659	2,650	/	2,633	1,594	/	1,698	2,039	/	2,038	0					
	BEGIN PEAK HR		4:30 PM																
	VOLUMES	259	963	176	233	948	119	194	449	161	205	628	262	4,597					
	APPROACH %	19%	69%	13%	18%	73%	9%	24%	56%	20%	19%	57%	24%						
	PEAK HR FACTOR		0.960			0.937			0.901			0.944		0.973					
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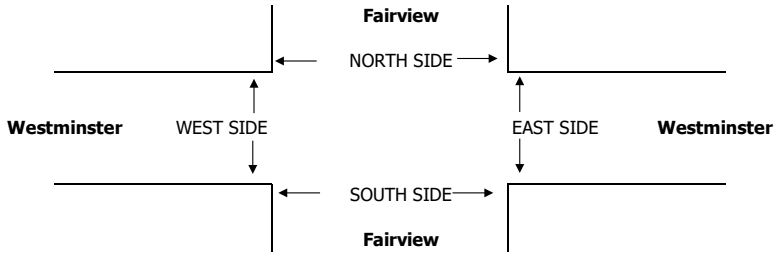
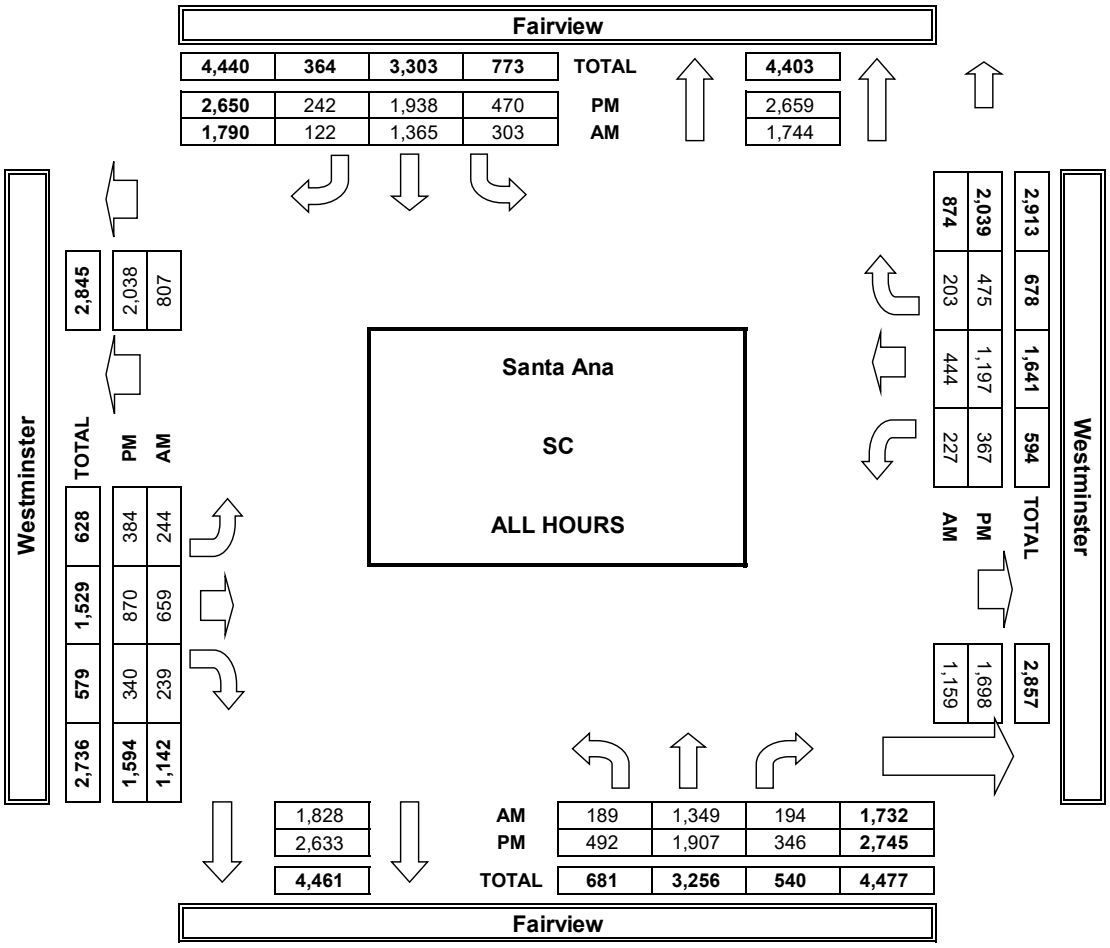
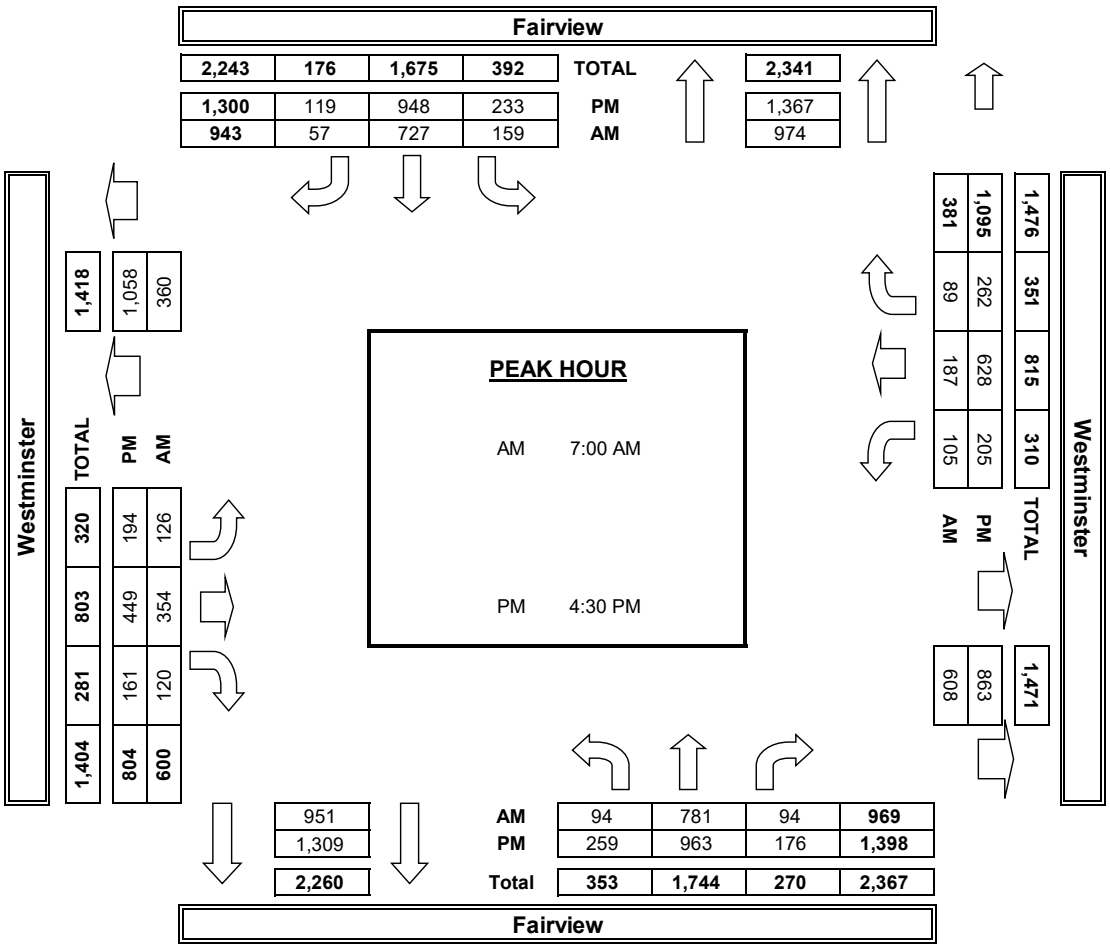


		PEDESTRIAN + BIKE CROSSINGS					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	AM BEGIN PEAK HR			7:00 AM			0	0	0	0	0					
PM	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	PM BEGIN PEAK HR			4:30 PM			0	0	0	0	0					

AimTD LLC

TURNING MOVEMENT COUNTS





INTERSECTION TURNING MOVEMENT COUNTS

T218

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

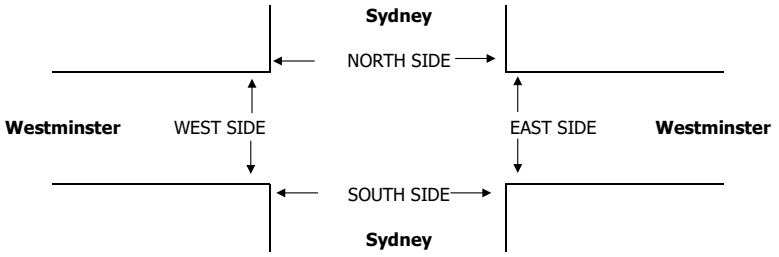
DATE:					
Thu, Aug 6, 20	LOCATION:	Santa Ana	PROJECT #:	SC
	NORTH & SOUTH:	Sydney	LOCATION #:	2
	EAST & WEST:	Westminster	CONTROL:	STOP N/S

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

Add U-Turns to Left Turns

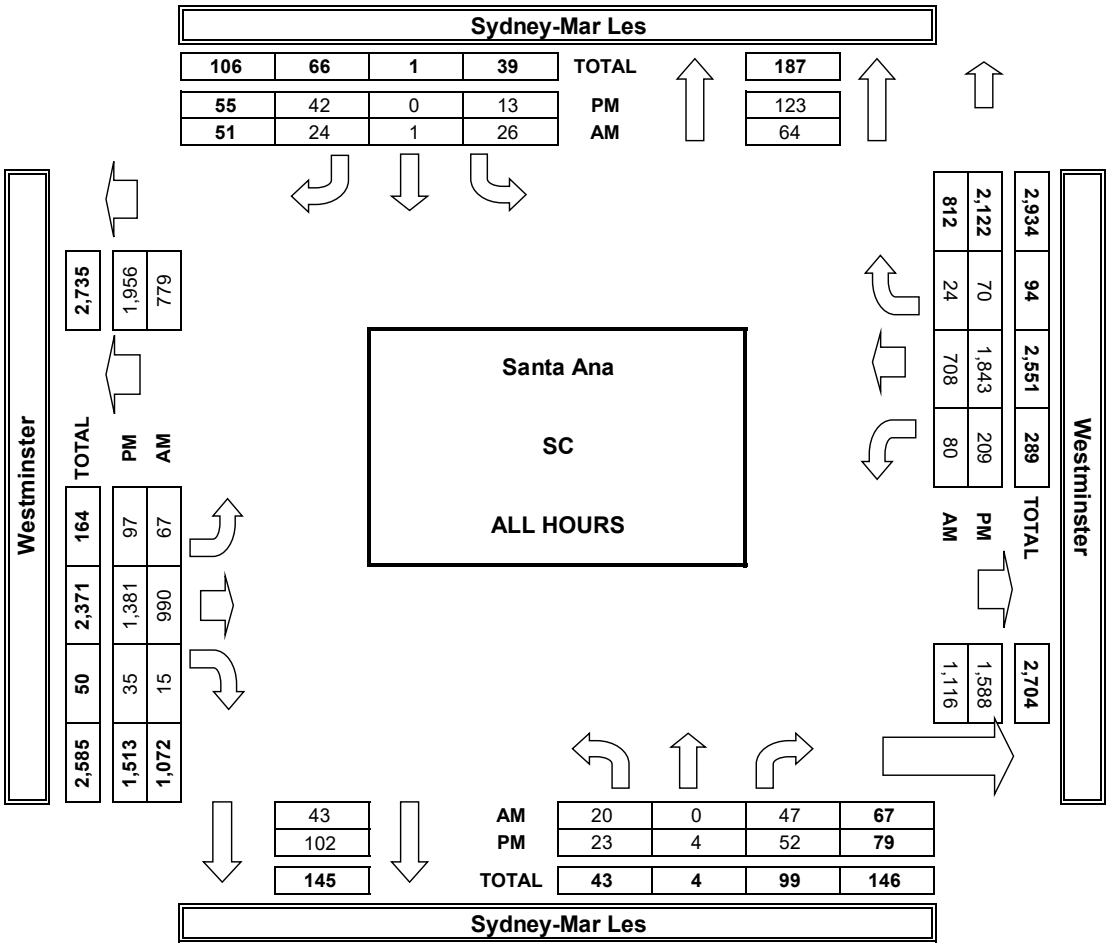
		NORTHBOUND Sydney-Mar Les			SOUTHBOUND Sydney-Mar Les			EASTBOUND Westminster			WESTBOUND Westminster				U-TURNS				
	LANES:	NL 0	NT 1	NR 0	SL 0	ST 1	SR 0	EL 1	ET 3	ER 0	WL 1	WT 3	WR 0	TOTAL	NB 0	SB 0	EB 0	WB 0	TTL
AM	7:00 AM	1	0	3	3	0	4	5	135	1	6	64	1	223	0	0	2	3	5
	7:15 AM	1	0	4	5	0	0	6	120	2	7	82	2	229	0	0	3	5	8
	7:30 AM	3	0	6	1	0	1	9	151	4	11	85	3	274	0	0	3	7	10
	7:45 AM	5	0	9	10	0	4	7	121	3	11	81	4	255	0	0	2	7	9
	8:00 AM	2	0	7	0	1	3	15	108	0	16	93	3	248	0	0	9	10	19
	8:15 AM	3	0	6	2	0	4	10	121	1	9	83	3	242	0	0	0	7	7
	8:30 AM	2	0	5	2	0	2	6	105	1	9	95	5	232	0	0	4	8	12
	8:45 AM	3	0	7	3	0	6	9	129	3	11	125	3	299	0	0	4	6	10
	VOLUMES	20	0	47	26	1	24	67	990	15	80	708	24	2,002	0	0	27	53	80
	APPROACH %	30%	0%	70%	51%	2%	47%	6%	92%	1%	10%	87%	3%						
	APP/DEPART	67	/	64	51	/	43	1,072	/	1,116	812	/	779	0					
	BEGIN PEAK HR		8:00 AM																
	VOLUMES	10	0	25	7	1	15	40	463	5	45	396	14	1,021					
	APPROACH %	29%	0%	71%	30%	4%	65%	8%	91%	1%	10%	87%	3%						
	PEAK HR FACTOR		0.875			0.639			0.901			0.818		0.854					
	APP/DEPART	35	/	37	23	/	20	508	/	526	455	/	438	0					
PM	4:00 PM	2	0	6	2	0	1	11	163	6	31	223	10	455	0	0	8	25	33
	4:15 PM	2	0	7	0	0	7	15	176	5	25	215	11	463	0	0	6	14	20
	4:30 PM	6	1	5	1	0	6	11	183	3	28	260	9	513	0	0	4	19	23
	4:45 PM	2	1	7	2	0	2	13	177	6	30	226	5	471	0	0	7	17	24
	5:00 PM	2	0	4	3	0	9	13	164	3	23	221	9	451	0	0	7	17	24
	5:15 PM	3	1	9	1	0	8	10	173	2	32	243	9	491	0	0	8	21	29
	5:30 PM	5	1	6	0	0	5	11	174	7	20	235	9	473	0	0	3	13	16
	5:45 PM	1	0	8	4	0	4	13	171	3	20	220	8	452	0	0	5	16	21
	VOLUMES	23	4	52	13	0	42	97	1,381	35	209	1,843	70	3,769	0	0	48	142	190
	APPROACH %	29%	5%	66%	24%	0%	76%	6%	91%	2%	10%	87%	3%						
	APP/DEPART	79	/	123	55	/	102	1,513	/	1,588	2,122	/	1,956	0					
	BEGIN PEAK HR		4:30 PM																
	VOLUMES	13	3	25	7	0	25	47	697	14	113	950	32	1,926					
	APPROACH %	32%	7%	61%	22%	0%	78%	6%	92%	2%	10%	87%	3%						
	PEAK HR FACTOR		0.788			0.667			0.962			0.922		0.939					
	APP/DEPART	41	/	56	32	/	53	758	/	803	1,095	/	1,014	0					

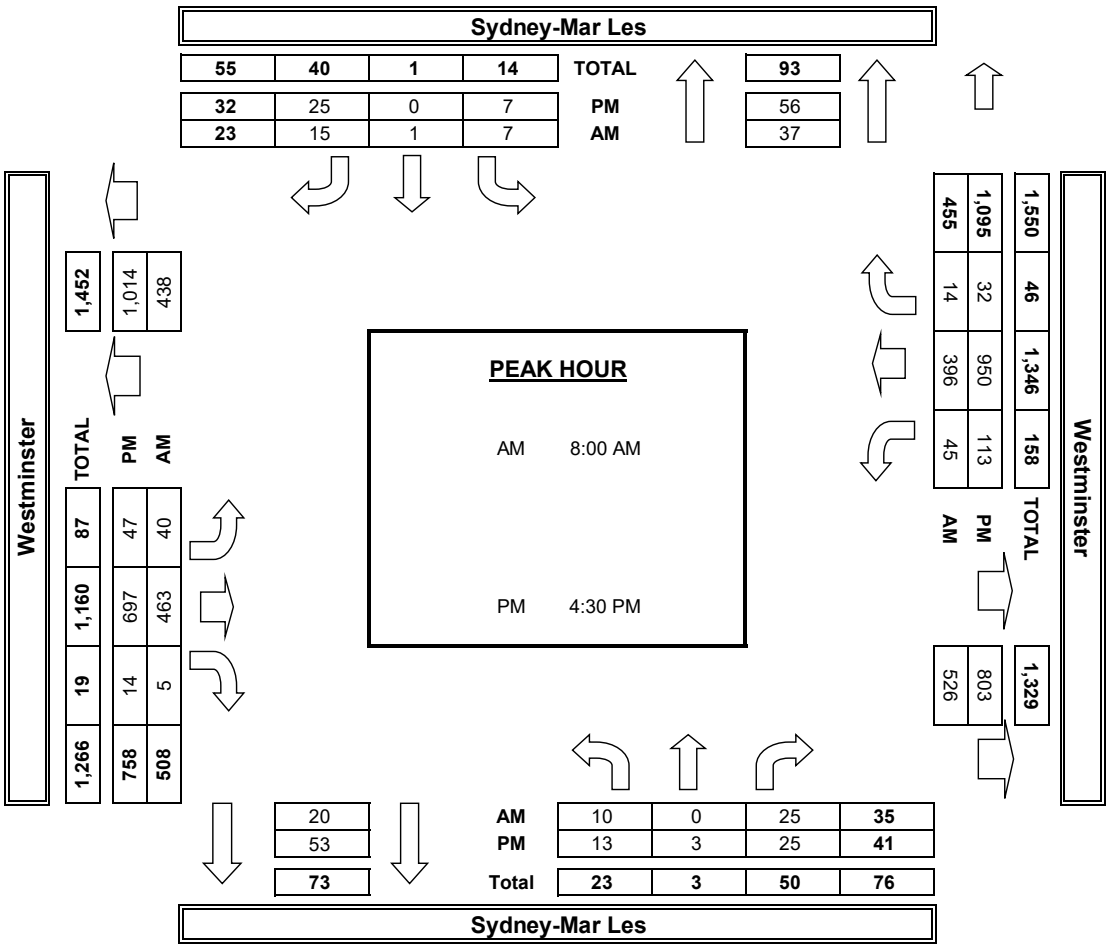


		PEDESTRIAN + BIKE CROSSINGS					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	AM BEGIN PEAK HR			8:00 AM			0	0	0	0	0					
PM	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	PM BEGIN PEAK HR			4:30 PM			0	0	0	0	0					

AimTD LLC

TURNING MOVEMENT COUNTS





INTERSECTION TURNING MOVEMENT COUNTS

T218

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE: Thu, Aug 6, 20

LOCATION: Santa Ana
NORTH & SOUTH: Fairview
EAST & WEST: 16th

PROJECT #: SC
LOCATION #: 3
CONTROL: STOP E

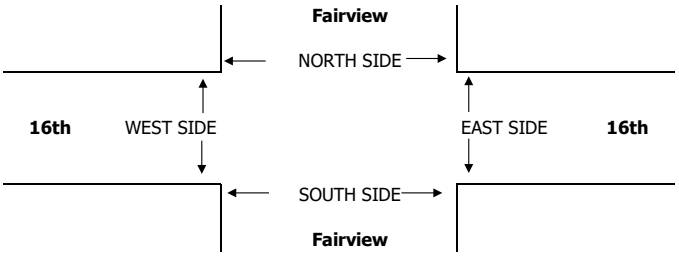
NOTES:

AM
PM
MD
OTHER
OTHER

N ▲ | ◄ W | E ► | S ▼

Add U-Turns to Left Turns

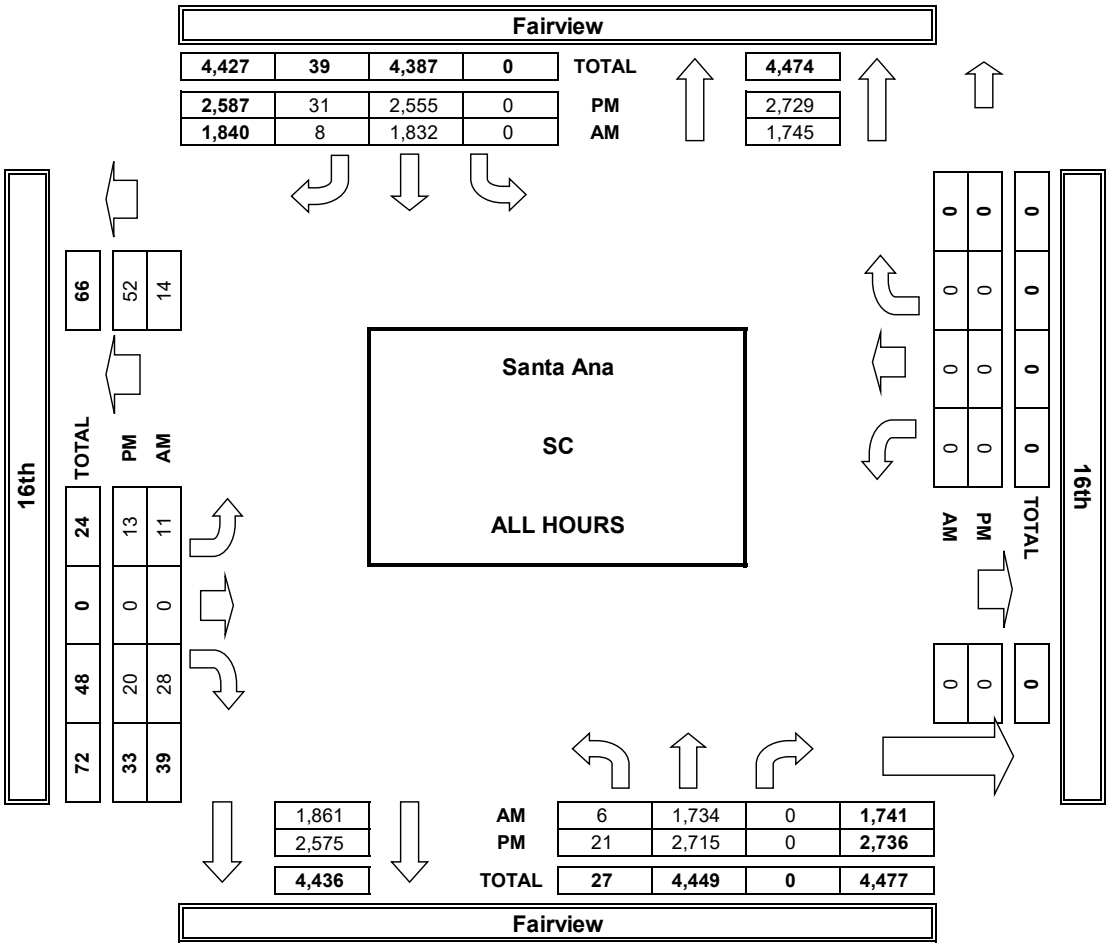
		NORTHBOUND Fairview			SOUTHBOUND Fairview			EASTBOUND 16th			WESTBOUND 16th				U-TURNS				
	LANES:	NL 1	NT 2	NR X	SL X	ST 2	SR 1	EL 0	ET X	ER 0	WL X	WT X	WR X	TOTAL	NB 0	SB 0	EB 0	WB 0	TTL
AM	7:00 AM	1	246	0	0	229	1	1	0	6	0	0	0	484	0	0	0	0	0
	7:15 AM	0	241	0	0	207	0	0	0	5	0	0	0	453	0	0	0	0	0
	7:30 AM	1	276	0	0	244	2	2	0	3	0	0	0	528	0	0	0	0	0
	7:45 AM	1	213	0	0	277	1	3	0	3	0	0	0	498	0	0	0	0	0
	8:00 AM	0	176	0	0	218	1	2	0	3	0	0	0	400	1	0	0	0	1
	8:15 AM	0	199	0	0	215	0	1	0	2	0	0	0	417	0	0	0	0	0
	8:30 AM	3	196	0	0	205	1	1	0	1	0	0	0	407	0	0	0	0	0
	8:45 AM	0	187	0	0	237	2	1	0	5	0	0	0	432	0	0	0	0	0
	VOLUMES	6	1,734	0	0	1,832	8	11	0	28	0	0	0	3,620	1	0	0	0	1
	APPROACH %	0%	100%	0%	0%	100%	0%	28%	0%	72%	0%	0%	0%						
	APP/DEPART	1,741	/	1,745	1,840	/	1,861	39	/	0	0	/	14	0					
	BEGIN PEAK HR		7:00 AM																
	VOLUMES	3	976	0	0	957	4	6	0	17	0	0	0	1,963					
	APPROACH %	0%	100%	0%	0%	100%	0%	26%	0%	74%	0%	0%	0%						
	PEAK HR FACTOR		0.884			0.864			0.821			0.000		0.929					
	APP/DEPART	979	/	982	961	/	974	23	/	0	0	/	7	0					
PM	4:00 PM	4	324	0	0	340	1	1	0	3	0	0	0	673	0	0	0	0	0
	4:15 PM	6	350	0	0	295	6	2	0	3	0	0	0	662	0	0	0	0	0
	4:30 PM	2	307	0	0	318	2	4	0	1	0	0	0	634	0	0	0	0	0
	4:45 PM	2	373	0	0	326	3	1	0	1	0	0	0	706	0	0	0	0	0
	5:00 PM	1	339	0	0	312	3	1	0	3	0	0	0	659	0	1	0	0	1
	5:15 PM	0	355	0	0	312	7	2	0	5	0	0	0	681	0	0	0	0	0
	5:30 PM	3	329	0	0	333	5	1	0	2	0	0	0	673	0	0	0	0	0
	5:45 PM	3	338	0	0	319	4	1	0	2	0	0	0	667	0	0	0	0	0
	VOLUMES	21	2,715	0	0	2,555	31	13	0	20	0	0	0	5,356	0	1	0	0	1
	APPROACH %	1%	99%	0%	0%	99%	1%	39%	0%	61%	0%	0%	0%						
	APP/DEPART	2,736	/	2,729	2,587	/	2,575	33	/	0	0	/	52	0					
	BEGIN PEAK HR		4:45 PM																
	VOLUMES	6	1,396	0	0	1,283	18	5	0	11	0	0	0	2,720					
	APPROACH %	0%	100%	0%	0%	99%	1%	31%	0%	69%	0%	0%	0%						
	PEAK HR FACTOR		0.935			0.963			0.571			0.000		0.963					
	APP/DEPART	1,402	/	1,402	1,302	/	1,294	16	/	0	0	/	24	0					

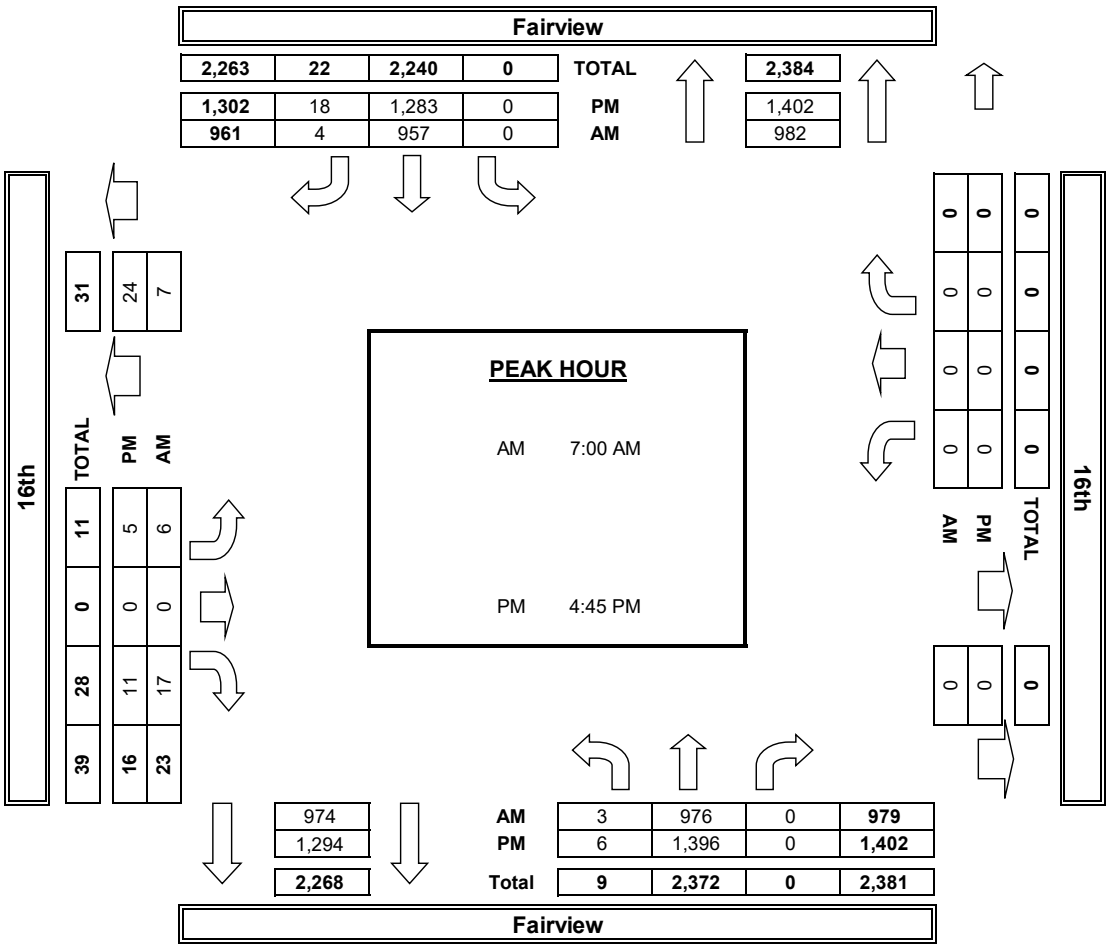


		PEDESTRIAN + BIKE CROSSINGS					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	AM BEGIN PEAK HR			7:00 AM			0	0	0	0	0					
PM	4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	PM BEGIN PEAK HR			4:45 PM			0	0	0	0	0					

AimTD LLC

TURNING MOVEMENT COUNTS





Prepared by National Data & Surveying Services

Fairview St & 17th St

Peak Hour Turning Movement Count

ID: 17-01276-001
City: Santa Ana

Day: Tuesday
Date: 12/12/2017

PEAK HOURS

AM: 07:15 AM - 08:15 AM
NOON: NONE
PM: 05:00 PM - 06:00 PM

COUNT PERIODS

AM: 07:00 AM - 09:00 AM
NOON: NONE
PM: 04:00 PM - 06:00 PM

Fairview St — SOUTHBOUND

AM	111	1137	505	0	1283	AM
NOON	0	0	0	0	0	NOON
PM	128	996	337	0	1635	PM
	1	2	2	0		

17th St — EASTBOUND

AM	NOON	PM	
766	0	1513	
30	0	51	0
165	0	185	1
1104	0	821	3
258	0	233	1

17th St — WESTBOUND

PM	NOON	AM	
385	0	223	0
1035	0	441	3
205	0	214	1
2	0	4	0
1285	0	1876	

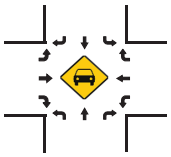
CONTROL: Signalized

TEV	5534	0	5867
	AM	NOON	PM
PHF	0.97		0.98

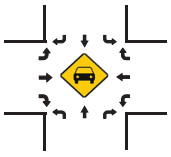
Fairview St — NORTHBOUND

	0	2	2	1		
PM	1434	0	299	1065	125	PM
NOON	0	0	0	0	0	NOON
AM	1609	0	184	895	263	AM

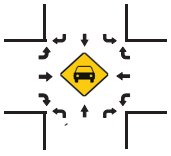
Total Vehicles (AM)



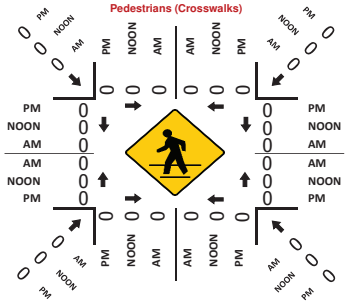
Total Vehicles (NOON)



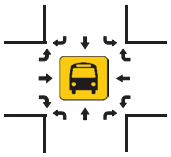
Total Vehicles (PM)



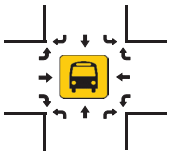
Pedestrians (Crosswalks)



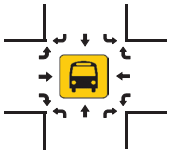
Total Vehicles (AM)



Total Vehicles (NOON)



Total Vehicles (PM)



Prepared by National Data & Surveying Services

Fairview St & 16th St

Peak Hour Turning Movement Count

ID: 17-01276-002
City: Santa Ana

Day: Tuesday
Date: 12/12/2017

PEAK HOURS

AM: 07:00 AM - 08:00 AM
NOON: NONE
PM: 05:00 PM - 06:00 PM

COUNT PERIODS

AM: 07:00 AM - 09:00 AM
NOON: NONE
PM: 04:00 PM - 06:00 PM

Fairview St — SOUTHBOUND

AM	1	1614	0	1	1344	AM
NOON	0	0	0	0	0	NOON
PM	11	1537	0	0	1517	PM
	1	2	0	0		

16th St — EASTBOUND

AM	NOON	PM	
2	0	20	
0	0	0	0
9	0	5	0
0	0	0	1
103	0	21	0

16th St — WESTBOUND

PM	NOON	AM	
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	

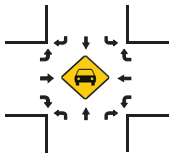
CONTROL: 1-Way Stop(EB)

TEV	3063	0	3095
	AM	NOON	PM
PHF	0.91		0.99

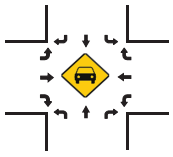
Fairview St — NORTHBOUND

	0	1	2	0		
PM	1558	0	9	1512	0	PM
NOON	0	0	0	0	0	NOON
AM	1717	0	1	1334	0	AM

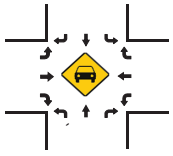
Total Vehicles (AM)



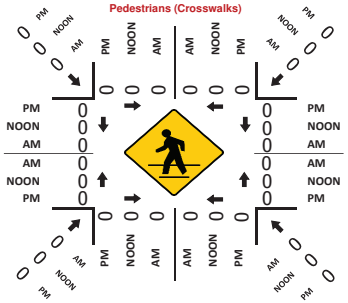
Total Vehicles (NOON)



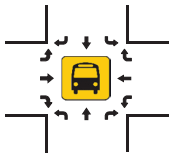
Total Vehicles (PM)



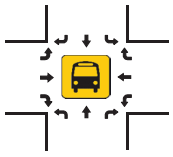
Pedestrians (Crosswalks)



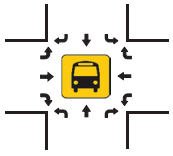
Total Vehicles (AM)



Total Vehicles (NOON)



Total Vehicles (PM)



Thursday, August 06, 2020 CITY: Santa Ana PROJECT:

ADT1 Huron between Westminster and 16th. Suhsduhg#e|#DlpWG#OOF##who1#:47#586#:;;;

AM Period	NB		SB			PM Period	NB		SB		
0:00	0		0			12:00	4		3		
0:15	0		0			12:15	0		6		
0:30	0		1			12:30	3		4		
0:45	0	0	0	1	1	12:45	1	8	7	20	28
1:00	1		0			13:00	1		6		
1:15	0		0			13:15	1		1		
1:30	0		0			13:30	1		6		
1:45	0	1	0	0	1	13:45	2	5	4	17	22
2:00	0		0			14:00	0		3		
2:15	0		0			14:15	4		7		
2:30	0		0			14:30	1		5		
2:45	0	0	0	0		14:45	0	5	8	23	28
3:00	0		0			15:00	3		5		
3:15	0		0			15:15	2		8		
3:30	0		0			15:30	1		4		
3:45	0	0	0	0		15:45	1	7	3	20	27
4:00	0		0			16:00	2		1		
4:15	0		0			16:15	1		4		
4:30	0		0			16:30	0		4		
4:45	0	0	0	0		16:45	1	4	5	14	18
5:00	0		0			17:00	1		9		
5:15	0		0			17:15	2		3		
5:30	0		1			17:30	1		6		
5:45	0	0	1	2	2	17:45	0	4	5	23	27
6:00	0		1			18:00	0		7		
6:15	3		1			18:15	0		2		
6:30	1		2			18:30	1		2		
6:45	5	9	3	7	16	18:45	1	2	6	17	19
7:00	1		6			19:00	0		4		
7:15	1		3			19:15	2		2		
7:30	1		2			19:30	1		9		
7:45	4	7	5	16	23	19:45	1	4	5	20	24
8:00	1		1			20:00	1		4		
8:15	1		2			20:15	0		3		
8:30	1		0			20:30	2		0		
8:45	2	5	4	7	12	20:45	2	5	6	13	18
9:00	1		2			21:00	1		0		
9:15	3		6			21:15	0		2		
9:30	0		5			21:30	1		6		
9:45	2	6	3	16	22	21:45	0	2	0	8	10
10:00	3		3			22:00	0		6		
10:15	1		6			22:15	0		0		
10:30	1		5			22:30	0		2		
10:45	2	7	3	17	24	22:45	2	2	1	9	11
11:00	0		2			23:00	1		1		
11:15	0		3			23:15	0		0		
11:30	2		4			23:30	0		0		
11:45	3	5	1	10	15	23:45	0	1	0	1	2
Total Vol.	40		76		**116**		49		185		**234**

Daily Totals		
NB	SB	**Combined**
89	261	**350**

	AM			**PM**		
Split %	34.5%	65.5%	**33.1%**	20.9%	79.1%	**66.9%**
Peak Hour	6:15	8:45	**9:15**	12:00	14:30	**14:15**
Volume	10	17	**25**	8	26	**33**
P.H.F.	0.50	0.71	**0.69**	0.63	0.81	**0.75**

cs@aimtd.com Tell. 714 253 7888

Thursday, August 06, 2020 CITY: Santa Ana PROJECT: SC

ADT2 16th west of Fairview. Suhsduhg#e|#DlpWG#OOF##who1#:47#586#:;;;

AM Period	EB		WB			PM Period	EB		WB		
0:00	0		1			12:00	4		4		
0:15	1		1			12:15	6		2		
0:30	0		0			12:30	4		3		
0:45	0	1	0	2	3	12:45	6	20	5	14	34
1:00	0		1			13:00	9		5		
1:15	0		1			13:15	3		4		
1:30	1		0			13:30	5		3		
1:45	0	1	0	2	3	13:45	7	24	9	21	45
2:00	0		0			14:00	2		1		
2:15	0		0			14:15	10		5		
2:30	1		0			14:30	5		2		
2:45	0	1	0	0	1	14:45	7	24	6	14	38
3:00	1		0			15:00	9		8		
3:15	1		1			15:15	5		12		
3:30	0		0			15:30	3		4		
3:45	0	2	0	1	3	15:45	3	20	6	30	50
4:00	1		0			16:00	4		5		
4:15	1		0			16:15	5		12		
4:30	2		0			16:30	5		4		
4:45	1	5	0	0	5	16:45	2	16	5	26	42
5:00	0		0			17:00	4		4		
5:15	4		1			17:15	7		7		
5:30	3		1			17:30	3		8		
5:45	4	11	0	2	13	17:45	3	17	7	26	43
6:00	4		1			18:00	5		4		
6:15	3		6			18:15	3		11		
6:30	3		1			18:30	7		5		
6:45	6	16	5	13	29	18:45	5	20	8	28	48
7:00	7		2			19:00	6		4		
7:15	5		0			19:15	4		9		
7:30	5		3			19:30	4		6		
7:45	6	23	2	7	30	19:45	8	22	6	25	47
8:00	5		1			20:00	2		6		
8:15	3		0			20:15	5		4		
8:30	2		4			20:30	4		3		
8:45	6	16	2	7	23	20:45	5	16	6	19	35
9:00	2		3			21:00	4		5		
9:15	6		3			21:15	0		4		
9:30	6		3			21:30	2		4		
9:45	7	21	3	12	33	21:45	4	10	7	20	30
10:00	6		4			22:00	3		2		
10:15	6		5			22:15	1		4		
10:30	4		4			22:30	3		3		
10:45	5	21	3	16	37	22:45	4	11	3	12	23
11:00	3		0			23:00	2		1		
11:15	4		3			23:15	2		3		
11:30	1		1			23:30	1		0		
11:45	5	13	3	7	20	23:45	1	6	2	6	12
Total Vol.		131		69	**200**			206		241	**447**

Daily Totals

NB	SB	EB	WB	**Combined**
		337	310	**647**

	AM			**PM**		
Split %	65.5%	34.5%	**30.9%**	46.1%	53.9%	**69.1%**
Peak Hour	9:15	9:45	**9:30**	14:15	14:45	**14:30**
Volume	25	16	**40**	31	30	**54**
P.H.F.	0.89	0.80	**0.91**	0.78	0.63	**0.79**

cs@aimtd.com Tell. 714 253 7888

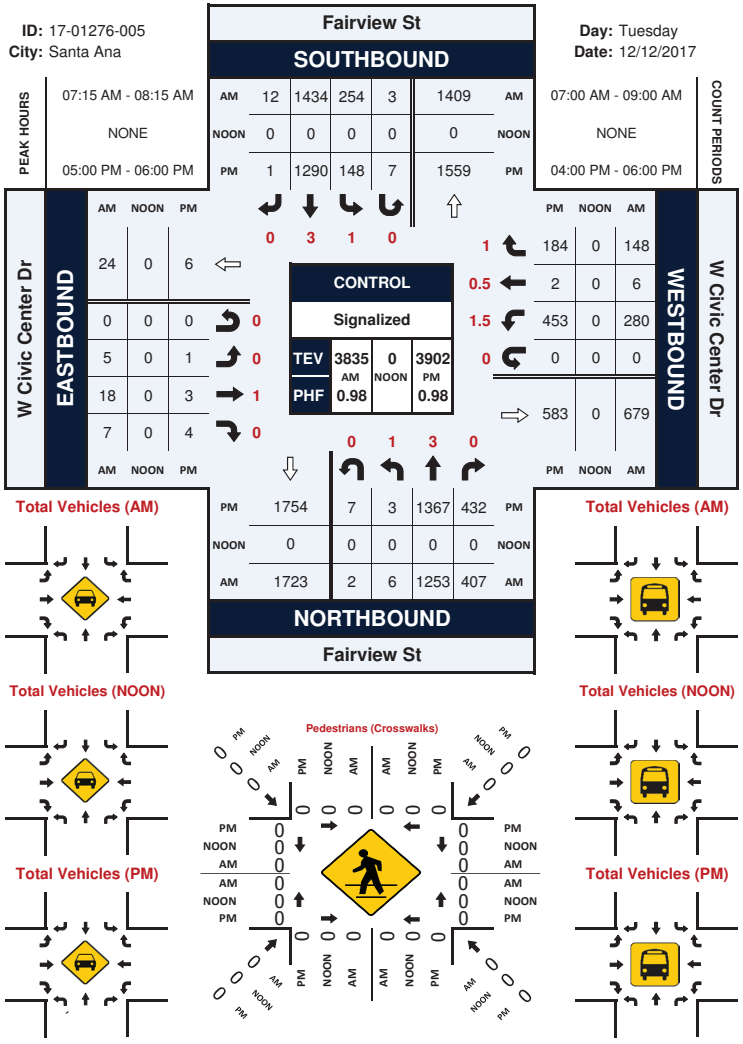
Prepared by National Data & Surveying Services

Fairview St & W Civic Center Dr

Peak Hour Turning Movement Count

ID: 17-01276-005
City: Santa Ana

Day: Tuesday
Date: 12/12/2017



Prepared by NDS/ATD

VOLUME

Fairview St & Santa Ana River Trail

Day: Thursday
Date: 12/14/2017

City: Santa Ana
Project #: CA17_1277_001

DAILY TOTALS	NB	SB	EB	WB	Total
	19,943	21,947	0	0	41,890

AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL
00:00	47	50			97	12:00	251	260			511
00:15	44	41			85	12:15	252	278			530
00:30	39	42			81	12:30	248	260			508
00:45	21 151	39 172			60 323	12:45	259 1010	283 1081			542 2091
01:00	26	32			58	13:00	251	275			526
01:15	24	33			57	13:15	244	266			510
01:30	18	18			36	13:30	279	309			588
01:45	20 88	21 104			41 192	13:45	241 1015	276 1126			517 2141
02:00	26	30			56	14:00	276	305			581
02:15	15	32			47	14:15	328	361			689
02:30	25	24			49	14:30	284	310			594
02:45	22 88	19 105			41 193	14:45	318 1206	372 1348			690 2554
03:00	19	23			42	15:00	340	385			725
03:15	31	37			68	15:15	321	354			675
03:30	34	29			63	15:30	281	316			597
03:45	34 118	50 139			84 257	15:45	327 1269	332 1387			659 2656
04:00	52	40			92	16:00	342	358			700
04:15	80	47			127	16:15	334	346			680
04:30	111	65			176	16:30	347	365			712
04:45	97 340	106 258			203 598	16:45	349 1372	364 1433			713 2805
05:00	106	90			196	17:00	334	345			679
05:15	184	179			363	17:15	350	367			717
05:30	165	187			352	17:30	346	356			702
05:45	166 621	205 661			371 1282	17:45	358 1388	363 1431			721 2819
06:00	176	228			404	18:00	342	352			694
06:15	185	253			438	18:15	339	342			681
06:30	241	312			553	18:30	318	316			634
06:45	252 854	352 1145			604 1999	18:45	315 1314	314 1324			629 2638
07:00	300	411			711	19:00	280	279			559
07:15	316	419			735	19:15	248	272			520
07:30	309	410			719	19:30	290	239			529
07:45	332 1257	414 1654			746 2911	19:45	237 1055	221 1011			458 2066
08:00	302	366			668	20:00	272	237			509
08:15	313	380			693	20:15	252	257			509
08:30	334	423			757	20:30	201	238			439
08:45	329 1278	432 1601			761 2879	20:45	235 960	226 958			461 1918
09:00	304	362			666	21:00	233	205			438
09:15	274	328			602	21:15	260	173			433
09:30	258	304			562	21:30	166	190			356
09:45	267 1103	318 1312			585 2415	21:45	176 835	163 731			339 1566
10:00	246	289			535	22:00	138	150			288
10:15	233	271			504	22:15	111	144			255
10:30	227	263			490	22:30	93	139			232
10:45	256 962	278 1101			534 2063	22:45	102 444	82 515			184 959
11:00	236	269			505	23:00	70	94			164
11:15	218	242			460	23:15	85	81			166
11:30	265	283			548	23:30	69	70			139
11:45	222 941	251 1045			473 1986	23:45	50 274	60 305			110 579
TOTALS	7801	9297			17098	TOTALS	12142	12650			24792
SPLIT %	45.6%	54.4%			40.8%	SPLIT %	49.0%	51.0%			59.2%

DAILY TOTALS	NB	SB	EB	WB	Total
	19,943	21,947	0	0	41,890

AM Peak Hour	07:45	07:00			07:00	PM Peak Hour	17:15	16:30			17:15
AM Pk Volume	1281	1654			2911	PM Pk Volume	1396	1441			2834
Pk Hr Factor	0.959	0.987			0.976	Pk Hr Factor	0.975	0.982			0.983
7 - 9 Volume	2535	3255	0	0	5790	4 - 6 Volume	2760	2864	0	0	5624
7 - 9 Peak Hour	07:45	07:00			07:00	4 - 6 Peak Hour	17:00	16:30			16:30
7 - 9 Pk Volume	1281	1654	0	0	2911	4 - 6 Pk Volume	1388	1441	0	0	2821
Pk Hr Factor	0.959	0.987	0.000	0.000	0.976	Pk Hr Factor	0.969	0.982	0.000	0.000	0.984

Appendix B: Technical Calculations

Vistro File: C:\WFH\Westview\Westview.vistro
Report File: C:\...\Existing No Project AM.pdf

Scenario 5 Existing No Project AM
9/3/2020

Intersection Analysis Summary

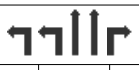
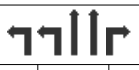
ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Westminster Avenue / Fairview Street	Signalized	ICU 1	SB Thru	0.897	-	D
2	Westminster Avenue / Mar Les Drive	Two-way stop	HCM 6th Edition	SB Left	1.399	375.0	F
3	Fairview Street / 16th Street	Two-way stop	HCM 6th Edition	EB Left	0.109	58.7	F

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Westminster Avenue / Fairview Street

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.897

Intersection Setup

Name														
Approach	Northbound			Southbound			Eastbound				Westbound			
Lane Configuration														
Turning Movement	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Righ	U-tu	Left	Thru	Righ
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
No. of Lanes in Entry Pocket	2	0	1	2	0	1	1	0	0	1	1	0	0	0
Entry Pocket Length [ft]	150.0	100.0	100.0	150.0	100.0	100.0	300.	100.	100.	170.	200.	100.	100.	100.
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			40.00				40.00			
Grade [%]	0.00			0.00			0.00				0.00			
Crosswalk	Yes			Yes			Yes				Yes			

Volumes

Name														
Base Volume Input [veh/h]	190	922	271	520	1171	114	31	17	11	26	4	22	45	23
Base Volume Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	190	922	271	520	1171	114	31	17	11	26	4	22	45	23
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Other Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Total 15-Minute Volume [veh/h]	52	251	74	141	318	31	8	46	30	72	1	60	12	63
Total Analysis Volume [veh/h]	207	1002	295	565	1273	124	34	18	12	28	4	23	49	25
Pedestrian Volume [ped/h]	5			5			5				5			
Bicycle Volume [bicycles/h]	0			0			0				0			

Intersection Settings

Cycle Length [s]	140
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permiss	Permiss	Protect	Permiss	Permiss	Permi	Prote	Permi	Permi	Permi	Prote	Permi	Permi
Signal Group	1	6	0	5	2	0	0	3	8	0	0	7	4	0
Auxiliary Signal Groups														
Lead / Lag	Lead	-	-	Lag	-	-	-	Lead	-	-	-	Lag	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.31	0.18	0.18	0.40	0.08	0.02	0.12	0.26	0.18	0.00	0.15	0.15	0.15
Intersection LOS	D													
Intersection V/C	0.897													

Intersection Level Of Service Report
Intersection 2: Westminster Avenue / Mar Les Drive

Control Type:	Two-way stop	Delay (sec / veh):	375.0
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.399

Intersection Setup

Name														
Approach	Northbound			Southbound			Eastbound				Westbound			
Lane Configuration														
Turning Movement	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Righ	U-tu	Left	Thru	Righ
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	170.	100.	100.	100.	170.	100.	100.	100.
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			40.00				40.00			
Grade [%]	0.00			0.00			0.00				0.00			
Crosswalk	No			Yes			No				No			

Volumes

Name														
Base Volume Input [veh/h]	39	0	85	73	0	35	22	59	11	22	48	77	68	22
Base Volume Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	39	0	85	73	0	35	22	59	11	22	48	77	68	22
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
Other Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Total 15-Minute Volume [veh/h]	11	0	24	21	0	10	6	17	32	6	13	22	19	6
Total Analysis Volume [veh/h]	44	0	96	82	0	39	25	66	13	25	54	87	77	25
Pedestrian Volume [ped/h]	0			5			0				0			

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	Yes	Yes		
Number of Storage Spaces in Median	1	1	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.76	0.00	0.28	1.40	0.00	0.08	0.04	0.14	0.01	0.00	0.16	0.32	0.01	0.00
d_M, Delay for Movement [s/veh]	187.88	197.35	136.04	375.03	645.86	320.70	11.62	13.83	0.00	0.00	26.97	29.35	0.00	0.00
Movement LOS	F	F	F	F	F	F	B	B	A	A	D	D	A	A
95th-Percentile Queue Length [veh/ln]	7.58	7.58	7.58	9.60	9.60	9.60	0.62	0.62	0.00	0.00	2.49	2.49	0.00	0.00
95th-Percentile Queue Length [ft/ln]	189.39	189.39	189.39	240.05	240.05	240.05	15.42	15.42	0.00	0.00	62.17	62.17	0.00	0.00
d_A, Approach Delay [s/veh]	152.34			357.52			0.85				4.28			
Approach LOS	F			F			A				A			
d_I, Intersection Delay [s/veh]	26.68													
Intersection LOS	F													

Intersection Level Of Service Report
Intersection 3: Fairview Street / 16th Street

Control Type:	Two-way stop	Delay (sec / veh):	58.7
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.109

Intersection Setup

Name						
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0
Entry Pocket Length [ft]	70.00	100.00	100.00	70.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name						
Base Volume Input [veh/h]	1	1374	1663	1	9	106
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	1374	1663	1	9	106
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	369	447	0	2	28
Total Analysis Volume [veh/h]	1	1477	1788	1	10	114
Pedestrian Volume [ped/h]	0		0		0	

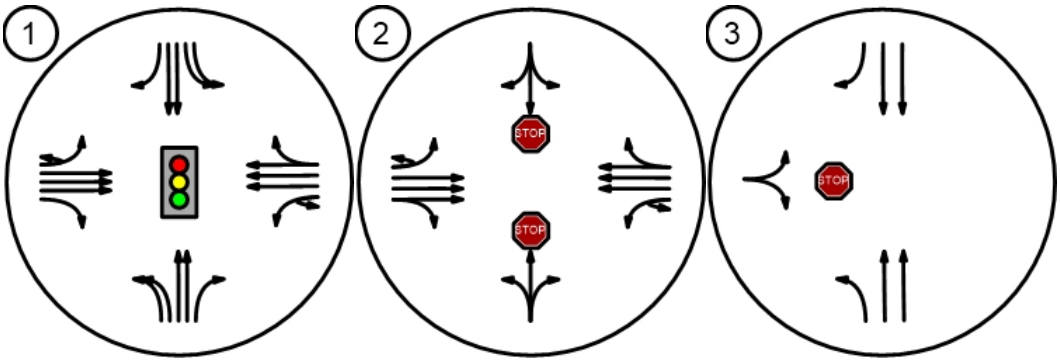
Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	1

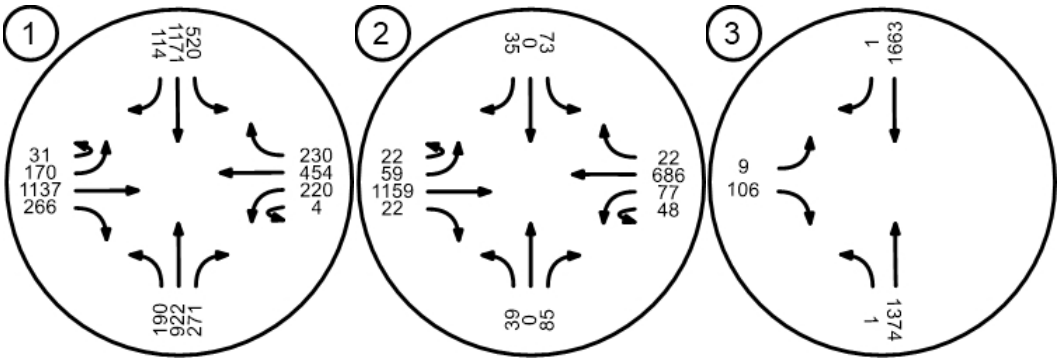
Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.01	0.02	0.00	0.11	0.40
d_M, Delay for Movement [s/veh]	15.55	0.00	0.00	0.00	58.67	32.14
Movement LOS	C	A	A	A	F	D
95th-Percentile Queue Length [veh/ln]	0.01	0.00	0.00	0.00	2.65	2.65
95th-Percentile Queue Length [ft/ln]	0.22	0.00	0.00	0.00	66.29	66.29
d_A, Approach Delay [s/veh]	0.01		0.00		34.28	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	1.26					
Intersection LOS	F					

Lane Configuration and Traffic Control



Traffic Volume - Base Volume



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Report File: C:\...\Existing No Project PM.pdf

Scenario 6 Existing No Project PM
9/3/2020

Intersection Analysis Summary

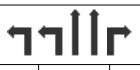
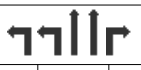
ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Westminster Avenue / Fairview Street	Signalized	ICU 1	NB Thru	0.903	-	E
2	Westminster Avenue / Mar Les Drive	Two-way stop	HCM 6th Edition	SB Left	2.243	1,577.0	F
3	Fairview Street / 16th Street	Two-way stop	HCM 6th Edition	EB Left	0.050	43.0	E

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Westminster Avenue / Fairview Street

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.903

Intersection Setup

Name														
Approach	Northbound			Southbound			Eastbound				Westbound			
Lane Configuration														
Turning Movement	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Righ	U-tu	Left	Thru	Righ
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
No. of Lanes in Entry Pocket	2	0	1	2	0	1	1	0	0	1	1	0	0	0
Entry Pocket Length [ft]	150.0	100.0	100.0	150.0	100.0	100.0	300.	100.	100.	170.	200.	100.	100.	100.
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			40.00				40.00			
Grade [%]	0.00			0.00			0.00				0.00			
Crosswalk	Yes			Yes			Yes				Yes			

Volumes

Name														
Base Volume Input [veh/h]	236	1097	129	347	1026	132	53	19	84	24	2	21	10	39
Base Volume Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	236	1097	129	347	1026	132	53	19	84	24	2	21	10	39
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Other Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Total 15-Minute Volume [veh/h]	61	283	33	89	264	34	14	49	21	62	1	54	27	10
Total Analysis Volume [veh/h]	243	1131	133	358	1058	136	55	19	87	24	2	21	10	40
Pedestrian Volume [ped/h]	5			5			5				5			
Bicycle Volume [bicycles/h]	0			0			0				0			

Intersection Settings

Cycle Length [s]	140
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permiss	Permiss	Protect	Permiss	Permiss	Permi	Prote	Permi	Permi	Permi	Prote	Permi	Permi
Signal Group	1	6	0	5	2	0	0	3	8	0	0	7	4	0
Auxiliary Signal Groups														
Lead / Lag	Lead	-	-	Lag	-	-	-	Lead	-	-	-	Lag	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.08	0.35	0.08	0.11	0.33	0.09	0.03	0.12	0.18	0.15	0.00	0.14	0.31	0.31
Intersection LOS	E													
Intersection V/C	0.903													

Intersection Level Of Service Report
Intersection 2: Westminster Avenue / Mar Les Drive

Control Type:	Two-way stop	Delay (sec / veh):	1,577.0
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	2.243

Intersection Setup

Name														
Approach	Northbound			Southbound			Eastbound				Westbound			
Lane Configuration														
Turning Movement	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Righ	U-tu	Left	Thru	Righ
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	170.	100.	100.	100.	170.	100.	100.	100.
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			40.00				40.00			
Grade [%]	0.00			0.00			0.00				0.00			
Crosswalk	No			Yes			No				No			

Volumes

Name														
Base Volume Input [veh/h]	18	4	35	10	0	35	0	66	97	20	0	15	13	45
Base Volume Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	18	4	35	10	0	35	0	66	97	20	0	15	13	45
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Other Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Total 15-Minute Volume [veh/h]	5	1	9	3	0	9	0	18	26	5	0	42	35	12
Total Analysis Volume [veh/h]	19	4	37	11	0	37	0	70	10	21	0	16	14	48
Pedestrian Volume [ped/h]	0			5			0				0			

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	Yes	Yes		
Number of Storage Spaces in Median	1	1	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.36	0.86	0.09	2.24	0.00	0.12	0.00	0.30	0.01	0.00	0.00	0.46	0.01	0.00
d_M, Delay for Movement [s/veh]	370.47	1080.63	310.73	1576.98	1229.53	854.68	21.86	27.35	0.00	0.00	19.77	22.87	0.00	0.00
Movement LOS	F	F	F	F	F	F	C	D	A	A	C	C	A	A
95th-Percentile Queue Length [veh/ln]	5.72	5.72	5.72	6.31	6.31	6.31	1.24	1.24	0.00	0.00	2.32	2.32	0.00	0.00
95th-Percentile Queue Length [ft/ln]	143.00	143.00	143.00	157.80	157.80	157.80	30.90	30.90	0.00	0.00	58.04	58.04	0.00	0.00
d_A, Approach Delay [s/veh]	380.97			1020.21			1.70				2.36			
Approach LOS	F			F			A				A			
d_I, Intersection Delay [s/veh]	27.05													
Intersection LOS	F													

Intersection Level Of Service Report
Intersection 3: Fairview Street / 16th Street

Control Type:	Two-way stop	Delay (sec / veh):	43.0
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.050

Intersection Setup

Name						
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0
Entry Pocket Length [ft]	70.00	100.00	100.00	70.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name						
Base Volume Input [veh/h]	9	1558	1584	11	5	22
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	9	1558	1584	11	5	22
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	410	417	3	1	6
Total Analysis Volume [veh/h]	9	1640	1667	12	5	23
Pedestrian Volume [ped/h]	0		0		0	

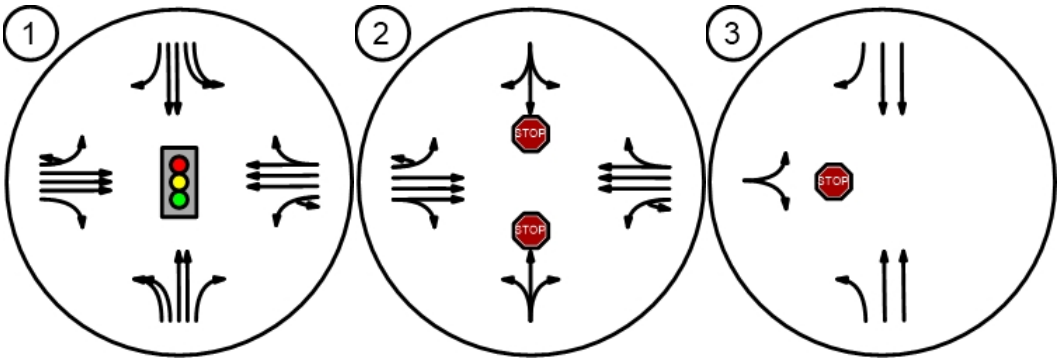
Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	1

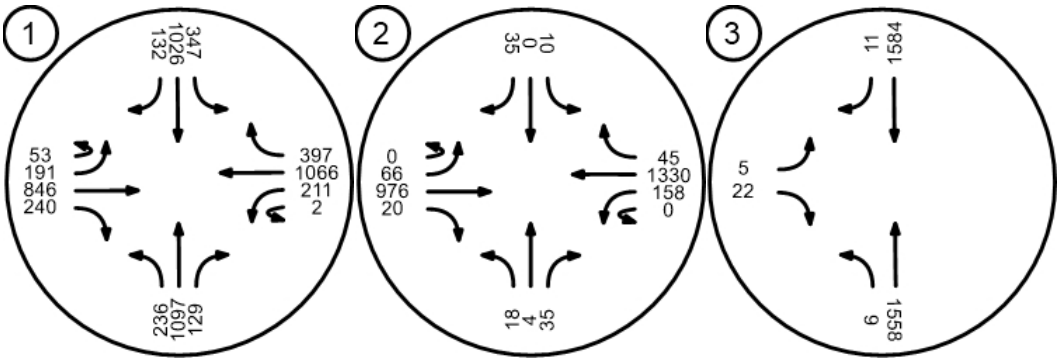
Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.02	0.02	0.00	0.05	0.07
d_M, Delay for Movement [s/veh]	14.77	0.00	0.00	0.00	43.05	18.78
Movement LOS	B	A	A	A	E	C
95th-Percentile Queue Length [veh/ln]	0.07	0.00	0.00	0.00	0.42	0.42
95th-Percentile Queue Length [ft/ln]	1.83	0.00	0.00	0.00	10.40	10.40
d_A, Approach Delay [s/veh]	0.08		0.00		23.11	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	0.23					
Intersection LOS	E					

Lane Configuration and Traffic Control



Traffic Volume - Base Volume



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Report File: C:\...\Existing With Project AM.pdf

Scenario 13 Existing With Project AM
9/3/2020

Intersection Analysis Summary

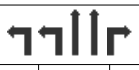
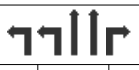
ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Westminster Avenue / Fairview Street	Signalized	ICU 1	SB Thru	0.898	-	D
2	Westminster Avenue / Mar Les Drive	Two-way stop	HCM 6th Edition	SB Left	1.461	405.5	F
3	Fairview Street / 16th Street	Two-way stop	HCM 6th Edition	EB Left	0.110	59.3	F

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Westminster Avenue / Fairview Street

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.898

Intersection Setup

Name														
Approach	Northbound			Southbound			Eastbound				Westbound			
Lane Configuration														
Turning Movement	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Righ	U-tu	Left	Thru	Righ
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
No. of Lanes in Entry Pocket	2	0	1	2	0	1	1	0	0	1	1	0	0	0
Entry Pocket Length [ft]	150.0	100.0	100.0	150.0	100.0	100.0	300.	100.	100.	170.	200.	100.	100.	100.
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			40.00				40.00			
Grade [%]	0.00			0.00			0.00				0.00			
Crosswalk	Yes			Yes			Yes				Yes			

Volumes

Name														
Base Volume Input [veh/h]	190	922	271	520	1171	114	31	17	11	26	4	22	45	23
Base Volume Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	1	2	5	8	5	5	0	0	2	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	190	922	271	520	1172	116	36	17	11	27	4	22	45	23
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Other Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Total 15-Minute Volume [veh/h]	52	251	74	141	318	32	10	48	31	74	1	60	12	63
Total Analysis Volume [veh/h]	207	1002	295	565	1274	126	39	19	12	29	4	23	49	25
Pedestrian Volume [ped/h]	5			5			5				5			
Bicycle Volume [bicycles/h]	0			0			0				0			

Intersection Settings

Cycle Length [s]	140
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permiss	Permiss	Protect	Permiss	Permiss	Permi	Prote	Permi	Permi	Permi	Prote	Permi	Permi
Signal Group	1	6	0	5	2	0	0	3	8	0	0	7	4	0
Auxiliary Signal Groups														
Lead / Lag	Lead	-	-	Lag	-	-	-	Lead	-	-	-	Lag	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.31	0.18	0.18	0.40	0.08	0.02	0.12	0.26	0.18	0.00	0.15	0.16	0.16
Intersection LOS	D													
Intersection V/C	0.898													

Intersection Level Of Service Report
Intersection 2: Westminster Avenue / Mar Les Drive

Control Type:	Two-way stop	Delay (sec / veh):	405.5
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.461

Intersection Setup

Name														
Approach	Northbound			Southbound			Eastbound				Westbound			
Lane Configuration														
Turning Movement	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Righ	U-tu	Left	Thru	Righ
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	170.	100.	100.	100.	170.	100.	100.	100.
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			40.00				40.00			
Grade [%]	0.00			0.00			0.00				0.00			
Crosswalk	No			Yes			No				No			

Volumes

Name														
Base Volume Input [veh/h]	39	0	85	73	0	35	22	59	11	22	48	77	68	22
Base Volume Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	2	0	4	0	5	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	39	0	85	73	0	35	22	59	11	22	52	77	69	22
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
Other Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Total 15-Minute Volume [veh/h]	11	0	24	21	0	10	6	17	32	6	15	22	19	6
Total Analysis Volume [veh/h]	44	0	96	82	0	39	25	66	13	25	58	87	77	25
Pedestrian Volume [ped/h]	0			5			0				0			

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	Yes	Yes		
Number of Storage Spaces in Median	1	1	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.77	0.00	0.28	1.46	0.00	0.08	0.04	0.14	0.01	0.00	0.18	0.32	0.01	0.00
d_M, Delay for Movement [s/veh]	192.84	205.07	140.11	405.52	687.07	348.49	11.66	13.88	0.00	0.00	27.55	29.93	0.00	0.00
Movement LOS	F	F	F	F	F	F	B	B	A	A	D	D	A	A
95th-Percentile Queue Length [veh/ln]	7.67	7.67	7.67	9.88	9.88	9.88	0.62	0.62	0.00	0.00	2.60	2.60	0.00	0.00
95th-Percentile Queue Length [ft/ln]	191.82	191.82	191.82	247.08	247.08	247.08	15.52	15.52	0.00	0.00	65.01	65.01	0.00	0.00
d_A, Approach Delay [s/veh]	156.68			387.14			0.85				4.44			
Approach LOS	F			F			A				A			
d_I, Intersection Delay [s/veh]	28.24													
Intersection LOS	F													

Intersection Level Of Service Report
Intersection 3: Fairview Street / 16th Street

Control Type:	Two-way stop	Delay (sec / veh):	59.3
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.110

Intersection Setup

Name						
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0
Entry Pocket Length [ft]	70.00	100.00	100.00	70.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name						
Base Volume Input [veh/h]	1	1374	1663	1	9	106
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	2	0	5	1	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	1374	1668	2	9	106
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	369	448	1	2	28
Total Analysis Volume [veh/h]	3	1477	1794	2	10	114
Pedestrian Volume [ped/h]	0		0		0	

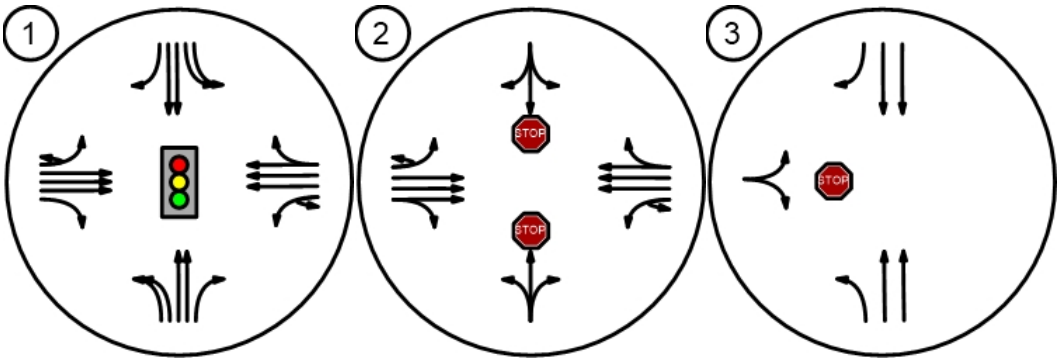
Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	1

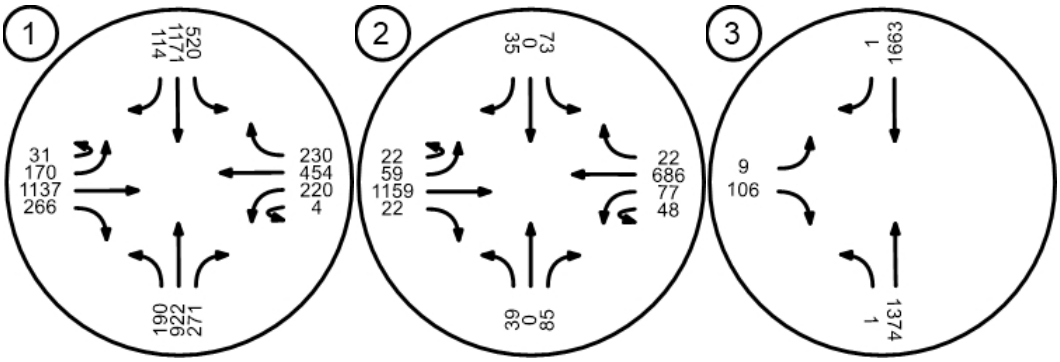
Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.01	0.02	0.00	0.11	0.40
d_M, Delay for Movement [s/veh]	15.68	0.00	0.00	0.00	59.26	32.43
Movement LOS	C	A	A	A	F	D
95th-Percentile Queue Length [veh/ln]	0.03	0.00	0.00	0.00	2.67	2.67
95th-Percentile Queue Length [ft/ln]	0.67	0.00	0.00	0.00	66.85	66.85
d_A, Approach Delay [s/veh]	0.03		0.00		34.59	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	1.28					
Intersection LOS	F					

Lane Configuration and Traffic Control



Traffic Volume - Base Volume



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Scenario 14 Existing With Project PM
9/3/2020

Intersection Analysis Summary

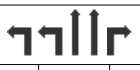
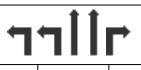
ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Westminster Avenue / Fairview Street	Signalized	ICU 1	NB Thru	0.907	-	E
2	Westminster Avenue / Mar Les Drive	Two-way stop	HCM 6th Edition	SB Left	3.468	2,602.2	F
3	Fairview Street / 16th Street	Two-way stop	HCM 6th Edition	EB Left	0.050	43.6	E

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Westminster Avenue / Fairview Street

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.907

Intersection Setup

Name														
Approach	Northbound			Southbound			Eastbound				Westbound			
Lane Configuration														
Turning Movement	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Righ	U-tu	Left	Thru	Righ
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
No. of Lanes in Entry Pocket	2	0	1	2	0	1	1	0	0	1	1	0	0	0
Entry Pocket Length [ft]	150.0	100.0	100.0	150.0	100.0	100.0	300.	100.	100.	170.	200.	100.	100.	100.
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			40.00				40.00			
Grade [%]	0.00			0.00			0.00				0.00			
Crosswalk	Yes			Yes			Yes				Yes			

Volumes

Name														
Base Volume Input [veh/h]	236	1097	129	347	1026	132	53	19	84	24	2	21	10	39
Base Volume Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	4	5	3	5	3	3	0	0	5	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	236	1097	129	347	1030	137	56	19	84	24	2	21	10	39
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Other Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Total 15-Minute Volume [veh/h]	61	283	33	89	265	35	14	51	21	63	1	54	27	10
Total Analysis Volume [veh/h]	243	1131	133	358	1062	141	58	20	87	25	2	21	11	40
Pedestrian Volume [ped/h]	5			5			5				5			
Bicycle Volume [bicycles/h]	0			0			0				0			

Intersection Settings

Cycle Length [s]	140
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permiss	Permiss	Protect	Permiss	Permiss	Permi	Prote	Permi	Permi	Permi	Prote	Permi	Permi
Signal Group	1	6	0	5	2	0	0	3	8	0	0	7	4	0
Auxiliary Signal Groups														
Lead / Lag	Lead	-	-	Lag	-	-	-	Lead	-	-	-	Lag	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.08	0.35	0.08	0.11	0.33	0.09	0.04	0.13	0.18	0.16	0.00	0.14	0.32	0.32
Intersection LOS	E													
Intersection V/C	0.907													

Intersection Level Of Service Report
Intersection 2: Westminster Avenue / Mar Les Drive

Control Type:	Two-way stop	Delay (sec / veh):	2,602.2
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	3.468

Intersection Setup

Name														
Approach	Northbound			Southbound			Eastbound				Westbound			
Lane Configuration														
Turning Movement	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Righ	U-tu	Left	Thru	Righ
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	170.	100.	100.	100.	170.	100.	100.	100.
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			40.00				40.00			
Grade [%]	0.00			0.00			0.00				0.00			
Crosswalk	No			Yes			No				No			

Volumes

Name														
Base Volume Input [veh/h]	18	4	35	10	0	35	0	66	97	20	0	15	13	45
Base Volume Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	5	0	10	0	3	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	18	4	35	10	0	35	0	66	98	20	10	15	13	45
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Other Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Total 15-Minute Volume [veh/h]	5	1	9	3	0	9	0	18	26	5	3	42	35	12
Total Analysis Volume [veh/h]	19	4	37	11	0	37	0	70	10	21	11	16	14	48
Pedestrian Volume [ped/h]	0			5			0				0			

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	Yes	Yes		
Number of Storage Spaces in Median	1	1	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.38	0.93	0.09	3.47	0.00	0.12	0.00	0.31	0.01	0.00	0.02	0.46	0.01	0.00
d_M, Delay for Movement [s/veh]	416.71	1183.31	352.55	2602.19	2289.33	1478.81	21.95	27.46	0.00	0.00	20.46	23.59	0.00	0.00
Movement LOS	F	F	F	F	F	F	C	D	A	A	C	C	A	A
95th-Percentile Queue Length [veh/ln]	5.94	5.94	5.94	6.93	6.93	6.93	1.24	1.24	0.00	0.00	2.53	2.53	0.00	0.00
95th-Percentile Queue Length [ft/ln]	148.61	148.61	148.61	173.17	173.17	173.17	31.04	31.04	0.00	0.00	63.18	63.18	0.00	0.00
d_A, Approach Delay [s/veh]	428.25			1736.25			1.69				2.55			
Approach LOS	F			F			A				A			
d_I, Intersection Delay [s/veh]	39.87													
Intersection LOS	F													

Intersection Level Of Service Report
Intersection 3: Fairview Street / 16th Street

Control Type:	Two-way stop	Delay (sec / veh):	43.6
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.050

Intersection Setup

Name						
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0
Entry Pocket Length [ft]	70.00	100.00	100.00	70.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name						
Base Volume Input [veh/h]	9	1558	1584	11	5	22
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	5	0	3	4	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	14	1558	1587	15	5	22
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	410	418	4	1	6
Total Analysis Volume [veh/h]	15	1640	1671	16	5	23
Pedestrian Volume [ped/h]	0		0		0	

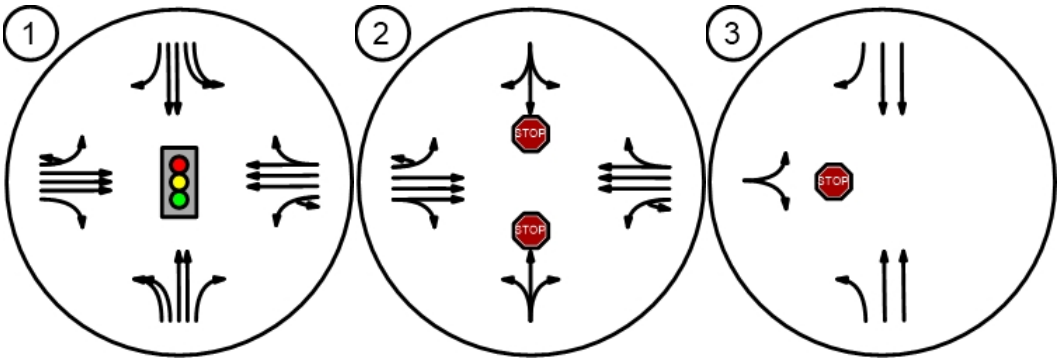
Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	1

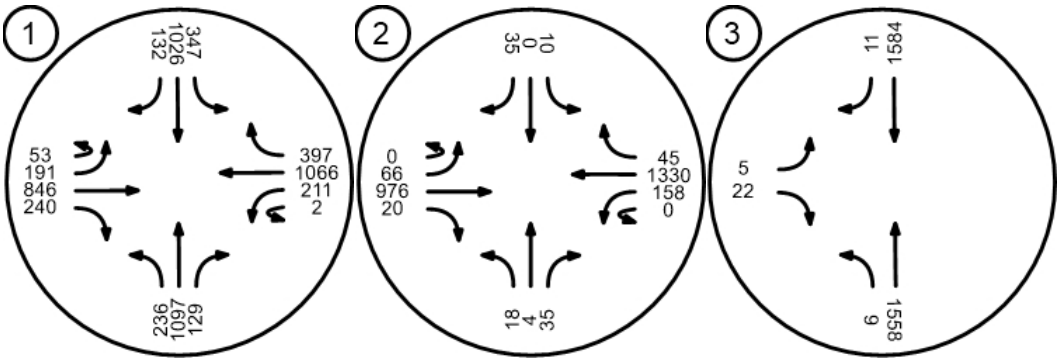
Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.02	0.02	0.00	0.05	0.07
d_M, Delay for Movement [s/veh]	15.00	0.00	0.00	0.00	43.57	18.85
Movement LOS	C	A	A	A	E	C
95th-Percentile Queue Length [veh/ln]	0.12	0.00	0.00	0.00	0.42	0.42
95th-Percentile Queue Length [ft/ln]	3.12	0.00	0.00	0.00	10.48	10.48
d_A, Approach Delay [s/veh]	0.14		0.00		23.26	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	0.26					
Intersection LOS	E					

Lane Configuration and Traffic Control



Traffic Volume - Base Volume



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9/3/2020

Intersection Analysis Summary

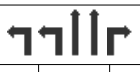
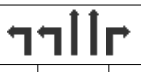
ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Westminster Avenue / Fairview Street	Signalized	ICU 1	SB Thru	0.950	-	E
2	Westminster Avenue / Mar Les Drive	Two-way stop	HCM 6th Edition	SB Left	2.226	791.7	F
3	Fairview Street / 16th Street	Two-way stop	HCM 6th Edition	EB Left	0.137	70.5	F

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Westminster Avenue / Fairview Street

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.950

Intersection Setup

Name														
Approach	Northbound			Southbound			Eastbound				Westbound			
Lane Configuration														
Turning Movement	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Righ	U-tu	Left	Thru	Righ
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
No. of Lanes in Entry Pocket	2	0	1	2	0	1	1	0	0	1	1	0	0	0
Entry Pocket Length [ft]	150.0	100.0	100.0	150.0	100.0	100.0	300.	100.	100.	170.	200.	100.	100.	100.
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			40.00				40.00			
Grade [%]	0.00			0.00			0.00				0.00			
Crosswalk	Yes			Yes			Yes				Yes			

Volumes

Name														
Base Volume Input [veh/h]	205	984	299	549	1241	133	35	19	11	28	5	23	48	25
Base Volume Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	205	984	299	549	1241	133	35	19	11	28	5	23	48	25
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Other Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Total 15-Minute Volume [veh/h]	56	267	81	149	337	36	10	53	32	76	1	64	13	68
Total Analysis Volume [veh/h]	223	1070	325	597	1349	145	38	21	12	30	5	25	52	27
Pedestrian Volume [ped/h]	5			5			5				5			
Bicycle Volume [bicycles/h]	0			0			0				0			

Intersection Settings

Cycle Length [s]	140
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permiss	Permiss	Protect	Permiss	Permiss	Permi	Prote	Permi	Permi	Permi	Prote	Permi	Permi
Signal Group	1	6	0	5	2	0	0	3	8	0	0	7	4	0
Auxiliary Signal Groups														
Lead / Lag	Lead	-	-	Lag	-	-	-	Lead	-	-	-	Lag	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.07	0.33	0.20	0.19	0.42	0.09	0.02	0.13	0.27	0.19	0.00	0.16	0.17	0.17
Intersection LOS	E													
Intersection V/C	0.950													

Intersection Level Of Service Report
Intersection 2: Westminster Avenue / Mar Les Drive

Control Type:	Two-way stop	Delay (sec / veh):	791.7
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	2.226

Intersection Setup

Name														
Approach	Northbound			Southbound			Eastbound				Westbound			
Lane Configuration														
Turning Movement	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Righ	U-tu	Left	Thru	Righ
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	170.	100.	100.	100.	170.	100.	100.	100.
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			40.00				40.00			
Grade [%]	0.00			0.00			0.00				0.00			
Crosswalk	No			Yes			No				No			

Volumes

Name														
Base Volume Input [veh/h]	40	0	90	75	0	40	25	65	12	25	50	80	74	25
Base Volume Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	40	0	90	75	0	40	25	65	12	25	50	80	74	25
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
Other Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Total 15-Minute Volume [veh/h]	11	0	25	21	0	11	7	18	34	7	14	22	20	7
Total Analysis Volume [veh/h]	45	0	101	84	0	45	28	73	13	28	56	90	83	28
Pedestrian Volume [ped/h]	0			5			0				0			

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	Yes	Yes		
Number of Storage Spaces in Median	1	1	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	1.00	0.00	0.31	2.23	0.00	0.09	0.04	0.16	0.01	0.00	0.19	0.37	0.01	0.00
d_M, Delay for Movement [s/veh]	312.22	363.03	243.11	791.68	1205.33	703.72	12.51	14.85	0.00	0.00	33.94	36.19	0.00	0.00
Movement LOS	F	F	F	F	F	F	B	B	A	A	D	E	A	A
95th-Percentile Queue Length [veh/ln]	9.91	9.91	9.91	12.92	12.92	12.92	0.76	0.76	0.00	0.00	3.16	3.16	0.00	0.00
95th-Percentile Queue Length [ft/ln]	247.73	247.73	247.73	322.92	322.92	322.92	19.08	19.08	0.00	0.00	78.89	78.89	0.00	0.00
d_A, Approach Delay [s/veh]	264.41			761.00			0.94				5.12			
Approach LOS	F			F			A				A			
d_I, Intersection Delay [s/veh]	51.17													
Intersection LOS	F													

Intersection Level Of Service Report
Intersection 3: Fairview Street / 16th Street

Control Type:	Two-way stop	Delay (sec / veh):	70.5
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.137

Intersection Setup

Name						
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0
Entry Pocket Length [ft]	70.00	100.00	100.00	70.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name						
Base Volume Input [veh/h]	5	1478	1757	5	10	110
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	1478	1757	5	10	110
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	397	472	1	3	30
Total Analysis Volume [veh/h]	5	1589	1889	5	11	118
Pedestrian Volume [ped/h]	0		0		0	

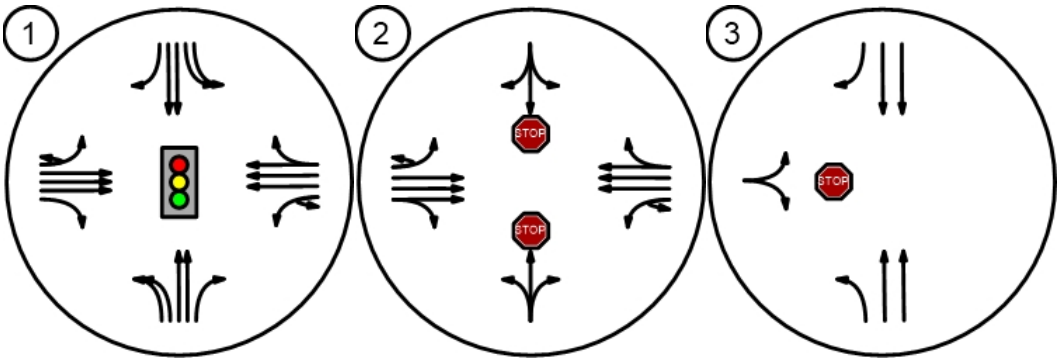
Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	1

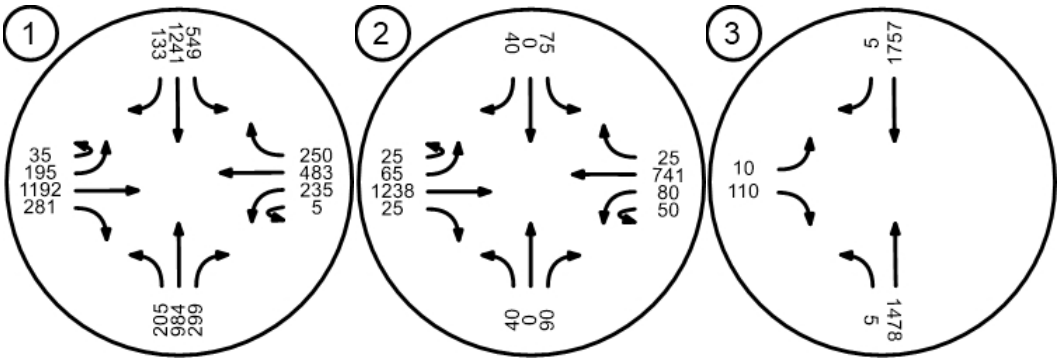
Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.02	0.02	0.00	0.14	0.45
d_M, Delay for Movement [s/veh]	16.75	0.00	0.00	0.00	70.48	39.45
Movement LOS	C	A	A	A	F	E
95th-Percentile Queue Length [veh/ln]	0.05	0.00	0.00	0.00	3.29	3.29
95th-Percentile Queue Length [ft/ln]	1.22	0.00	0.00	0.00	82.22	82.22
d_A, Approach Delay [s/veh]	0.05		0.00		42.09	
Approach LOS	A		A		E	
d_I, Intersection Delay [s/veh]	1.52					
Intersection LOS	F					

Lane Configuration and Traffic Control



Traffic Volume - Base Volume



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Intersection Analysis Summary

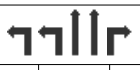
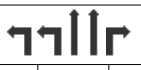
ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Westminster Avenue / Fairview Street	Signalized	ICU 1	NB Thru	0.957	-	E
2	Westminster Avenue / Mar Les Drive	Two-way stop	HCM 6th Edition	SB Right	0.150	10,000.0	F
3	Fairview Street / 16th Street	Two-way stop	HCM 6th Edition	EB Left	0.056	48.2	E

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Westminster Avenue / Fairview Street

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.957

Intersection Setup

Name														
Approach	Northbound			Southbound			Eastbound				Westbound			
Lane Configuration														
Turning Movement	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Righ	U-tu	Left	Thru	Righ
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
No. of Lanes in Entry Pocket	2	0	1	2	0	1	1	0	0	1	1	0	0	0
Entry Pocket Length [ft]	150.0	100.0	100.0	150.0	100.0	100.0	300.	100.	100.	170.	200.	100.	100.	100.
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			40.00				40.00			
Grade [%]	0.00			0.00			0.00				0.00			
Crosswalk	Yes			Yes			Yes				Yes			

Volumes

Name														
Base Volume Input [veh/h]	252	1153	143	364	1085	158	55	21	89	25	5	22	11	41
Base Volume Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	252	1153	143	364	1085	158	55	21	89	25	5	22	11	41
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Other Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Total 15-Minute Volume [veh/h]	65	297	37	94	280	41	14	55	23	66	1	59	28	10
Total Analysis Volume [veh/h]	260	1189	147	375	1119	163	57	22	92	26	5	23	11	42
Pedestrian Volume [ped/h]	5			5			5				5			
Bicycle Volume [bicycles/h]	0			0			0				0			

Intersection Settings

Cycle Length [s]	140
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permiss	Permiss	Protect	Permiss	Permiss	Permi	Prote	Permi	Permi	Permi	Prote	Permi	Permi
Signal Group	1	6	0	5	2	0	0	3	8	0	0	7	4	0
Auxiliary Signal Groups														
Lead / Lag	Lead	-	-	Lag	-	-	-	Lead	-	-	-	Lag	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.08	0.37	0.09	0.12	0.35	0.10	0.04	0.14	0.19	0.17	0.00	0.15	0.33	0.33
Intersection LOS	E													
Intersection V/C	0.957													

Intersection Level Of Service Report
Intersection 2: Westminster Avenue / Mar Les Drive

Control Type:	Two-way stop	Delay (sec / veh):	10,000.0
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.150

Intersection Setup

Name														
Approach	Northbound			Southbound			Eastbound				Westbound			
Lane Configuration														
Turning Movement	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Righ	U-tu	Left	Thru	Righ
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	170.	100.	100.	100.	170.	100.	100.	100.
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			40.00				40.00			
Grade [%]	0.00			0.00			0.00				0.00			
Crosswalk	No			Yes			No				No			

Volumes

Name														
Base Volume Input [veh/h]	20	5	40	10	0	40	0	70	10	25	0	16	14	50
Base Volume Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	20	5	40	10	0	40	0	70	10	25	0	16	14	50
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Other Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Total 15-Minute Volume [veh/h]	5	1	11	3	0	11	0	19	27	7	0	44	37	13
Total Analysis Volume [veh/h]	21	5	43	11	0	43	0	74	11	27	0	17	15	53
Pedestrian Volume [ped/h]	0			5			0				0			

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	Yes	Yes		
Number of Storage Spaces in Median	1	1	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.59	1.84	0.11	0.00	0.00	0.15	0.00	0.36	0.01	0.00	0.00	0.53	0.02	0.00
d_M, Delay for Movement [s/veh]	971.83	2192.36	879.50	10000.0	10000.0	10000.0	26.09	32.08	0.00	0.00	23.82	27.17	0.00	0.00
Movement LOS	F	F	F	F	F	F	D	D	A	A	C	D	A	A
95th-Percentile Queue Length [veh/ln]	8.33	8.33	8.33	9.00	9.00	9.00	1.54	1.54	0.00	0.00	2.91	2.91	0.00	0.00
95th-Percentile Queue Length [ft/ln]	208.24	208.24	208.24	225.00	225.00	225.00	38.60	38.60	0.00	0.00	72.79	72.79	0.00	0.00
d_A, Approach Delay [s/veh]	1002.74			10000.00			1.95				2.75			
Approach LOS	F			F			A				A			
d_I, Intersection Delay [s/veh]	200.31													
Intersection LOS	F													

Intersection Level Of Service Report
Intersection 3: Fairview Street / 16th Street

Control Type:	Two-way stop	Delay (sec / veh):	48.2
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.056

Intersection Setup

Name						
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0
Entry Pocket Length [ft]	70.00	100.00	100.00	70.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name						
Base Volume Input [veh/h]	10	1643	1676	15	5	25
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	10	1643	1676	15	5	25
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	432	441	4	1	7
Total Analysis Volume [veh/h]	11	1729	1764	16	5	26
Pedestrian Volume [ped/h]	0		0		0	

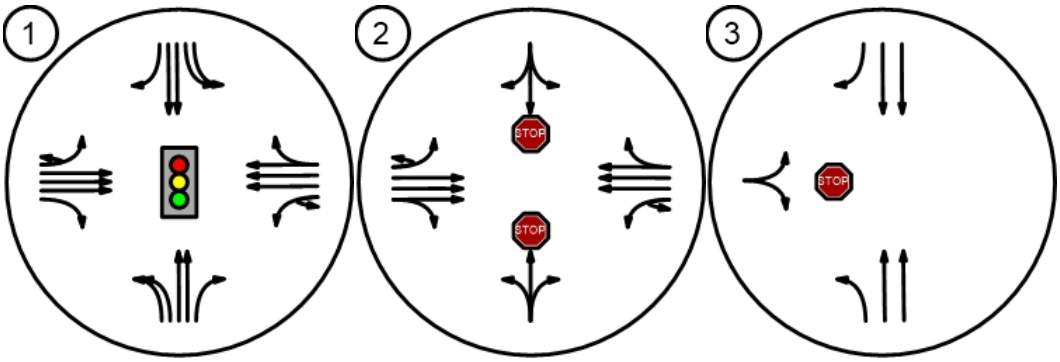
Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	1

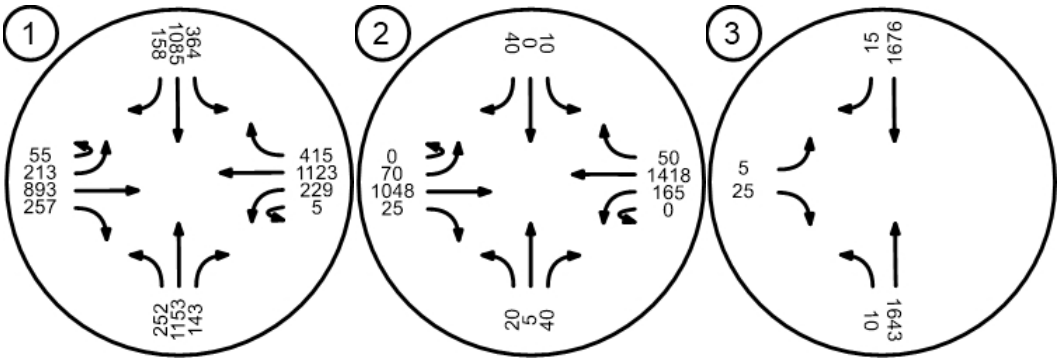
Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.02	0.02	0.00	0.06	0.09
d_M, Delay for Movement [s/veh]	15.78	0.00	0.00	0.00	48.24	20.31
Movement LOS	C	A	A	A	E	C
95th-Percentile Queue Length [veh/ln]	0.10	0.00	0.00	0.00	0.50	0.50
95th-Percentile Queue Length [ft/ln]	2.46	0.00	0.00	0.00	12.54	12.54
d_A, Approach Delay [s/veh]	0.10		0.00		24.82	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	0.27					
Intersection LOS	E					

Lane Configuration and Traffic Control



Traffic Volume - Base Volume



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Scenario 9 2023 With Project AM
9/3/2020

Intersection Analysis Summary

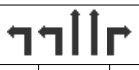
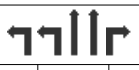
ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Westminster Avenue / Fairview Street	Signalized	ICU 1	SB Thru	0.951	-	E
2	Westminster Avenue / Mar Les Drive	Two-way stop	HCM 6th Edition	SB Left	2.443	903.1	F
3	Fairview Street / 16th Street	Two-way stop	HCM 6th Edition	EB Left	0.138	71.3	F

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Westminster Avenue / Fairview Street

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.951

Intersection Setup

Name														
Approach	Northbound			Southbound			Eastbound				Westbound			
Lane Configuration														
Turning Movement	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Righ	U-tu	Left	Thru	Righ
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
No. of Lanes in Entry Pocket	2	0	1	2	0	1	1	0	0	1	1	0	0	0
Entry Pocket Length [ft]	150.0	100.0	100.0	150.0	100.0	100.0	300.	100.	100.	170.	200.	100.	100.	100.
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			40.00				40.00			
Grade [%]	0.00			0.00			0.00				0.00			
Crosswalk	Yes			Yes			Yes				Yes			

Volumes

Name														
Base Volume Input [veh/h]	205	984	299	549	1241	133	35	19	11	28	5	23	48	25
Base Volume Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	1	2	5	8	5	5	0	0	2	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	205	984	299	549	1242	135	40	20	11	28	5	23	48	25
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Other Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Total 15-Minute Volume [veh/h]	56	267	81	149	338	37	11	55	32	78	1	64	13	68
Total Analysis Volume [veh/h]	223	1070	325	597	1350	147	43	22	13	31	5	25	52	27
Pedestrian Volume [ped/h]	5			5			5				5			
Bicycle Volume [bicycles/h]	0			0			0				0			

Intersection Settings

Cycle Length [s]	140
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permiss	Permiss	Protect	Permiss	Permiss	Permi	Prote	Permi	Permi	Permi	Prote	Permi	Permi
Signal Group	1	6	0	5	2	0	0	3	8	0	0	7	4	0
Auxiliary Signal Groups														
Lead / Lag	Lead	-	-	Lag	-	-	-	Lead	-	-	-	Lag	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.07	0.33	0.20	0.19	0.42	0.09	0.03	0.14	0.27	0.19	0.00	0.16	0.17	0.17
Intersection LOS	E													
Intersection V/C	0.951													

Intersection Level Of Service Report
Intersection 2: Westminster Avenue / Mar Les Drive

Control Type:	Two-way stop	Delay (sec / veh):	903.1
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	2.443

Intersection Setup

Name														
Approach	Northbound			Southbound			Eastbound				Westbound			
Lane Configuration														
Turning Movement	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Righ	U-tu	Left	Thru	Righ
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	170.	100.	100.	100.	170.	100.	100.	100.
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			40.00				40.00			
Grade [%]	0.00			0.00			0.00				0.00			
Crosswalk	No			Yes			No				No			

Volumes

Name														
Base Volume Input [veh/h]	40	0	90	75	0	40	25	65	12	25	50	80	74	25
Base Volume Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	2	0	4	0	5	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	40	0	90	75	0	40	25	65	12	25	54	80	74	25
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
Other Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Total 15-Minute Volume [veh/h]	11	0	25	21	0	11	7	18	34	7	15	22	21	7
Total Analysis Volume [veh/h]	45	0	101	84	0	45	28	73	13	28	61	90	83	28
Pedestrian Volume [ped/h]	0			5			0				0			

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	Yes	Yes		
Number of Storage Spaces in Median	1	1	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	1.03	0.00	0.31	2.44	0.00	0.09	0.04	0.16	0.01	0.00	0.21	0.37	0.01	0.00
d_M, Delay for Movement [s/veh]	323.40	391.59	252.56	903.11	1333.93	805.86	12.56	14.92	0.00	0.00	35.11	37.35	0.00	0.00
Movement LOS	F	F	F	F	F	F	B	B	A	A	E	E	A	A
95th-Percentile Queue Length [veh/ln]	10.06	10.06	10.06	13.38	13.38	13.38	0.77	0.77	0.00	0.00	3.34	3.34	0.00	0.00
95th-Percentile Queue Length [ft/ln]	251.45	251.45	251.45	334.58	334.58	334.58	19.21	19.21	0.00	0.00	83.56	83.56	0.00	0.00
d_A, Approach Delay [s/veh]	274.39			869.19			0.95				5.41			
Approach LOS	F			F			A				A			
d_I, Intersection Delay [s/veh]	56.55													
Intersection LOS	F													

Intersection Level Of Service Report
Intersection 3: Fairview Street / 16th Street

Control Type:	Two-way stop	Delay (sec / veh):	71.3
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.138

Intersection Setup

Name						
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0
Entry Pocket Length [ft]	70.00	100.00	100.00	70.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name						
Base Volume Input [veh/h]	5	1478	1757	5	10	110
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	2	0	5	1	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	7	1478	1762	6	10	110
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	397	474	2	3	30
Total Analysis Volume [veh/h]	8	1589	1895	6	11	118
Pedestrian Volume [ped/h]	0		0		0	

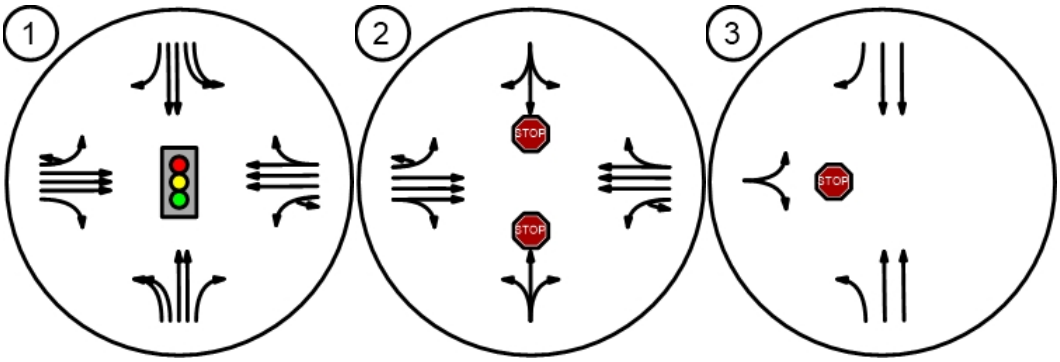
Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	1

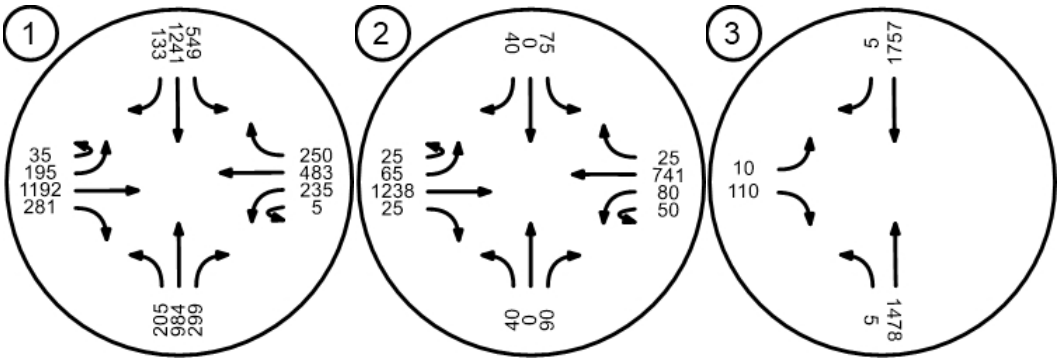
Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.02	0.02	0.00	0.14	0.45
d_M, Delay for Movement [s/veh]	16.95	0.00	0.00	0.00	71.33	39.88
Movement LOS	C	A	A	A	F	E
95th-Percentile Queue Length [veh/ln]	0.08	0.00	0.00	0.00	3.32	3.32
95th-Percentile Queue Length [ft/ln]	1.99	0.00	0.00	0.00	82.97	82.97
d_A, Approach Delay [s/veh]	0.08		0.00		42.56	
Approach LOS	A		A		E	
d_I, Intersection Delay [s/veh]	1.55					
Intersection LOS	F					

Lane Configuration and Traffic Control



Traffic Volume - Base Volume



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Report File: C:\...\2023 With Project PM.pdf

Scenario 10 2023 With Project PM
9/3/2020

Intersection Analysis Summary

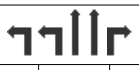
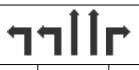
ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Westminster Avenue / Fairview Street	Signalized	ICU 1	NB Thru	0.961	-	E
2	Westminster Avenue / Mar Les Drive	Two-way stop	HCM 6th Edition	SB Right	0.151	10,000.0	F
3	Fairview Street / 16th Street	Two-way stop	HCM 6th Edition	EB Left	0.057	48.7	E

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Westminster Avenue / Fairview Street

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.961

Intersection Setup

Name														
Approach	Northbound			Southbound			Eastbound				Westbound			
Lane Configuration														
Turning Movement	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Righ	U-tu	Left	Thru	Righ
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
No. of Lanes in Entry Pocket	2	0	1	2	0	1	1	0	0	1	1	0	0	0
Entry Pocket Length [ft]	150.0	100.0	100.0	150.0	100.0	100.0	300.	100.	100.	170.	200.	100.	100.	100.
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			40.00				40.00			
Grade [%]	0.00			0.00			0.00				0.00			
Crosswalk	Yes			Yes			Yes				Yes			

Volumes

Name														
Base Volume Input [veh/h]	252	1153	143	364	1085	158	55	21	89	25	5	22	11	41
Base Volume Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	4	5	3	5	3	3	0	0	5	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	252	1153	143	364	1089	163	58	21	89	26	5	22	11	41
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Other Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Total 15-Minute Volume [veh/h]	65	297	37	94	281	42	15	56	23	67	1	59	29	10
Total Analysis Volume [veh/h]	260	1189	147	375	1123	168	60	22	92	26	5	23	11	42
Pedestrian Volume [ped/h]	5			5			5				5			
Bicycle Volume [bicycles/h]	0			0			0				0			

Intersection Settings

Cycle Length [s]	140
Lost time [s]	0.00

Phasing & Timing

Control Type	Protect	Permiss	Permiss	Protect	Permiss	Permiss	Permi	Prote	Permi	Permi	Permi	Prote	Permi	Permi
Signal Group	1	6	0	5	2	0	0	3	8	0	0	7	4	0
Auxiliary Signal Groups														
Lead / Lag	Lead	-	-	Lag	-	-	-	Lead	-	-	-	Lag	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.08	0.37	0.09	0.12	0.35	0.11	0.04	0.14	0.19	0.17	0.00	0.15	0.33	0.33
Intersection LOS	E													
Intersection V/C	0.961													

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Version 2020 (SP 0-6)

Intersection Level Of Service Report

Intersection 2: Westminster Avenue / Mar Les Drive

Control Type:	Two-way stop	Delay (sec / veh):	10,000.0
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.151

Intersection Setup

Name														
Approach	Northbound			Southbound			Eastbound				Westbound			
Lane Configuration														
Turning Movement	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Righ	U-tu	Left	Thru	Righ
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	0	1	0	0	0
Entry Pocket Length [ft]	100.0	100.0	100.0	100.0	100.0	100.0	170.	100.	100.	100.	170.	100.	100.	100.
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			40.00				40.00			
Grade [%]	0.00			0.00			0.00				0.00			
Crosswalk	No			Yes			No				No			

Volumes

Name														
Base Volume Input [veh/h]	20	5	40	10	0	40	0	70	10	25	0	16	14	50
Base Volume Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	5	0	10	0	3	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	20	5	40	10	0	40	0	70	10	25	10	16	14	50
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Other Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Total 15-Minute Volume [veh/h]	5	1	11	3	0	11	0	19	28	7	3	44	37	13
Total Analysis Volume [veh/h]	21	5	43	11	0	43	0	74	11	27	11	17	15	53
Pedestrian Volume [ped/h]	0			5			0				0			

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	Yes	Yes		
Number of Storage Spaces in Median	1	1	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.65	1.98	0.11	0.00	0.00	0.15	0.00	0.36	0.01	0.00	0.02	0.53	0.02	0.00
d_M, Delay for Movement [s/veh]	1083.04	2399.96	980.74	10000.0	10000.0	10000.0	26.21	32.22	0.00	0.00	24.85	28.22	0.00	0.00
Movement LOS	F	F	F	F	F	F	D	D	A	A	C	D	A	A
95th-Percentile Queue Length [veh/ln]	8.52	8.52	8.52	9.00	9.00	9.00	1.55	1.55	0.00	0.00	3.17	3.17	0.00	0.00
95th-Percentile Queue Length [ft/ln]	212.94	212.94	212.94	225.00	225.00	225.00	38.78	38.78	0.00	0.00	79.35	79.35	0.00	0.00
d_A, Approach Delay [s/veh]	1114.72			10000.00			1.95				2.99			
Approach LOS	F			F			A				A			
d_I, Intersection Delay [s/veh]	201.72													
Intersection LOS	F													

Intersection Level Of Service Report
Intersection 3: Fairview Street / 16th Street

Control Type:	Two-way stop	Delay (sec / veh):	48.7
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.057

Intersection Setup

Name						
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0
Entry Pocket Length [ft]	70.00	100.00	100.00	70.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name						
Base Volume Input [veh/h]	10	1643	1676	15	5	25
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	5	0	3	4	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	15	1643	1679	19	5	25
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	432	442	5	1	7
Total Analysis Volume [veh/h]	16	1729	1767	20	5	26
Pedestrian Volume [ped/h]	0		0		0	

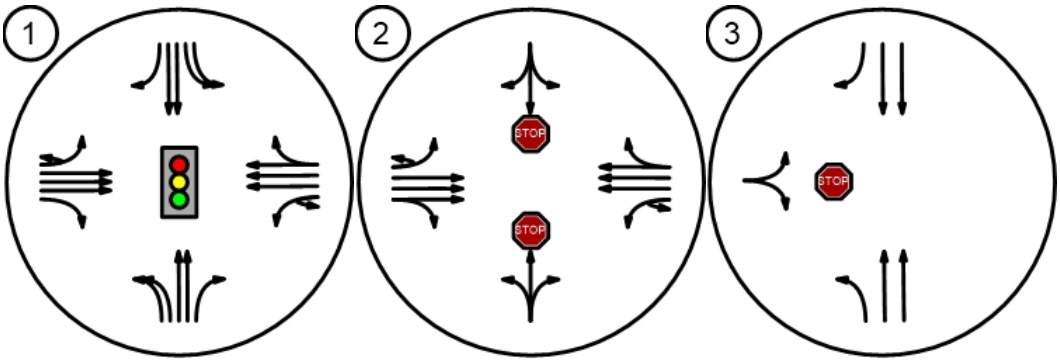
Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	1

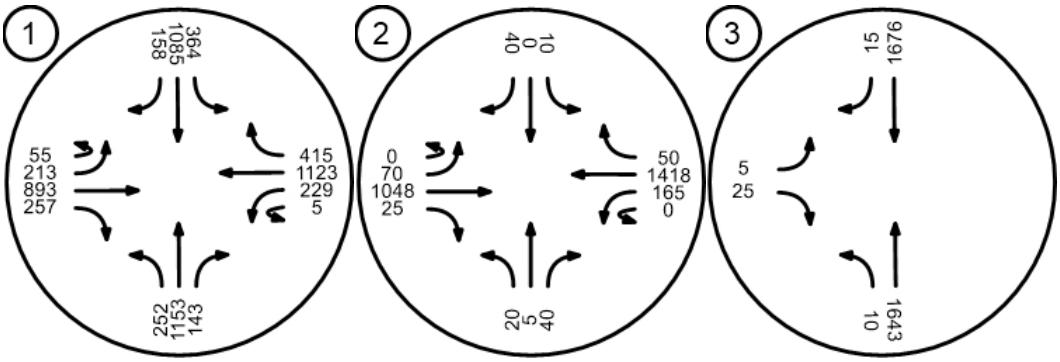
Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.05	0.02	0.02	0.00	0.06	0.09
d_M, Delay for Movement [s/veh]	16.02	0.00	0.00	0.00	48.72	20.38
Movement LOS	C	A	A	A	E	C
95th-Percentile Queue Length [veh/ln]	0.15	0.00	0.00	0.00	0.50	0.50
95th-Percentile Queue Length [ft/ln]	3.66	0.00	0.00	0.00	12.62	12.62
d_A, Approach Delay [s/veh]	0.15		0.00		24.95	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	0.29					
Intersection LOS	E					

Lane Configuration and Traffic Control



Traffic Volume - Base Volume



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Scenario 11 2040 AM No Project
9/25/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Westminster Avenue / Fairview Street	Signalized	ICU 1	SB Thru	1.129	-	F
2	Westminster Avenue / Mar Les Drive	Signalized	ICU 1	EB Thru	0.671	-	B
3	Fairview Street / 16th Street	Two-way stop	HCM 6th Edition	EB Right	0.748	75.6	F

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Westminster Avenue / Fairview Street

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.129

Intersection Setup

Name															
Approach	Northbound				Southbound			Eastbound				Westbound			
Lane Configuration															
Turning Movement	U-tu	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Right	U-tu	Left	Thru	Right
Lane Width [ft]	12.0	12.0	12.0	12.0	12.00	12.00	12.00	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
No. of Lanes in Entry Pocket	2	0	0	1	2	0	1	1	0	0	1	1	0	0	0
Entry Pocket Length [ft]	150.	100.	100.	100.	150.00	100.00	100.00	300.	100.	100.	170.	200.	100.	100.	100.
No. of Lanes in Exit Pocket	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	100.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00				45.00			40.00				40.00			
Grade [%]	0.00				0.00			0.00				0.00			
Crosswalk	Yes				Yes			Yes				Yes			

Volumes

Name															
Base Volume Input [veh/h]	0	210	1395	315	900	1630	160	40	205	1255	290	10	280	570	330
Base Volume Adjustment Factor	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	210	1395	315	900	1630	160	40	205	1255	290	10	280	570	330
Peak Hour Factor	1.00	0.92	0.92	0.92	0.9200	0.9200	0.9200	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Other Adjustment Factor	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Total 15-Minute Volume [veh/h]	0	57	379	86	245	443	43	11	56	341	79	3	76	155	90
Total Analysis Volume [veh/h]	0	228	1516	342	978	1772	174	43	223	1364	315	11	304	620	359
Pedestrian Volume [ped/h]	5				5			5				5			
Bicycle Volume [bicycles/h]	0				0			0				0			

Intersection Settings

Cycle Length [s]	140
Lost time [s]	7.00

Phasing & Timing

Control Type	Perm	Prote	Perm	Perm	Protect	Permis	Permis	Perm	Prote	Perm	Perm	Perm	Prote	Perm	Perm
Signal Group	0	1	6	0	5	2	0	0	3	8	0	0	7	4	0
Auxiliary Signal Groups															
Lead / Lag	-	Lag	-	-	Lag	-	-	-	Lag	-	-	-	Lag	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.07	0.32	0.21	0.31	0.37	0.11	0.03	0.14	0.27	0.20	0.01	0.19	0.19	0.19
Intersection LOS	F														
Intersection V/C	1.129														

Intersection Level Of Service Report
Intersection 2: Westminster Avenue / Mar Les Drive

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.671

Intersection Setup

Name														
Approach	Northbound			Southbound			Eastbound				Westbound			
Lane Configuration														
Turning Movement	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Right	U-tu	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	170.	100.	100.	100.	170.	100.	100.	100.
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			40.00				40.00			
Grade [%]	0.00			0.00			0.00				0.00			
Crosswalk	No			Yes			No				No			

Volumes

Name														
Base Volume Input [veh/h]	40	0	90	80	0	40	30	70	1610	30	60	100	760	30
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	40	0	90	80	0	40	30	70	1610	30	60	100	760	30
Peak Hour Factor	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Total 15-Minute Volume [veh/h]	11	0	25	22	0	11	8	20	452	8	17	28	213	8
Total Analysis Volume [veh/h]	45	0	101	90	0	45	34	79	1809	34	67	112	854	34
Pedestrian Volume [ped/h]	0			5			0				0			
Bicycle Volume [bicycles/h]	0			0			0				0			

Intersection Settings

Cycle Length [s]	100
Lost time [s]	7.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Perm	Prote	Perm	Perm	Perm	Prote	Perm	Perm
Signal Group	0	8	0	0	4	0	0	2	5	0	0	1	6	0
Auxiliary Signal Groups														
Lead / Lag	-	-	-	-	-	-	-	Lead	-	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.00	0.11	0.06	0.00	0.08	0.02	0.05	0.38	0.38	0.04	0.07	0.19	0.19
Intersection LOS	B													
Intersection V/C	0.671													

Intersection Level Of Service Report
Intersection 3: Fairview Street / 16th Street

Control Type:	Two-way stop	Delay (sec / veh):	75.6
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.748

Intersection Setup

Name						
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0
Entry Pocket Length [ft]	70.00	100.00	100.00	70.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name						
Base Volume Input [veh/h]	0	1930	2190	20	0	110
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1930	2190	20	0	110
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	519	589	5	0	30
Total Analysis Volume [veh/h]	0	2075	2355	22	0	118
Pedestrian Volume [ped/h]	0		0		0	

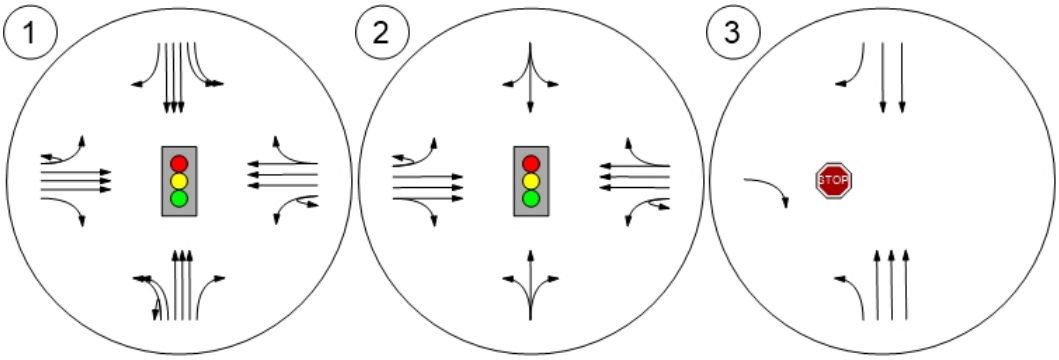
Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	1

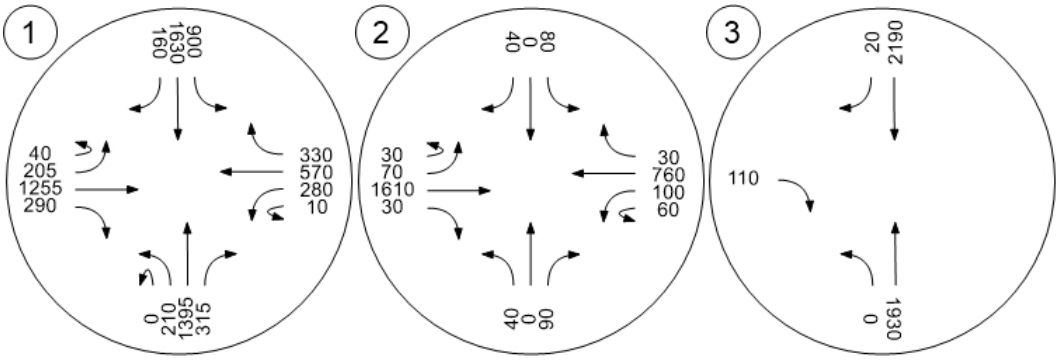
Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.02	0.02	0.00	0.00	0.75
d_M, Delay for Movement [s/veh]	22.92	0.00	0.00	0.00	0.00	75.56
Movement LOS	C	A	A	A		F
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	4.62
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	115.46
d_A, Approach Delay [s/veh]	0.00		0.00		75.56	
Approach LOS	A		A		F	
d_I, Intersection Delay [s/veh]	1.95					
Intersection LOS	F					

Lane Configuration and Traffic Control



Traffic Volume - Base Volume



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9/25/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Westminster Avenue / Fairview Street	Signalized	ICU 1	WB Right	1.176	-	F
2	Westminster Avenue / Mar Les Drive	Signalized	ICU 1	WB Thru	0.556	-	A
3	Fairview Street / 16th Street	Two-way stop	HCM 6th Edition	EB Right	0.161	26.5	D

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Westminster Avenue / Fairview Street

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.176

Intersection Setup

Name															
Approach	Northbound				Southbound			Eastbound				Westbound			
Lane Configuration															
Turning Movement	U-tu	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Right	U-tu	Left	Thru	Right
Lane Width [ft]	12.0	12.0	12.0	12.0	12.00	12.00	12.00	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
No. of Lanes in Entry Pocket	2	0	0	1	2	0	1	1	0	0	1	1	0	0	0
Entry Pocket Length [ft]	150.	100.	100.	100.	150.00	100.00	100.00	300.	100.	100.	170.	200.	100.	100.	100.
No. of Lanes in Exit Pocket	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	100.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00				45.00			40.00				40.00			
Grade [%]	0.00				0.00			0.00				0.00			
Crosswalk	Yes				Yes			Yes				Yes			

Volumes

Name															
Base Volume Input [veh/h]	10	260	1575	255	560	1450	190	60	245	935	260	10	260	1190	740
Base Volume Adjustment Factor	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	10	260	1575	255	560	1450	190	60	245	935	260	10	260	1190	740
Peak Hour Factor	1.00	0.97	0.97	0.97	0.9700	0.9700	0.9700	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Other Adjustment Factor	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Total 15-Minute Volume [veh/h]	3	67	406	66	144	374	49	15	63	241	67	3	67	307	191
Total Analysis Volume [veh/h]	10	268	1624	263	577	1495	196	62	253	964	268	10	268	1227	763
Pedestrian Volume [ped/h]	5				5			5				5			
Bicycle Volume [bicycles/h]	0				0			0				0			

Intersection Settings

Cycle Length [s]	140
Lost time [s]	7.00

Phasing & Timing

Control Type	Perm	Prote	Perm	Perm	Protect	Permis	Permis	Perm	Prote	Perm	Perm	Perm	Prote	Perm	Perm
Signal Group	0	1	6	0	5	2	0	0	3	8	0	0	7	4	0
Auxiliary Signal Groups															
Lead / Lag	-	Lag	-	-	Lag	-	-	-	Lag	-	-	-	Lag	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.08	0.34	0.16	0.18	0.31	0.12	0.04	0.16	0.19	0.17	0.01	0.17	0.39	0.39
Intersection LOS	F														
Intersection V/C	1.176														

Intersection Level Of Service Report
Intersection 2: Westminster Avenue / Mar Les Drive

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.556

Intersection Setup

Name														
Approach	Northbound			Southbound			Eastbound				Westbound			
Lane Configuration														
Turning Movement	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Right	U-tu	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	170.	100.	100.	100.	170.	100.	100.	100.
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			40.00				40.00			
Grade [%]	0.00			0.00			0.00				0.00			
Crosswalk	No			Yes			No				No			

Volumes

Name														
Base Volume Input [veh/h]	20	10	40	10	0	40	0	70	1440	30	10	170	1460	60
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	20	10	40	10	0	40	0	70	1440	30	10	170	1460	60
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Total 15-Minute Volume [veh/h]	5	3	11	3	0	11	0	19	383	8	3	45	388	16
Total Analysis Volume [veh/h]	21	11	43	11	0	43	0	74	1532	32	11	181	1553	64
Pedestrian Volume [ped/h]	0			5			0				0			
Bicycle Volume [bicycles/h]	0			0			0				0			

Intersection Settings

Cycle Length [s]	100
Lost time [s]	7.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Perm	Prote	Perm	Perm	Perm	Prote	Perm	Perm
Signal Group	0	8	0	0	4	0	0	2	5	0	0	1	6	0
Auxiliary Signal Groups														
Lead / Lag	-	-	-	-	-	-	-	Lead	-	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.05	0.05	0.01	0.00	0.04	0.00	0.05	0.33	0.33	0.01	0.11	0.34	0.34
Intersection LOS	A													
Intersection V/C	0.556													

Intersection Level Of Service Report
Intersection 3: Fairview Street / 16th Street

Control Type:	Two-way stop	Delay (sec / veh):	26.5
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.161

Intersection Setup

Name						
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0
Entry Pocket Length [ft]	70.00	100.00	100.00	70.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name						
Base Volume Input [veh/h]	0	2100	1950	30	0	30
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	2100	1950	30	0	30
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	553	513	8	0	8
Total Analysis Volume [veh/h]	0	2211	2053	32	0	32
Pedestrian Volume [ped/h]	0		0		0	

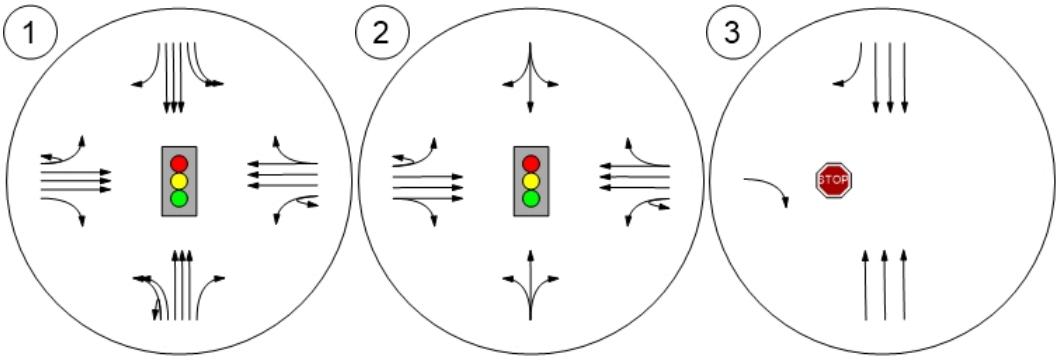
Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	1

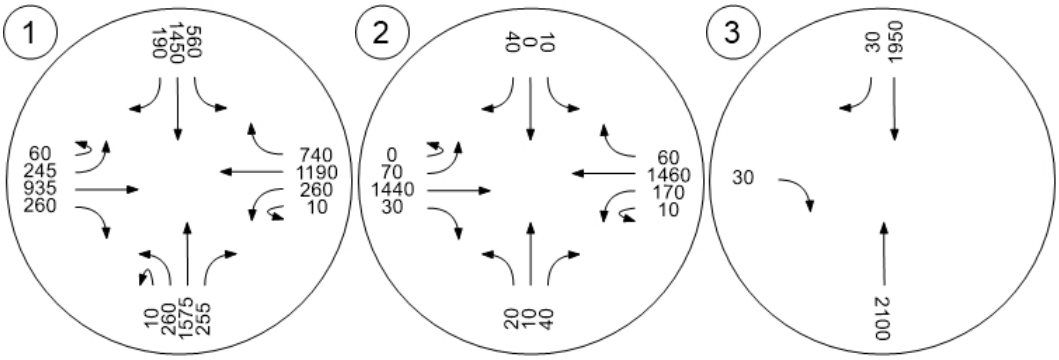
Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.02	0.02	0.00	0.00	0.16
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	26.51
Movement LOS		A	A	A		D
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.56
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	13.98
d_A, Approach Delay [s/veh]	0.00		0.00		26.51	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	0.20					
Intersection LOS	D					

Lane Configuration and Traffic Control



Traffic Volume - Base Volume



Vistro File: N:\...\Westview_Updated.vistro
Report File: N:\...\2040 With Project AM_Updated.pdf

Scenario 17 2040 PP AM Updated
9/28/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Westminster Avenue / Fairview Street	Signalized	ICU 1	SB Thru	1.129	-	F
2	Westminster Avenue / Mar Les Drive	Signalized	ICU 1	EB Thru	0.671	-	B
3	Fairview Street / 16th Street	Two-way stop	HCM 6th Edition	EB Right	0.750	76.0	F

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Westminster Avenue / Fairview Street

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.129

Intersection Setup

Name															
Approach	Northbound				Southbound			Eastbound				Westbound			
Lane Configuration															
Turning Movement	U-tu	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Right	U-tu	Left	Thru	Right
Lane Width [ft]	12.0	12.0	12.0	12.0	12.00	12.00	12.00	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
No. of Lanes in Entry Pocket	2	0	0	1	2	0	1	1	0	0	1	1	0	0	0
Entry Pocket Length [ft]	150.	100.	100.	100.	150.00	100.00	100.00	300.	100.	100.	170.	200.	100.	100.	100.
No. of Lanes in Exit Pocket	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	100.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00				45.00			40.00				40.00			
Grade [%]	0.00				0.00			0.00				0.00			
Crosswalk	Yes				Yes			Yes				Yes			

Volumes

Name															
Base Volume Input [veh/h]	9	210	1395	315	900	1629	158	43	211	1258	293	10	280	569	330
Base Volume Adjustment Factor	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	9	210	1395	315	900	1629	158	43	211	1258	293	10	280	569	330
Peak Hour Factor	1.00	0.92	0.92	0.92	0.9200	0.9200	0.9200	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Other Adjustment Factor	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Total 15-Minute Volume [veh/h]	2	57	379	86	245	443	43	12	57	342	80	3	76	155	90
Total Analysis Volume [veh/h]	9	228	1516	342	978	1771	172	47	229	1367	318	11	304	618	359
Pedestrian Volume [ped/h]	5				5			5				5			
Bicycle Volume [bicycles/h]	0				0			0				0			

Intersection Settings

Cycle Length [s]	140
Lost time [s]	7.00

Phasing & Timing

Control Type	Perm	Prote	Perm	Perm	Protect	Permis	Permis	Perm	Prote	Perm	Perm	Perm	Prote	Perm	Perm
Signal Group	0	1	6	0	5	2	0	0	3	8	0	0	7	4	0
Auxiliary Signal Groups															
Lead / Lag	-	Lag	-	-	Lag	-	-	-	Lag	-	-	-	Lag	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.07	0.32	0.21	0.31	0.37	0.11	0.03	0.14	0.27	0.20	0.01	0.19	0.19	0.19
Intersection LOS	F														
Intersection V/C	1.129														

Generated with PTV VISTRO

Version 2020 (SP 0-6)

Intersection Level Of Service Report

Intersection 2: Westminster Avenue / Mar Les Drive

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.671

Intersection Setup

Name														
Approach	Northbound			Southbound			Eastbound				Westbound			
Lane Configuration														
Turning Movement	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Right	U-tu	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	170.	100.	100.	100.	170.	100.	100.	100.
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			40.00				40.00			
Grade [%]	0.00			0.00			0.00				0.00			
Crosswalk	No			Yes			No				No			

Volumes

Name														
Base Volume Input [veh/h]	40	0	90	80	0	40	30	70	1609	30	57	100	763	30
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	40	0	90	80	0	40	30	70	1609	30	57	100	763	30
Peak Hour Factor	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Total 15-Minute Volume [veh/h]	11	0	25	22	0	11	8	20	452	8	16	28	214	8
Total Analysis Volume [veh/h]	45	0	101	90	0	45	34	79	1808	34	64	112	857	34
Pedestrian Volume [ped/h]	0			5			0				0			
Bicycle Volume [bicycles/h]	0			0			0				0			

Intersection Settings

Cycle Length [s]	100
Lost time [s]	7.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Perm	Prote	Perm	Perm	Perm	Prote	Perm	Perm
Signal Group	0	8	0	0	4	0	0	2	5	0	0	1	6	0
Auxiliary Signal Groups														
Lead / Lag	-	-	-	-	-	-	-	Lead	-	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.00	0.11	0.06	0.00	0.08	0.02	0.05	0.38	0.38	0.04	0.07	0.19	0.19
Intersection LOS	B													
Intersection V/C	0.671													

Intersection Level Of Service Report
Intersection 3: Fairview Street / 16th Street

Control Type:	Two-way stop	Delay (sec / veh):	76.0
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.750

Intersection Setup

Name						
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	70.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name						
Base Volume Input [veh/h]	0	1929	2193	18	0	110
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1929	2193	18	0	110
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	519	590	5	0	30
Total Analysis Volume [veh/h]	0	2074	2358	19	0	118
Pedestrian Volume [ped/h]	0		0		0	

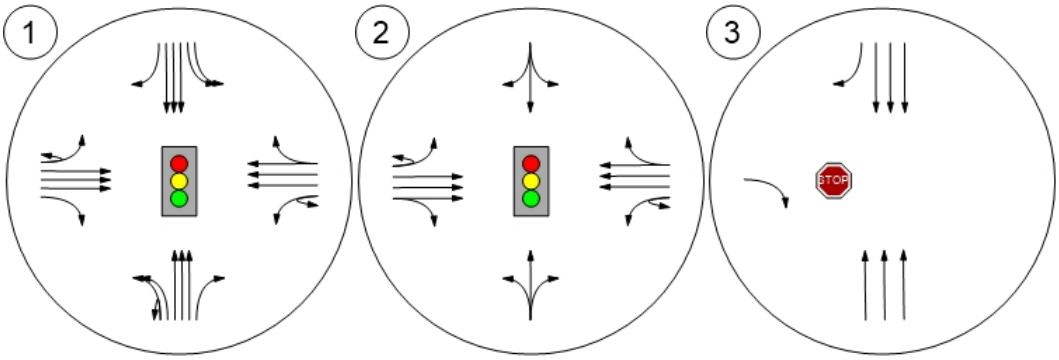
Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	1

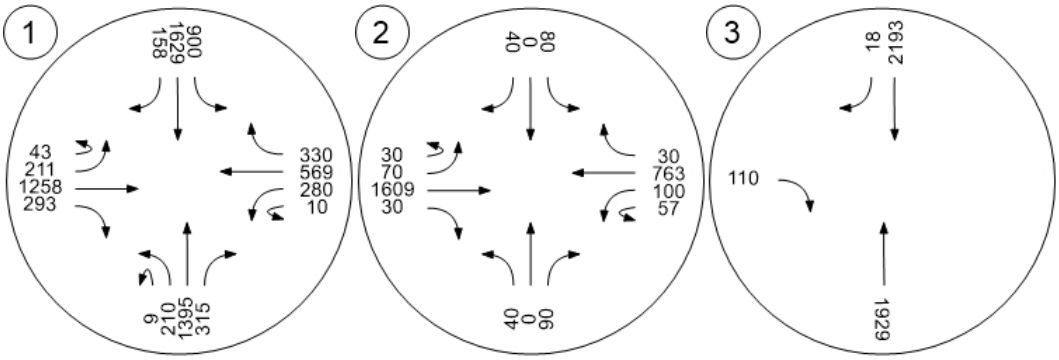
Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.02	0.02	0.00	0.00	0.75
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	75.97
Movement LOS		A	A	A		F
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	4.63
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	115.83
d_A, Approach Delay [s/veh]	0.00		0.00		75.97	
Approach LOS	A		A		F	
d_I, Intersection Delay [s/veh]	1.96					
Intersection LOS	F					

Lane Configuration and Traffic Control



Traffic Volume - Base Volume



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Report File: N:\...\2040 With Project PM_Updated.pdf

Scenario 18 2040 PP PM Updated
9/28/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Westminster Avenue / Fairview Street	Signalized	ICU 1	WB Thru	1.106	-	F
2	Westminster Avenue / Mar Les Drive	Signalized	ICU 1	WB Right	0.555	-	A
3	Fairview Street / 16th Street	Two-way stop	HCM 6th Edition	EB Right	0.160	26.4	D

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Westminster Avenue / Fairview Street

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.106

Intersection Setup

Name															
Approach	Northbound				Southbound			Eastbound				Westbound			
Lane Configuration															
Turning Movement	U-tu	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Right	U-tu	Left	Thru	Right
Lane Width [ft]	12.0	12.0	12.0	12.0	12.00	12.00	12.00	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
No. of Lanes in Entry Pocket	2	0	0	1	2	0	1	1	0	0	1	1	0	0	0
Entry Pocket Length [ft]	150.	100.	100.	100.	150.00	100.00	100.00	300.	100.	100.	170.	200.	100.	100.	100.
No. of Lanes in Exit Pocket	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	100.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00				45.00			40.00				40.00			
Grade [%]	0.00				0.00			0.00				0.00			
Crosswalk	Yes				Yes			Yes				Yes			

Volumes

Name															
Base Volume Input [veh/h]	6	260	1575	255	560	1447	185	54	230	929	254	10	260	1186	740
Base Volume Adjustment Factor	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	6	260	1575	255	560	1447	185	54	230	929	254	10	260	1186	740
Peak Hour Factor	1.00	0.97	0.97	0.97	0.9700	0.9700	0.9700	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Other Adjustment Factor	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Total 15-Minute Volume [veh/h]	2	67	406	66	144	373	48	14	59	239	65	3	67	306	191
Total Analysis Volume [veh/h]	6	268	1624	263	577	1492	191	56	237	958	262	10	268	1223	763
Pedestrian Volume [ped/h]	5				5			5				5			
Bicycle Volume [bicycles/h]	0				0			0				0			

Intersection Settings

Cycle Length [s]	140
Lost time [s]	7.00

Phasing & Timing

Control Type	Perm	Prote	Perm	Perm	Protect	Permis	Permis	Perm	Prote	Perm	Perm	Perm	Prote	Perm	Perm
Signal Group	0	1	6	0	5	2	0	0	3	8	0	0	7	4	0
Auxiliary Signal Groups															
Lead / Lag	-	Lag	-	-	Lag	-	-	-	Lag	-	-	-	Lag	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.08	0.34	0.16	0.18	0.31	0.12	0.04	0.15	0.19	0.16	0.01	0.17	0.39	0.39
Intersection LOS	F														
Intersection V/C	1.106														

Intersection Level Of Service Report
Intersection 2: Westminster Avenue / Mar Les Drive

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.555

Intersection Setup

Name														
Approach	Northbound			Southbound			Eastbound				Westbound			
Lane Configuration														
Turning Movement	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Right	U-tu	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	170.	100.	100.	100.	170.	100.	100.	100.
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			40.00				40.00			
Grade [%]	0.00			0.00			0.00				0.00			
Crosswalk	No			Yes			No				No			

Volumes

Name														
Base Volume Input [veh/h]	20	10	40	10	0	40	0	70	1436	30	1	170	1454	60
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	20	10	40	10	0	40	0	70	1436	30	1	170	1454	60
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Total 15-Minute Volume [veh/h]	5	3	11	3	0	11	0	19	382	8	0	45	387	16
Total Analysis Volume [veh/h]	21	11	43	11	0	43	0	74	1528	32	1	181	1547	64
Pedestrian Volume [ped/h]	0			5			0				0			
Bicycle Volume [bicycles/h]	0			0			0				0			

Intersection Settings

Cycle Length [s]	100
Lost time [s]	7.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Perm	Prote	Perm	Perm	Perm	Prote	Perm	Perm
Signal Group	0	8	0	0	4	0	0	2	5	0	0	1	6	0
Auxiliary Signal Groups														
Lead / Lag	-	-	-	-	-	-	-	Lead	-	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.05	0.05	0.01	0.00	0.04	0.00	0.05	0.33	0.33	0.00	0.11	0.34	0.34
Intersection LOS	A													
Intersection V/C	0.555													

Intersection Level Of Service Report
Intersection 3: Fairview Street / 16th Street

Control Type:	Two-way stop	Delay (sec / veh):	26.4
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.160

Intersection Setup

Name						
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	70.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name						
Base Volume Input [veh/h]	0	2096	1944	23	0	30
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	2096	1944	23	0	30
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	552	512	6	0	8
Total Analysis Volume [veh/h]	0	2206	2046	24	0	32
Pedestrian Volume [ped/h]	0		0		0	

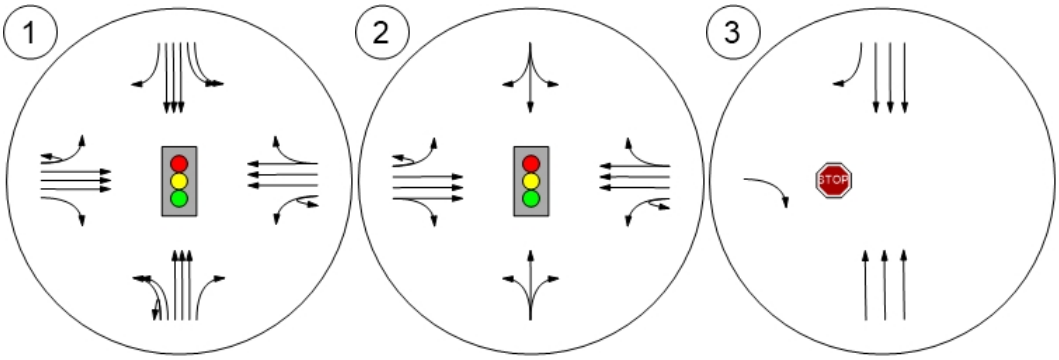
Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	1

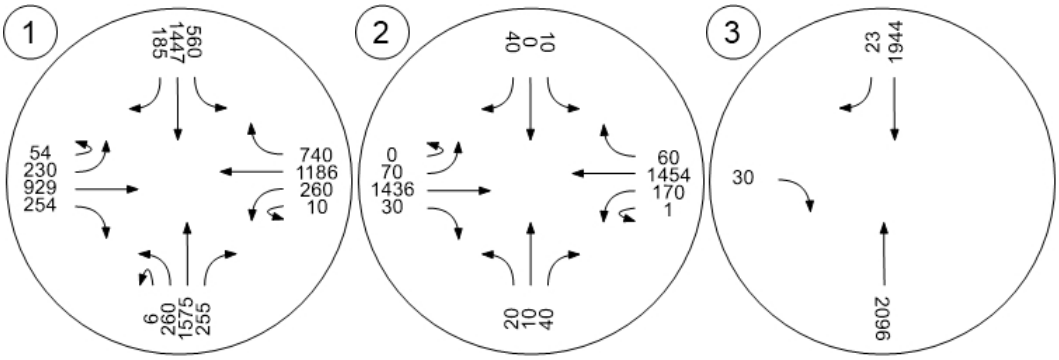
Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.02	0.02	0.00	0.00	0.16
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	26.37
Movement LOS		A	A	A		D
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.56
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	13.90
d_A, Approach Delay [s/veh]	0.00		0.00		26.37	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	0.20					
Intersection LOS	D					

Lane Configuration and Traffic Control



Traffic Volume - Base Volume



Intersection Level Of Service Report
Intersection 4: Westminster Avenue / Project Driveway

Control Type:	Two-way stop	Delay (sec / veh):	19.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.084

Intersection Setup

Name						
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		40.00		40.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	0	1627	0	0	807
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	23	0	9	0	9
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	23	1627	9	0	816
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	6	407	2	0	204
Total Analysis Volume [veh/h]	0	23	1627	9	0	816
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.08	0.02	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	0.00	19.35	0.00	0.00	0.00	0.00
Movement LOS		C	A	A		A
95th-Percentile Queue Length [veh/ln]	0.00	0.27	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	6.82	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	19.35		0.00		0.00	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	0.18					
Intersection LOS	C					

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Report File: C:\...\EX_PP_PM_INT4.pdf

Scenario 6 Existing PM
9/10/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
4	Westminster Avenue / Project Driveway	Two-way stop	HCM 6th Edition	NB Right	0.042	16.2	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 4: Westminster Avenue / Project Driveway

Control Type:	Two-way stop	Delay (sec / veh):	16.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.042

Intersection Setup

Name						
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		40.00		40.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	0	1344	0	0	1513
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	14	0	24	0	13
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	14	1344	24	0	1526
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	4	336	6	0	382
Total Analysis Volume [veh/h]	0	14	1344	24	0	1526
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.04	0.01	0.00	0.00	0.02
d_M, Delay for Movement [s/veh]	0.00	16.20	0.00	0.00	0.00	0.00
Movement LOS		C	A	A		A
95th-Percentile Queue Length [veh/ln]	0.00	0.13	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	3.26	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	16.20		0.00		0.00	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	0.08					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 4: Westminster Avenue / Project Driveway

Control Type:	Two-way stop	Delay (sec / veh):	20.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.091

Intersection Setup

Name						
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		40.00		40.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	0	1726	0	0	834
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	23	0	9	0	9
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	23	1726	9	0	843
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	6	432	2	0	211
Total Analysis Volume [veh/h]	0	23	1726	9	0	843
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.09	0.02	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	0.00	20.58	0.00	0.00	0.00	0.00
Movement LOS		C	A	A		A
95th-Percentile Queue Length [veh/ln]	0.00	0.30	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	7.39	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	20.58		0.00		0.00	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	0.18					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 4: Westminster Avenue / Project Driveway

Control Type:	Two-way stop	Delay (sec / veh):	17.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.045

Intersection Setup

Name						
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		40.00		40.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	0	1432	0	0	1556
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	14	0	24	0	13
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	14	1432	24	0	1569
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	4	358	6	0	392
Total Analysis Volume [veh/h]	0	14	1432	24	0	1569
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.04	0.01	0.00	0.00	0.02
d_M, Delay for Movement [s/veh]	0.00	17.00	0.00	0.00	0.00	0.00
Movement LOS		C	A	A		A
95th-Percentile Queue Length [veh/ln]	0.00	0.14	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	3.49	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	17.00		0.00		0.00	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	0.08					
Intersection LOS	C					

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Scenario 17 2040 PP AM Updated
9/28/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
4	Westminster Avenue / Project Driveway	Two-way stop	HCM 6th Edition		0.000	0.0	

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 4: Westminster Avenue / Project Driveway

Control Type:	Two-way stop	Delay (sec / veh):	0.0
Analysis Method:	HCM 6th Edition	Level Of Service:	
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name						
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		40.00		40.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	0	0	0
Total Analysis Volume [veh/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0		0		0	

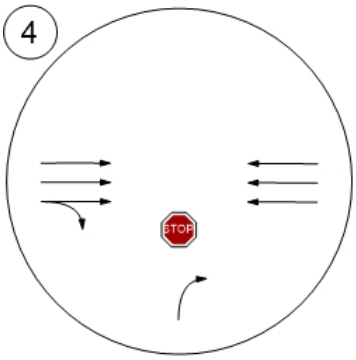
Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	8.92	0.00	0.00	0.00	0.00
Movement LOS		A	A	A		A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	8.92		0.00		0.00	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	2.97					
Intersection LOS						

Lane Configuration and Traffic Control



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Scenario 18 2040 PP PM Updated
9/28/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
4	Westminster Avenue / Project Driveway	Two-way stop	HCM 6th Edition		0.000	0.0	

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 4: Westminster Avenue / Project Driveway

Control Type:	Two-way stop	Delay (sec / veh):	0.0
Analysis Method:	HCM 6th Edition	Level Of Service:	
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name						
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		40.00		40.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	0	0	0
Total Analysis Volume [veh/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0		0		0	

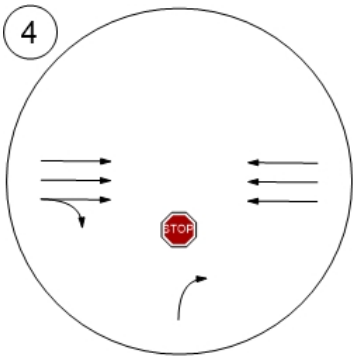
Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	8.92	0.00	0.00	0.00	0.00
Movement LOS		A	A	A		A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	8.92		0.00		0.00	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	2.97					
Intersection LOS						

Lane Configuration and Traffic Control



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Scenario 5 Existing AM
9/8/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Westminster Avenue / Fairview Street	Signalized	HCM 6th Edition	WB Left	1.036	91.5	F

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Westminster Avenue / Fairview Street

Control Type:	Signalized	Delay (sec / veh):	91.5
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.036

Intersection Setup

Name														
Approach	Northbound			Southbound			Eastbound				Westbound			
Lane Configuration														
Turning Movement	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Right	U-tu	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	2	0	1	2	0	1	1	0	0	1	1	0	0	0
Entry Pocket Length [ft]	150.00	100.00	100.00	150.00	100.00	100.00	300.0	100.0	100.0	170.0	200.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			40.00				40.00			
Grade [%]	0.00			0.00			0.00				0.00			
Curb Present	No			No			No				No			
Crosswalk	Yes			Yes			Yes				Yes			

Volumes

Name														
Base Volume Input [veh/h]	190	922	271	520	1171	114	31	170	1137	266	4	220	454	230
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	190	922	271	520	1171	114	31	170	1137	266	4	220	454	230
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.920	0.920	0.920	0.920	0.920	0.920	0.920	0.920
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	52	251	74	141	318	31	8	46	309	72	1	60	123	63
Total Analysis Volume [veh/h]	207	1002	295	565	1273	124	34	185	1236	289	4	239	493	250
Presence of On-Street Parking	No		No	No		No	No			No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	3			3			2				2			
v_di, Inbound Pedestrian Volume crossing m	2			2			3				3			
v_co, Outbound Pedestrian Volume crossing	2			2			3				3			
v_ci, Inbound Pedestrian Volume crossing mi	3			3			2				2			
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0				0			
Bicycle Volume [bicycles/h]	0			0			0				0			

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	140
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	7.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permi	Prote	Permi	Permi	Permi	Prote	Permi	Permi
Signal Group	1	6	0	5	2	0	0	3	8	0	0	7	4	0
Auxiliary Signal Groups														
Lead / Lag	Lag	-	-	Lag	-	-	-	Lag	-	-	-	Lag	-	-
Minimum Green [s]	5	5	0	5	5	0	0	5	5	0	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	0	30	30	0	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0
Split [s]	13	48	0	27	62	0	0	22	42	0	0	23	43	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	5	0	0	0	5	0
Pedestrian Clearance [s]	0	29	0	0	29	0	0	0	26	0	0	0	26	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No				No				No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No			No	No			No	No	
Maximum Recall	No	No		No	No			No	No			No	No	
Pedestrian Recall	No	No		No	No			No	No			No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	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

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	C
C, Cycle Length [s]	140	140	140	140	140	140	140	140	140	140	140	140
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	9	44	44	23	58	58	29	38	38	19	28	28
g / C, Green / Cycle	0.06	0.31	0.31	0.16	0.41	0.41	0.21	0.27	0.27	0.14	0.20	0.20
(v / s)_i Volume / Saturation Flow Rate	0.07	0.35	0.21	0.18	0.44	0.09	0.14	0.30	0.20	0.15	0.15	0.18
s, saturation flow rate [veh/h]	3113	2867	1424	3113	2867	1425	1603	4102	1423	1603	3204	1420
c, Capacity [veh/h]	200	897	445	511	1184	588	336	1112	386	220	638	283
d1, Uniform Delay [s]	65.49	48.10	41.63	58.50	41.10	26.42	50.68	51.02	46.61	60.38	53.06	54.49
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.18	0.11	0.27	0.24	0.11	0.19
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	38.45	67.54	7.55	54.10	48.98	0.81	3.64	53.45	7.18	72.83	2.03	14.33
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.03	1.12	0.66	1.10	1.08	0.21	0.65	1.11	0.75	1.10	0.77	0.88
d, Delay for Lane Group [s/veh]	103.94	115.63	49.18	112.59	90.08	27.24	54.32	104.47	53.78	133.22	55.09	68.82
Lane Group LOS	F	F	D	F	F	C	D	F	D	F	E	E
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	4.58	23.52	9.53	12.70	27.45	2.75	7.30	18.22	9.82	12.17	8.28	9.56
50th-Percentile Queue Length [ft/ln]	114.59	587.95	238.28	317.42	686.30	68.65	182.42	455.44	245.60	304.37	207.02	239.06
95th-Percentile Queue Length [veh/ln]	8.18	33.73	14.59	19.43	37.99	4.94	11.73	26.82	14.96	18.69	13.00	14.63
95th-Percentile Queue Length [ft/ln]	204.39	843.25	364.86	485.84	949.64	123.58	293.17	670.43	374.10	467.35	325.00	365.84

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Report File: C:\...\EX_PM_HCM.pdf

Scenario 6 Existing PM
9/8/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Westminster Avenue / Fairview Street	Signalized	HCM 6th Edition	EB Left	1.085	99.7	F

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Westminster Avenue / Fairview Street

Control Type:	Signalized	Delay (sec / veh):	99.7
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.085

Intersection Setup

Name														
Approach	Northbound			Southbound			Eastbound				Westbound			
Lane Configuration														
Turning Movement	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Right	U-tu	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	2	0	1	2	0	1	1	0	0	1	1	0	0	0
Entry Pocket Length [ft]	150.00	100.00	100.00	150.00	100.00	100.00	300.0	100.0	100.0	170.0	200.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			40.00				40.00			
Grade [%]	0.00			0.00			0.00				0.00			
Curb Present	No			No			No				No			
Crosswalk	Yes			Yes			Yes				Yes			

Volumes

Name														
Base Volume Input [veh/h]	236	1097	129	347	1026	132	53	191	846	240	2	211	1066	397
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	236	1097	129	347	1026	132	53	191	846	240	2	211	1066	397
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.970	0.970	0.970	0.970	0.970	0.970	0.970	0.970
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	61	283	33	89	264	34	14	49	218	62	1	54	275	102
Total Analysis Volume [veh/h]	243	1131	133	358	1058	136	55	197	872	247	2	218	1099	409
Presence of On-Street Parking	No		No	No		No	No			No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	3			3			2				2			
v_di, Inbound Pedestrian Volume crossing m	2			2			3				3			
v_co, Outbound Pedestrian Volume crossing	2			2			3				3			
v_ci, Inbound Pedestrian Volume crossing mi	3			3			2				2			
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0				0			
Bicycle Volume [bicycles/h]	0			0			0				0			

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	140
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	7.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permi	Prote	Permi	Permi	Permi	Prote	Permi	Permi
Signal Group	1	6	0	5	2	0	0	3	8	0	0	7	4	0
Auxiliary Signal Groups														
Lead / Lag	Lag	-	-	Lag	-	-	-	Lag	-	-	-	Lag	-	-
Minimum Green [s]	5	5	0	5	5	0	0	5	5	0	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	0	30	30	0	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0
Split [s]	15	51	0	19	55	0	0	22	50	0	0	20	48	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	5	0	0	0	5	0
Pedestrian Clearance [s]	0	29	0	0	29	0	0	0	26	0	0	0	26	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No				No				No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No			No	No			No	No	
Maximum Recall	No	No		No	No			No	No			No	No	
Pedestrian Recall	No	No		No	No			No	No			No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	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

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	C
C, Cycle Length [s]	140	140	140	140	140	140	140	140	140	140	140	140
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	11	47	47	15	51	51	18	34	34	28	44	44
g / C, Green / Cycle	0.08	0.34	0.34	0.11	0.36	0.36	0.13	0.24	0.24	0.20	0.31	0.31
(v / s)_i Volume / Saturation Flow Rate	0.08	0.39	0.09	0.12	0.37	0.10	0.16	0.21	0.17	0.14	0.36	0.36
s, saturation flow rate [veh/h]	3113	2867	1424	3113	2867	1425	1603	4102	1422	1603	2867	1301
c, Capacity [veh/h]	245	960	477	334	1042	518	208	992	344	324	901	409
d1, Uniform Delay [s]	64.46	46.56	34.14	62.50	44.56	31.34	60.93	51.10	48.63	51.69	48.01	48.01
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.26	0.11	0.11	0.19	0.15	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	25.25	91.03	1.45	45.43	31.76	1.23	116.83	2.71	2.96	4.29	71.06	95.39
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.99	1.18	0.28	1.07	1.02	0.26	1.21	0.88	0.72	0.68	1.15	1.16
d, Delay for Lane Group [s/veh]	89.71	137.59	35.60	107.93	76.32	32.58	177.76	53.81	51.59	55.98	119.07	143.40
Lane Group LOS	F	F	D	F	F	C	F	D	D	E	F	F
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	5.11	28.22	3.46	7.92	21.93	3.36	14.02	9.90	8.09	7.45	24.21	24.74
50th-Percentile Queue Length [ft/ln]	127.75	705.58	86.51	198.09	548.20	84.00	350.53	247.51	202.20	186.33	605.27	618.43
95th-Percentile Queue Length [veh/ln]	8.82	40.92	6.23	12.89	29.93	6.05	21.84	15.06	12.75	11.93	35.15	35.99
95th-Percentile Queue Length [ft/ln]	220.44	1022.95	155.72	322.25	748.22	151.20	545.96	376.52	318.81	298.26	878.70	899.82

Vistro File: C:\...\Westview_HCM.vistro
Report File: C:\...\EX_AM_PP_HCM.pdf

Scenario 5 Existing AM
9/8/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Westminster Avenue / Fairview Street	Signalized	HCM 6th Edition	WB Left	1.037	91.9	F

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Westminster Avenue / Fairview Street

Control Type:	Signalized	Delay (sec / veh):	91.9
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.037

Intersection Setup

Name														
Approach	Northbound			Southbound			Eastbound				Westbound			
Lane Configuration														
Turning Movement	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Right	U-tu	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	2	0	1	2	0	1	1	0	0	1	1	0	0	0
Entry Pocket Length [ft]	150.00	100.00	100.00	150.00	100.00	100.00	300.0	100.0	100.0	170.0	200.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			40.00				40.00			
Grade [%]	0.00			0.00			0.00				0.00			
Curb Present	No			No			No				No			
Crosswalk	Yes			Yes			Yes				Yes			

Volumes

Name														
Base Volume Input [veh/h]	190	922	271	520	1171	114	31	170	1137	266	4	220	454	230
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	1	2	5	8	5	5	0	0	2	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	190	922	271	520	1172	116	36	178	1142	271	4	220	456	230
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.920	0.920	0.920	0.920	0.920	0.920	0.920	0.920
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	52	251	74	141	318	32	10	48	310	74	1	60	124	63
Total Analysis Volume [veh/h]	207	1002	295	565	1274	126	39	193	1241	295	4	239	496	250
Presence of On-Street Parking	No		No	No		No	No			No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	3			3			2				2			
v_di, Inbound Pedestrian Volume crossing m	2			2			3				3			
v_co, Outbound Pedestrian Volume crossing	2			2			3				3			
v_ci, Inbound Pedestrian Volume crossing mi	3			3			2				2			
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0				0			
Bicycle Volume [bicycles/h]	0			0			0				0			

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	140
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	7.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permi	Prote	Permi	Permi	Permi	Prote	Permi	Permi
Signal Group	1	6	0	5	2	0	0	3	8	0	0	7	4	0
Auxiliary Signal Groups														
Lead / Lag	Lag	-	-	Lag	-	-	-	Lag	-	-	-	Lag	-	-
Minimum Green [s]	5	5	0	5	5	0	0	5	5	0	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	0	30	30	0	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0
Split [s]	13	48	0	27	62	0	0	22	42	0	0	23	43	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	5	0	0	0	5	0
Pedestrian Clearance [s]	0	29	0	0	29	0	0	0	26	0	0	0	26	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No				No				No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No			No	No			No	No	
Maximum Recall	No	No		No	No			No	No			No	No	
Pedestrian Recall	No	No		No	No			No	No			No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	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

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	C
C, Cycle Length [s]	140	140	140	140	140	140	140	140	140	140	140	140
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	9	44	44	23	58	58	29	38	38	19	28	28
g / C, Green / Cycle	0.06	0.31	0.31	0.16	0.41	0.41	0.21	0.27	0.27	0.14	0.20	0.20
(v / s)_i Volume / Saturation Flow Rate	0.07	0.35	0.21	0.18	0.44	0.09	0.14	0.30	0.21	0.15	0.15	0.18
s, saturation flow rate [veh/h]	3113	2867	1424	3113	2867	1425	1603	4102	1423	1603	3204	1420
c, Capacity [veh/h]	200	897	445	511	1184	588	336	1112	386	220	638	283
d1, Uniform Delay [s]	65.49	48.10	41.63	58.50	41.10	26.46	51.17	51.02	46.85	60.38	53.11	54.49
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.21	0.11	0.29	0.24	0.11	0.19
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	38.45	67.53	7.55	54.10	49.27	0.83	4.93	55.37	8.05	72.85	2.08	14.31
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.03	1.12	0.66	1.10	1.08	0.21	0.69	1.12	0.76	1.10	0.78	0.88
d, Delay for Lane Group [s/veh]	103.94	115.63	49.18	112.59	90.37	27.29	56.10	106.39	54.90	133.23	55.20	68.79
Lane Group LOS	F	F	D	F	F	C	E	F	D	F	E	E
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	4.58	23.52	9.53	12.70	27.50	2.80	7.90	18.42	10.15	12.18	8.34	9.56
50th-Percentile Queue Length [ft/ln]	114.59	587.94	238.28	317.42	687.52	69.88	197.53	460.39	253.85	304.38	208.58	239.01
95th-Percentile Queue Length [veh/ln]	8.18	33.73	14.59	19.43	38.07	5.03	12.51	27.13	15.38	18.69	13.08	14.63
95th-Percentile Queue Length [ft/ln]	204.39	843.24	364.86	485.84	951.64	125.78	312.77	678.20	384.49	467.37	327.00	365.79

Vistro File: C:\...\Westview_HCM.vistro
Report File: C:\...\EX_PM_HCM.pdf

Scenario 6 Existing PM
9/8/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Westminster Avenue / Fairview Street	Signalized	HCM 6th Edition	EB Left	1.091	100.9	F

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Westminster Avenue / Fairview Street

Control Type:	Signalized	Delay (sec / veh):	100.9
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.091

Intersection Setup

Name														
Approach	Northbound			Southbound			Eastbound				Westbound			
Lane Configuration														
Turning Movement	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Right	U-tu	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	2	0	1	2	0	1	1	0	0	1	1	0	0	0
Entry Pocket Length [ft]	150.00	100.00	100.00	150.00	100.00	100.00	300.0	100.0	100.0	170.0	200.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			40.00				40.00			
Grade [%]	0.00			0.00			0.00				0.00			
Curb Present	No			No			No				No			
Crosswalk	Yes			Yes			Yes				Yes			

Volumes

Name														
Base Volume Input [veh/h]	236	1097	129	347	1026	132	53	191	846	240	2	211	1066	397
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	4	5	3	5	3	3	0	0	5	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	236	1097	129	347	1030	137	56	196	849	243	2	211	1071	397
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.970	0.970	0.970	0.970	0.970	0.970	0.970	0.970
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	61	283	33	89	265	35	14	51	219	63	1	54	276	102
Total Analysis Volume [veh/h]	243	1131	133	358	1062	141	58	202	875	251	2	218	1104	409
Presence of On-Street Parking	No		No	No		No	No			No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	3			3			2				2			
v_di, Inbound Pedestrian Volume crossing m	2			2			3				3			
v_co, Outbound Pedestrian Volume crossing	2			2			3				3			
v_ci, Inbound Pedestrian Volume crossing mi	3			3			2				2			
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0				0			
Bicycle Volume [bicycles/h]	0			0			0				0			

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	140
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	7.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permi	Prote	Permi	Permi	Permi	Prote	Permi	Permi
Signal Group	1	6	0	5	2	0	0	3	8	0	0	7	4	0
Auxiliary Signal Groups														
Lead / Lag	Lag	-	-	Lag	-	-	-	Lag	-	-	-	Lag	-	-
Minimum Green [s]	5	5	0	5	5	0	0	5	5	0	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	0	30	30	0	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0
Split [s]	15	51	0	19	55	0	0	22	50	0	0	20	48	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	5	0	0	0	5	0
Pedestrian Clearance [s]	0	29	0	0	29	0	0	0	26	0	0	0	26	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No				No				No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No			No	No			No	No	
Maximum Recall	No	No		No	No			No	No			No	No	
Pedestrian Recall	No	No		No	No			No	No			No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	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

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	C
C, Cycle Length [s]	140	140	140	140	140	140	140	140	140	140	140	140
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	11	47	47	15	51	51	18	34	34	28	44	44
g / C, Green / Cycle	0.08	0.34	0.34	0.11	0.36	0.36	0.13	0.24	0.24	0.20	0.31	0.31
(v / s)_i Volume / Saturation Flow Rate	0.08	0.39	0.09	0.12	0.37	0.10	0.16	0.21	0.18	0.14	0.36	0.37
s, saturation flow rate [veh/h]	3113	2867	1424	3113	2867	1425	1603	4102	1422	1603	2867	1302
c, Capacity [veh/h]	245	960	477	334	1042	518	208	995	345	322	901	409
d1, Uniform Delay [s]	64.46	46.56	34.14	62.50	44.56	31.47	60.93	51.04	48.69	51.79	48.01	48.01
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.27	0.11	0.12	0.19	0.15	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	25.25	91.03	1.45	45.43	32.80	1.30	133.41	2.71	3.25	4.36	72.63	96.80
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.99	1.18	0.28	1.07	1.02	0.27	1.25	0.88	0.73	0.68	1.15	1.16
d, Delay for Lane Group [s/veh]	89.71	137.59	35.60	107.93	77.36	32.76	194.34	53.74	51.94	56.15	120.64	144.81
Lane Group LOS	F	F	D	F	F	C	F	D	D	E	F	F
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	5.11	28.22	3.46	7.92	22.08	3.50	14.98	9.93	8.26	7.47	24.41	24.91
50th-Percentile Queue Length [ft/ln]	127.75	705.58	86.51	198.09	551.95	87.47	374.45	248.28	206.52	186.64	610.16	622.75
95th-Percentile Queue Length [veh/ln]	8.82	40.92	6.23	12.89	30.19	6.30	23.36	15.10	12.97	11.95	35.46	36.28
95th-Percentile Queue Length [ft/ln]	220.44	1022.96	155.72	322.25	754.66	157.44	584.11	377.49	324.36	298.67	886.48	906.96

Vistro File: C:\...\Westview_HCM.vistro
Report File: C:\...\2023_AM__HCM.pdf

Scenario 9 2023 AM
9/8/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Westminster Avenue / Fairview Street	Signalized	HCM 6th Edition	WB Left	1.073	103.1	F

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Westminster Avenue / Fairview Street

Control Type:	Signalized	Delay (sec / veh):	103.1
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.073

Intersection Setup

Name														
Approach	Northbound			Southbound			Eastbound				Westbound			
Lane Configuration														
Turning Movement	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Right	U-tu	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	2	0	1	2	0	1	1	0	0	1	1	0	0	0
Entry Pocket Length [ft]	150.00	100.00	100.00	150.00	100.00	100.00	300.0	100.0	100.0	170.0	200.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			40.00				40.00			
Grade [%]	0.00			0.00			0.00				0.00			
Curb Present	No			No			No				No			
Crosswalk	Yes			Yes			Yes				Yes			

Volumes

Name														
Base Volume Input [veh/h]	200	950	280	540	1210	120	35	175	1175	275	5	230	470	240
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	200	950	280	540	1210	120	35	175	1175	275	5	230	470	240
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.920	0.920	0.920	0.920	0.920	0.920	0.920	0.920
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	54	258	76	147	329	33	10	48	319	75	1	63	128	65
Total Analysis Volume [veh/h]	217	1033	304	587	1315	130	38	190	1277	299	5	250	511	261
Presence of On-Street Parking	No		No	No		No	No			No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	3			3			2				2			
v_di, Inbound Pedestrian Volume crossing m	2			2			3				3			
v_co, Outbound Pedestrian Volume crossing	2			2			3				3			
v_ci, Inbound Pedestrian Volume crossing mi	3			3			2				2			
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0				0			
Bicycle Volume [bicycles/h]	0			0			0				0			

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	140
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	7.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permi	Prote	Permi	Permi	Permi	Prote	Permi	Permi
Signal Group	1	6	0	5	2	0	0	3	8	0	0	7	4	0
Auxiliary Signal Groups														
Lead / Lag	Lag	-	-	Lag	-	-	-	Lag	-	-	-	Lag	-	-
Minimum Green [s]	5	5	0	5	5	0	0	5	5	0	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	0	30	30	0	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0
Split [s]	13	48	0	27	62	0	0	21	42	0	0	23	44	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	5	0	0	0	5	0
Pedestrian Clearance [s]	0	29	0	0	29	0	0	0	26	0	0	0	26	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No				No				No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No			No	No			No	No	
Maximum Recall	No	No		No	No			No	No			No	No	
Pedestrian Recall	No	No		No	No			No	No			No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	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

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	C
C, Cycle Length [s]	140	140	140	140	140	140	140	140	140	140	140	140
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	9	44	44	23	58	58	26	38	38	19	32	32
g / C, Green / Cycle	0.06	0.31	0.31	0.16	0.41	0.41	0.18	0.27	0.27	0.14	0.23	0.23
(v / s)_i Volume / Saturation Flow Rate	0.07	0.36	0.21	0.19	0.46	0.09	0.14	0.31	0.21	0.16	0.18	0.21
s, saturation flow rate [veh/h]	3113	2867	1424	3113	2867	1425	1603	4102	1423	1603	2867	1271
c, Capacity [veh/h]	200	897	445	511	1184	588	294	1112	386	220	646	286
d1, Uniform Delay [s]	65.49	48.10	41.96	58.50	41.10	26.54	54.45	51.02	47.02	60.38	51.12	52.86
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.20	0.11	0.29	0.26	0.11	0.25
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	54.73	80.98	8.21	71.92	62.14	0.87	8.05	69.36	8.68	94.65	2.23	21.25
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.08	1.15	0.68	1.15	1.11	0.22	0.78	1.15	0.78	1.16	0.79	0.91
d, Delay for Lane Group [s/veh]	120.22	129.08	50.17	130.42	103.24	27.41	62.50	120.39	55.70	155.03	53.34	74.11
Lane Group LOS	F	F	D	F	F	C	E	F	E	F	D	E
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	5.04	25.19	9.95	13.96	29.62	2.89	8.22	19.86	10.38	13.51	8.53	10.49
50th-Percentile Queue Length [ft/ln]	125.91	629.84	248.66	349.08	740.42	72.34	205.46	496.42	259.53	337.70	213.21	262.21
95th-Percentile Queue Length [veh/ln]	8.93	36.46	15.12	21.42	41.52	5.21	12.92	29.40	15.67	20.82	13.32	15.80
95th-Percentile Queue Length [ft/ln]	223.20	911.45	377.96	535.53	1037.90	130.21	323.00	735.11	391.64	520.45	332.94	394.99

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Report File: C:\...\2023_PM_HCM.pdf

Scenario 10 2023 PM
9/8/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Westminster Avenue / Fairview Street	Signalized	HCM 6th Edition	EB Left	1.122	111.4	F

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Westminster Avenue / Fairview Street

Control Type:	Signalized	Delay (sec / veh):	111.4
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.122

Intersection Setup

Name														
Approach	Northbound			Southbound			Eastbound				Westbound			
Lane Configuration														
Turning Movement	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Right	U-tu	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	2	0	1	2	0	1	1	0	0	1	1	0	0	0
Entry Pocket Length [ft]	150.00	100.00	100.00	150.00	100.00	100.00	300.0	100.0	100.0	170.0	200.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			40.00				40.00			
Grade [%]	0.00			0.00			0.00				0.00			
Curb Present	No			No			No				No			
Crosswalk	Yes			Yes			Yes				Yes			

Volumes

Name														
Base Volume Input [veh/h]	245	1130	135	360	1060	140	55	200	875	250	5	220	1100	410
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	245	1130	135	360	1060	140	55	200	875	250	5	220	1100	410
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.970	0.970	0.970	0.970	0.970	0.970	0.970	0.970
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	63	291	35	93	273	36	14	52	226	64	1	57	284	106
Total Analysis Volume [veh/h]	253	1165	139	371	1093	144	57	206	902	258	5	227	1134	423
Presence of On-Street Parking	No		No	No		No	No			No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	3			3			2				2			
v_di, Inbound Pedestrian Volume crossing m	2			2			3				3			
v_co, Outbound Pedestrian Volume crossing	2			2			3				3			
v_ci, Inbound Pedestrian Volume crossing mi	3			3			2				2			
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0				0			
Bicycle Volume [bicycles/h]	0			0			0				0			

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	140
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	7.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permi	Prote	Permi	Permi	Permi	Prote	Permi	Permi
Signal Group	1	6	0	5	2	0	0	3	8	0	0	7	4	0
Auxiliary Signal Groups														
Lead / Lag	Lag	-	-	Lag	-	-	-	Lag	-	-	-	Lag	-	-
Minimum Green [s]	5	5	0	5	5	0	0	5	5	0	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	0	30	30	0	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0
Split [s]	15	51	0	17	53	0	0	22	52	0	0	20	50	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	5	0	0	0	5	0
Pedestrian Clearance [s]	0	29	0	0	29	0	0	0	26	0	0	0	26	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No				No				No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No			No	No			No	No	
Maximum Recall	No	No		No	No			No	No			No	No	
Pedestrian Recall	No	No		No	No			No	No			No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	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

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	C
C, Cycle Length [s]	140	140	140	140	140	140	140	140	140	140	140	140
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	11	47	47	13	49	49	18	35	35	29	46	46
g / C, Green / Cycle	0.08	0.34	0.34	0.09	0.35	0.35	0.13	0.25	0.25	0.21	0.33	0.33
(v / s)_i Volume / Saturation Flow Rate	0.08	0.41	0.10	0.12	0.38	0.10	0.16	0.22	0.18	0.14	0.37	0.38
s, saturation flow rate [veh/h]	3113	2867	1424	3113	2867	1424	1603	4102	1422	1603	2867	1301
c, Capacity [veh/h]	245	960	477	289	1001	497	208	1026	356	333	942	427
d1, Uniform Delay [s]	64.50	46.56	34.31	63.50	45.56	32.98	60.93	50.46	48.02	51.35	47.01	47.01
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.28	0.11	0.11	0.21	0.14	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	36.03	105.80	1.55	133.41	56.93	1.47	139.47	2.63	2.98	5.07	64.33	89.76
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.03	1.21	0.29	1.28	1.09	0.29	1.27	0.88	0.73	0.70	1.13	1.15
d, Delay for Lane Group [s/veh]	100.53	152.37	35.85	196.91	102.49	34.45	200.40	53.08	51.00	56.43	111.34	136.77
Lane Group LOS	F	F	D	F	F	C	F	D	D	E	F	F
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	5.51	30.19	3.64	10.41	24.62	3.68	15.33	10.20	8.42	7.92	24.38	25.15
50th-Percentile Queue Length [ft/ln]	137.66	754.72	90.91	260.20	615.58	92.07	383.35	255.07	210.58	198.11	609.54	628.84
95th-Percentile Queue Length [veh/ln]	9.46	44.14	6.55	17.09	34.74	6.63	23.93	15.44	13.18	12.54	35.15	36.35
95th-Percentile Queue Length [ft/ln]	236.55	1103.59	163.63	427.21	868.45	165.72	598.29	386.03	329.58	313.52	878.78	908.86

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Report File: C:\...\2023_AM_PP_HCM.pdf

Scenario 9 2023 AM
9/8/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Westminster Avenue / Fairview Street	Signalized	HCM 6th Edition	WB Left	1.074	103.7	F

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Westminster Avenue / Fairview Street

Control Type:	Signalized	Delay (sec / veh):	103.7
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.074

Intersection Setup

Name														
Approach	Northbound			Southbound			Eastbound				Westbound			
Lane Configuration														
Turning Movement	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Right	U-tu	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	2	0	1	2	0	1	1	0	0	1	1	0	0	0
Entry Pocket Length [ft]	150.00	100.00	100.00	150.00	100.00	100.00	300.0	100.0	100.0	170.0	200.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			40.00				40.00			
Grade [%]	0.00			0.00			0.00				0.00			
Curb Present	No			No			No				No			
Crosswalk	Yes			Yes			Yes				Yes			

Volumes

Name														
Base Volume Input [veh/h]	200	950	280	540	1210	120	35	175	1175	275	5	230	470	240
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	1	2	5	8	5	5	0	0	2	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	200	950	280	540	1211	122	40	183	1180	280	5	230	472	240
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.920	0.920	0.920	0.920	0.920	0.920	0.920	0.920
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	54	258	76	147	329	33	11	50	321	76	1	63	128	65
Total Analysis Volume [veh/h]	217	1033	304	587	1316	133	43	199	1283	304	5	250	513	261
Presence of On-Street Parking	No		No	No		No	No			No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	3			3			2				2			
v_di, Inbound Pedestrian Volume crossing m	2			2			3				3			
v_co, Outbound Pedestrian Volume crossing	2			2			3				3			
v_ci, Inbound Pedestrian Volume crossing mi	3			3			2				2			
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0				0			
Bicycle Volume [bicycles/h]	0			0			0				0			

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	140
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	7.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permi	Prote	Permi	Permi	Permi	Prote	Permi	Permi
Signal Group	1	6	0	5	2	0	0	3	8	0	0	7	4	0
Auxiliary Signal Groups														
Lead / Lag	Lag	-	-	Lag	-	-	-	Lag	-	-	-	Lag	-	-
Minimum Green [s]	5	5	0	5	5	0	0	5	5	0	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	0	30	30	0	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0
Split [s]	13	48	0	27	62	0	0	21	42	0	0	23	44	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	5	0	0	0	5	0
Pedestrian Clearance [s]	0	29	0	0	29	0	0	0	26	0	0	0	26	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No				No				No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No			No	No			No	No	
Maximum Recall	No	No		No	No			No	No			No	No	
Pedestrian Recall	No	No		No	No			No	No			No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	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

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	C
C, Cycle Length [s]	140	140	140	140	140	140	140	140	140	140	140	140
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	9	44	44	23	58	58	26	38	38	19	32	32
g / C, Green / Cycle	0.06	0.31	0.31	0.16	0.41	0.41	0.18	0.27	0.27	0.14	0.23	0.23
(v / s)_i Volume / Saturation Flow Rate	0.07	0.36	0.21	0.19	0.46	0.09	0.15	0.31	0.21	0.16	0.18	0.21
s, saturation flow rate [veh/h]	3113	2867	1424	3113	2867	1425	1603	4102	1423	1603	2867	1271
c, Capacity [veh/h]	200	897	445	511	1184	588	294	1112	386	220	646	287
d1, Uniform Delay [s]	65.49	48.10	41.96	58.50	41.10	26.60	55.01	51.02	47.23	60.38	51.16	52.86
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.23	0.11	0.30	0.26	0.11	0.25
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	54.73	80.97	8.21	71.92	62.46	0.89	11.73	71.72	9.55	94.67	2.26	21.23
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.08	1.15	0.68	1.15	1.11	0.23	0.82	1.15	0.79	1.16	0.79	0.91
d, Delay for Lane Group [s/veh]	120.22	129.07	50.17	130.42	103.56	27.49	66.74	122.74	56.78	155.05	53.42	74.09
Lane Group LOS	F	F	D	F	F	C	E	F	E	F	D	E
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	5.04	25.19	9.95	13.96	29.67	2.97	9.07	20.10	10.68	13.51	8.57	10.49
50th-Percentile Queue Length [ft/ln]	125.91	629.83	248.66	349.08	741.75	74.19	226.64	502.48	266.88	337.71	214.28	262.17
95th-Percentile Queue Length [veh/ln]	8.93	36.46	15.12	21.42	41.60	5.34	14.00	29.79	16.03	20.82	13.37	15.80
95th-Percentile Queue Length [ft/ln]	223.20	911.44	377.96	535.53	1040.06	133.54	350.09	744.72	400.83	520.47	334.31	394.94

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Scenario 10 2023 PM
9/8/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Westminster Avenue / Fairview Street	Signalized	HCM 6th Edition	EB Left	1.129	112.8	F

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Westminster Avenue / Fairview Street

Control Type:	Signalized	Delay (sec / veh):	112.8
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.129

Intersection Setup

Name														
Approach	Northbound			Southbound			Eastbound				Westbound			
Lane Configuration														
Turning Movement	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Right	U-tu	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	2	0	1	2	0	1	1	0	0	1	1	0	0	0
Entry Pocket Length [ft]	150.00	100.00	100.00	150.00	100.00	100.00	300.0	100.0	100.0	170.0	200.0	100.0	100.0	100.0
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			40.00				40.00			
Grade [%]	0.00			0.00			0.00				0.00			
Curb Present	No			No			No				No			
Crosswalk	Yes			Yes			Yes				Yes			

Volumes

Name														
Base Volume Input [veh/h]	245	1130	135	360	1060	140	55	200	875	250	5	220	1100	410
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	4	5	3	5	3	3	0	0	5	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	245	1130	135	360	1064	145	58	205	878	253	5	220	1105	410
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700	0.970	0.970	0.970	0.970	0.970	0.970	0.970	0.970
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Total 15-Minute Volume [veh/h]	63	291	35	93	274	37	15	53	226	65	1	57	285	106
Total Analysis Volume [veh/h]	253	1165	139	371	1097	149	60	211	905	261	5	227	1139	423
Presence of On-Street Parking	No		No	No		No	No			No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	3			3			2				2			
v_di, Inbound Pedestrian Volume crossing m	2			2			3				3			
v_co, Outbound Pedestrian Volume crossing	2			2			3				3			
v_ci, Inbound Pedestrian Volume crossing mi	3			3			2				2			
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0				0			
Bicycle Volume [bicycles/h]	0			0			0				0			

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	140
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	7.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permi	Prote	Permi	Permi	Permi	Prote	Permi	Permi
Signal Group	1	6	0	5	2	0	0	3	8	0	0	7	4	0
Auxiliary Signal Groups														
Lead / Lag	Lag	-	-	Lag	-	-	-	Lag	-	-	-	Lag	-	-
Minimum Green [s]	5	5	0	5	5	0	0	5	5	0	0	5	5	0
Maximum Green [s]	30	30	0	30	30	0	0	30	30	0	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0
Split [s]	15	51	0	17	53	0	0	22	52	0	0	20	50	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	5	0	0	0	5	0
Pedestrian Clearance [s]	0	29	0	0	29	0	0	0	26	0	0	0	26	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No				No				No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No		No	No			No	No			No	No	
Maximum Recall	No	No		No	No			No	No			No	No	
Pedestrian Recall	No	No		No	No			No	No			No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	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

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	C
C, Cycle Length [s]	140	140	140	140	140	140	140	140	140	140	140	140
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	11	47	47	13	49	49	18	35	35	29	46	46
g / C, Green / Cycle	0.08	0.34	0.34	0.09	0.35	0.35	0.13	0.25	0.25	0.21	0.33	0.33
(v / s)_i Volume / Saturation Flow Rate	0.08	0.41	0.10	0.12	0.38	0.10	0.17	0.22	0.18	0.14	0.37	0.38
s, saturation flow rate [veh/h]	3113	2867	1424	3113	2867	1424	1603	4102	1422	1603	2867	1302
c, Capacity [veh/h]	245	960	477	289	1001	497	208	1029	357	332	942	428
d1, Uniform Delay [s]	64.50	46.56	34.31	63.50	45.56	33.10	60.93	50.39	48.04	51.46	47.01	47.01
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.30	0.11	0.12	0.21	0.14	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	36.03	105.80	1.55	133.41	58.39	1.54	156.34	2.62	3.18	5.15	65.81	91.10
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.03	1.21	0.29	1.28	1.10	0.30	1.30	0.88	0.73	0.70	1.14	1.15
d, Delay for Lane Group [s/veh]	100.53	152.36	35.85	196.91	103.96	34.65	217.26	53.02	51.23	56.61	112.82	138.11
Lane Group LOS	F	F	D	F	F	C	F	D	D	E	F	F
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	5.51	30.19	3.64	10.41	24.83	3.83	16.31	10.23	8.55	7.94	24.58	25.33
50th-Percentile Queue Length [ft/ln]	137.66	754.71	90.91	260.20	620.67	95.69	407.66	255.83	213.74	198.46	614.39	633.14
95th-Percentile Queue Length [veh/ln]	9.46	44.14	6.55	17.09	35.07	6.89	25.49	15.48	13.35	12.56	35.46	36.64
95th-Percentile Queue Length [ft/ln]	236.55	1103.58	163.63	427.21	876.75	172.24	637.18	386.99	333.63	313.98	886.45	915.97

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Scenario 11 2040 AM No Project
9/28/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Westminster Avenue / Fairview Street	Signalized	HCM 6th Edition	EB Thru	1.236	161.9	F
2	Westminster Avenue / Mar Les Drive	Signalized	HCM 6th Edition	WB Left	0.573	30.4	C
3	Fairview Street / 16th Street	Two-way stop	HCM 6th Edition	EB Right	0.748	75.6	F

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Westminster Avenue / Fairview Street

Control Type:	Signalized	Delay (sec / veh):	161.9
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.236

Intersection Setup

Name															
Approach	Northbound				Southbound			Eastbound				Westbound			
Lane Configuration															
Turning Movement	U-tu	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Right	U-tu	Left	Thru	Right
Lane Width [ft]	12.0	12.0	12.0	12.0	12.00	12.00	12.00	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
No. of Lanes in Entry Pocket	2	0	0	1	2	0	1	1	0	0	1	1	0	0	0
Entry Pocket Length [ft]	150.	100.	100.	100.	150.00	100.00	100.00	300.	100.	100.	170.	200.	100.	100.	100.
No. of Lanes in Exit Pocket	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	100.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00				45.00			40.00				40.00			
Grade [%]	0.00				0.00			0.00				0.00			
Curb Present	No				No			No				No			
Crosswalk	Yes				Yes			Yes				Yes			

Volumes

Name															
Base Volume Input [veh/h]	0	210	1395	315	900	1630	160	40	205	1255	290	10	280	570	330
Base Volume Adjustment Factor	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	210	1395	315	900	1630	160	40	205	1255	290	10	280	570	330
Peak Hour Factor	1.00	0.92	0.92	0.92	0.9200	0.9200	0.9200	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Other Adjustment Factor	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Total 15-Minute Volume [veh/h]	0	57	379	86	245	443	43	11	56	341	79	3	76	155	90
Total Analysis Volume [veh/h]	0	228	1516	342	978	1772	174	43	223	1364	315	11	304	620	359
Presence of On-Street Parking	No			No	No		No	No			No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	3				3			2				2			
v_di, Inbound Pedestrian Volume crossing major street	2				2			3				3			
v_co, Outbound Pedestrian Volume crossing minor stree	2				2			3				3			
v_ci, Inbound Pedestrian Volume crossing minor street	3				3			2				2			
v_ab, Corner Pedestrian Volume [ped/h]	0				0			0				0			
Bicycle Volume [bicycles/h]	0				0			0				0			

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	140
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	7.00

Phasing & Timing

Control Type	Perm	Prote	Perm	Perm	Protect	Permis	Permis	Perm	Prote	Perm	Perm	Perm	Prote	Perm	Perm
Signal Group	0	1	6	0	5	2	0	0	3	8	0	0	7	4	0
Auxiliary Signal Groups															
Lead / Lag	-	Lead	-	-	Lead	-	-	-	Lag	-	-	-	Lag	-	-
Minimum Green [s]	0	5	5	0	5	5	0	0	5	5	0	0	5	5	0
Maximum Green [s]	0	30	30	0	30	30	0	0	30	30	0	0	30	30	0
Amber [s]	0.0	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0
Split [s]	0	16	40	0	39	63	0	0	26	35	0	0	26	35	0
Vehicle Extension [s]	0.0	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	5	0	0	5	0	0	0	5	0	0	0	5	0
Pedestrian Clearance [s]	0	0	29	0	0	29	0	0	0	26	0	0	0	26	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk			No			No				No				No	
I1, Start-Up Lost Time [s]	0.0	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0
Minimum Recall		No	No		No	No			No	No			No	No	
Maximum Recall		No	No		No	No			No	No			No	No	
Pedestrian Recall		No	No		No	No			No	No			No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	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

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	C
C, Cycle Length [s]	140	140	140	140	140	140	140	140	140	140	140	140
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	12	35	35	30	53	53	28	30	30	29	31	31
g / C, Green / Cycle	0.09	0.25	0.25	0.21	0.38	0.38	0.20	0.21	0.21	0.21	0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.07	0.33	0.24	0.31	0.39	0.12	0.17	0.33	0.22	0.20	0.19	0.25
s, saturation flow rate [veh/h]	3113	4584	1422	3113	4584	1425	1603	4102	1421	1603	3204	1421
c, Capacity [veh/h]	269	1140	354	667	1726	536	323	879	304	334	710	315
d1, Uniform Delay [s]	63.01	52.58	51.91	54.98	43.64	30.98	53.54	54.98	54.88	54.59	52.60	54.49
k, delay calibration	0.11	0.11	0.50	0.25	0.50	0.50	0.29	0.11	0.48	0.39	0.11	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.19	149.65	40.22	213.90	28.75	1.60	12.88	249.40	59.59	31.41	3.57	94.57
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.85	1.33	0.97	1.47	1.03	0.32	0.82	1.55	1.03	0.94	0.87	1.14
d, Delay for Lane Group [s/veh]	70.20	202.23	92.14	268.89	72.39	32.58	66.42	304.38	114.47	86.00	56.17	149.05
Lane Group LOS	E	F	F	F	F	C	E	F	F	F	E	F
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	4.20	28.78	15.48	31.28	23.66	4.33	9.99	30.45	15.57	13.67	10.71	19.15
50th-Percentile Queue Length [ft/ln]	105.04	719.41	386.99	781.95	591.59	108.31	249.86	761.32	389.13	341.80	267.64	478.72
95th-Percentile Queue Length [veh/ln]	7.56	43.50	21.93	48.16	32.24	7.75	15.18	47.77	22.46	19.74	16.07	28.26
95th-Percentile Queue Length [ft/ln]	189.08	1087.5	548.30	1203.8	806.07	193.65	379.48	1194.2	561.46	493.40	401.79	706.49

Intersection Level Of Service Report
Intersection 2: Westminster Avenue / Mar Les Drive

Control Type:	Signalized	Delay (sec / veh):	30.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.573

Intersection Setup

Name														
Approach	Northbound			Southbound			Eastbound				Westbound			
Lane Configuration														
Turning Movement	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Right	U-tu	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	170.	100.	100.	100.	170.	100.	100.	100.
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			40.00				40.00			
Grade [%]	0.00			0.00			0.00				0.00			
Curb Present	No			No			No				No			
Crosswalk	No			Yes			No				No			

Volumes

Name														
Base Volume Input [veh/h]	40	0	90	80	0	40	30	70	1610	30	60	100	760	30
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	40	0	90	80	0	40	30	70	1610	30	60	100	760	30
Peak Hour Factor	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Total 15-Minute Volume [veh/h]	11	0	25	22	0	11	8	20	452	8	17	28	213	8
Total Analysis Volume [veh/h]	45	0	101	90	0	45	34	79	1809	34	67	112	854	34
Presence of On-Street Parking	No		No	No		No	No			No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0				0			
v_di, Inbound Pedestrian Volume crossing major street	0			0			0				0			
v_co, Outbound Pedestrian Volume crossing minor stree	0			3			0				2			
v_ci, Inbound Pedestrian Volume crossing minor street	0			2			0				3			
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0				0			
Bicycle Volume [bicycles/h]	0			0			0				0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	7.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Perm	Prote	Perm	Perm	Perm	Prote	Perm	Perm
Signal Group	0	8	0	0	4	0	0	2	5	0	0	1	6	0
Auxiliary Signal Groups														
Lead / Lag	-	-	-	-	-	-	-	Lead	-	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	0	5	5	0	0	5	5	0
Maximum Green [s]	0	30	0	0	30	0	0	30	30	0	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0
Split [s]	0	19	0	0	15	0	0	14	53	0	0	71	28	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	5	0	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	0	27	0	0	0	27	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No				No				No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No			No	No			No	No	
Maximum Recall		No			No			No	No			No	No	
Pedestrian Recall		No			No			No	No			No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	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

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	C	L	C	C
C, Cycle Length [s]	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	9	19	6	25	25	24	14	14
g / C, Green / Cycle	0.15	0.32	0.10	0.41	0.41	0.41	0.23	0.23
(v / s)_i Volume / Saturation Flow Rate	0.09	0.14	0.18	0.34	0.34	0.46	0.16	0.17
s, saturation flow rate [veh/h]	1696	976	626	3560	1852	387	3560	1831
c, Capacity [veh/h]	339	404	120	1475	767	138	825	424
d1, Uniform Delay [s]	23.47	15.80	29.93	15.57	15.58	27.65	21.14	21.15
k, delay calibration	0.11	0.11	0.11	0.11	0.22	0.39	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.86	0.48	25.80	1.20	4.45	169.24	1.14	2.23
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.43	0.33	0.94	0.82	0.82	1.30	0.71	0.71
d, Delay for Lane Group [s/veh]	24.33	16.29	55.73	16.77	20.03	196.89	22.29	23.38
Lane Group LOS	C	B	E	B	C	F	C	C
Critical Lane Group	No	No	No	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.90	1.36	2.32	6.13	7.08	8.32	3.44	3.68
50th-Percentile Queue Length [ft/ln]	47.59	33.88	58.09	153.20	176.99	208.04	85.99	91.93
95th-Percentile Queue Length [veh/ln]	3.43	2.44	4.18	10.19	11.44	14.92	6.19	6.62
95th-Percentile Queue Length [ft/ln]	85.67	60.98	104.56	254.70	286.08	373.11	154.79	165.47

Vistro File: N:\...\Westview_HCM_Updated.vistro
Report File: N:\...\2040_PM_Updated.pdf

Scenario 12 2040 PM No Project
9/28/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Westminster Avenue / Fairview Street	Signalized	HCM 6th Edition	WB Right	1.405	163.6	F
2	Westminster Avenue / Mar Les Drive	Signalized	HCM 6th Edition	WB Left	0.718	26.9	C
3	Fairview Street / 16th Street	Two-way stop	HCM 6th Edition	EB Right	0.161	26.5	D

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Westminster Avenue / Fairview Street

Control Type:	Signalized	Delay (sec / veh):	163.6
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.405

Intersection Setup

Name															
Approach	Northbound				Southbound			Eastbound				Westbound			
Lane Configuration															
Turning Movement	U-tu	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Right	U-tu	Left	Thru	Right
Lane Width [ft]	12.0	12.0	12.0	12.0	12.00	12.00	12.00	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
No. of Lanes in Entry Pocket	2	0	0	1	2	0	1	1	0	0	1	1	0	0	0
Entry Pocket Length [ft]	150.	100.	100.	100.	150.00	100.00	100.00	300.	100.	100.	170.	200.	100.	100.	100.
No. of Lanes in Exit Pocket	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	100.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00				45.00			40.00				40.00			
Grade [%]	0.00				0.00			0.00				0.00			
Curb Present	No				Yes			No				No			
Crosswalk	Yes				Yes			Yes				Yes			

Volumes

Name															
Base Volume Input [veh/h]	10	260	1575	255	560	1450	190	60	245	935	260	10	260	1190	740
Base Volume Adjustment Factor	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	10	260	1575	255	560	1450	190	60	245	935	260	10	260	1190	740
Peak Hour Factor	1.00	0.97	0.97	0.97	0.9700	0.9700	0.9700	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Other Adjustment Factor	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Total 15-Minute Volume [veh/h]	3	67	406	66	144	374	49	15	63	241	67	3	67	307	191
Total Analysis Volume [veh/h]	10	268	1624	263	577	1495	196	62	253	964	268	10	268	1227	763
Presence of On-Street Parking	No			No	No		No	No			No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	3				3			2				2			
v_di, Inbound Pedestrian Volume crossing major street	2				2			3				3			
v_co, Outbound Pedestrian Volume crossing minor stree	2				2			3				3			
v_ci, Inbound Pedestrian Volume crossing minor street	3				3			2				2			
v_ab, Corner Pedestrian Volume [ped/h]	0				0			0				0			
Bicycle Volume [bicycles/h]	0				0			0				0			

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	140
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	7.00

Phasing & Timing

Control Type	Perm	Prote	Perm	Perm	Protect	Permis	Permis	Perm	Prote	Perm	Perm	Perm	Prote	Perm	Perm
Signal Group	0	1	6	0	5	2	0	0	3	8	0	0	7	4	0
Auxiliary Signal Groups															
Lead / Lag	-	Lag	-	-	Lag	-	-	-	Lag	-	-	-	Lag	-	-
Minimum Green [s]	0	5	5	0	5	5	0	0	5	5	0	0	5	5	0
Maximum Green [s]	0	30	30	0	30	30	0	0	30	30	0	0	30	30	0
Amber [s]	0.0	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0
Split [s]	0	16	42	0	24	50	0	0	26	42	0	0	32	48	0
Vehicle Extension [s]	0.0	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	5	0	0	5	0	0	0	5	0	0	0	5	0
Pedestrian Clearance [s]	0	0	29	0	0	29	0	0	0	26	0	0	0	26	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk			No			No				No				No	
I1, Start-Up Lost Time [s]	0.0	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0
Minimum Recall		No	No		No	No			No	No			No	No	
Maximum Recall		No	No		No	No			No	No			No	No	
Pedestrian Recall		No	No		No	No			No	No			No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	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

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	C
C, Cycle Length [s]	140	140	140	140	140	140	140	140	140	140	140	140
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	12	38	38	20	46	46	22	36	36	30	44	44
g / C, Green / Cycle	0.09	0.27	0.27	0.14	0.33	0.33	0.16	0.26	0.26	0.22	0.31	0.31
(v / s)_i Volume / Saturation Flow Rate	0.09	0.35	0.18	0.19	0.33	0.14	0.20	0.24	0.19	0.17	0.43	0.60
s, saturation flow rate [veh/h]	3113	4584	1423	3113	4584	1424	1603	4102	1422	1603	2867	1274
c, Capacity [veh/h]	267	1240	385	445	1502	467	254	1047	363	348	901	400
d1, Uniform Delay [s]	64.00	51.06	45.64	60.00	46.95	36.66	58.93	50.74	47.76	51.93	48.01	48.01
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.39	0.11	0.23	0.31	0.23	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	37.21	145.11	9.46	137.60	22.10	2.76	132.48	3.87	6.19	11.24	166.40	417.29
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.04	1.31	0.68	1.30	1.00	0.42	1.24	0.92	0.74	0.80	1.36	1.91
d, Delay for Lane Group [s/veh]	101.21	196.17	55.10	197.60	69.06	39.43	191.41	54.61	53.95	63.17	214.41	465.30
Lane Group LOS	F	F	E	F	E	D	F	D	D	E	F	F
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	6.05	30.71	9.00	16.22	19.76	5.48	18.19	11.14	9.07	10.21	36.13	60.00
50th-Percentile Queue Length [ft/ln]	151.17	767.84	224.99	405.52	494.04	137.09	454.74	278.44	226.83	255.25	903.34	1499.9
95th-Percentile Queue Length [veh/ln]	10.23	46.02	13.92	25.41	27.05	9.32	27.75	16.61	14.01	15.45	54.58	95.85
95th-Percentile Queue Length [ft/ln]	255.64	1150.6	347.99	635.30	676.30	233.10	693.78	415.27	350.33	386.26	1364.5	2396.3

Intersection Level Of Service Report
Intersection 2: Westminster Avenue / Mar Les Drive

Control Type:	Signalized	Delay (sec / veh):	26.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.718

Intersection Setup

Name														
Approach	Northbound			Southbound			Eastbound				Westbound			
Lane Configuration														
Turning Movement	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Right	U-tu	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	170.	100.	100.	100.	170.	100.	100.	100.
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			40.00				40.00			
Grade [%]	0.00			0.00			0.00				0.00			
Curb Present	No			No			No				No			
Crosswalk	No			Yes			No				No			

Volumes

Name														
Base Volume Input [veh/h]	20	10	40	10	0	40	0	70	1440	30	10	170	1460	60
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	20	10	40	10	0	40	0	70	1440	30	10	170	1460	60
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Total 15-Minute Volume [veh/h]	5	3	11	3	0	11	0	19	383	8	3	45	388	16
Total Analysis Volume [veh/h]	21	11	43	11	0	43	0	74	1532	32	11	181	1553	64
Presence of On-Street Parking	No		No	No		No	No			No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0				0			
v_di, Inbound Pedestrian Volume crossing major street	0			0			0				0			
v_co, Outbound Pedestrian Volume crossing minor stree	0			3			0				2			
v_ci, Inbound Pedestrian Volume crossing minor street	0			2			0				3			
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0				0			
Bicycle Volume [bicycles/h]	0			0			0				0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	7.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Perm	Prote	Perm	Perm	Perm	Prote	Perm	Perm
Signal Group	0	8	0	0	4	0	0	2	5	0	0	1	6	0
Auxiliary Signal Groups														
Lead / Lag	-	-	-	-	-	-	-	Lead	-	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	0	5	5	0	0	5	5	0
Maximum Green [s]	0	30	0	0	30	0	0	30	30	0	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0
Split [s]	0	10	0	0	13	0	0	16	44	0	0	71	46	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	5	0	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	0	27	0	0	0	27	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No				No				No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No			No	No			No	No	
Maximum Recall		No			No			No	No			No	No	
Pedestrian Recall		No			No			No	No			No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	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

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	C	L	C	C
C, Cycle Length [s]	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	4	22	6	22	22	22	23	23
g / C, Green / Cycle	0.06	0.37	0.11	0.36	0.36	0.36	0.38	0.38
(v / s)_i Volume / Saturation Flow Rate	0.04	0.04	0.24	0.29	0.29	0.39	0.30	0.30
s, saturation flow rate [veh/h]	1704	1456	313	3560	1850	497	3560	1831
c, Capacity [veh/h]	179	0	0	1286	668	149	1346	692
d1, Uniform Delay [s]	27.53	0.00	0.00	17.13	17.13	27.26	16.48	16.49
k, delay calibration	0.11	0.11	0.11	0.11	0.14	0.28	0.11	0.16
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.56	0.00	0.00	1.20	2.90	155.61	1.09	3.02
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.42	10000.00	10000.	0.80	0.80	1.29	0.79	0.79
d, Delay for Lane Group [s/veh]	29.10	0.00	0.00	18.33	20.03	182.87	17.57	19.51
Lane Group LOS	C	F	F	B	C	F	B	B
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.09	0.00	0.00	5.46	6.00	8.41	5.52	6.06
50th-Percentile Queue Length [ft/ln]	27.23	0.00	0.00	136.57	149.91	210.16	137.89	151.45
95th-Percentile Queue Length [veh/ln]	1.96	0.00	0.00	9.30	10.01	14.94	9.37	10.09
95th-Percentile Queue Length [ft/ln]	49.01	0.00	0.00	232.39	250.30	373.62	234.18	252.37

Vistro File: N:\...\Westview_Updated.vistro
Report File: N:\...\2040 With Project AM_Updated.pdf

Scenario 17 2040 PP AM Updated
9/28/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Westminster Avenue / Fairview Street	Signalized	ICU 1	SB Thru	1.129	-	F
2	Westminster Avenue / Mar Les Drive	Signalized	ICU 1	EB Thru	0.671	-	B
3	Fairview Street / 16th Street	Two-way stop	HCM 6th Edition	EB Right	0.750	76.0	F

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Westminster Avenue / Fairview Street

Control Type:	Signalized	Delay (sec / veh):	174.7
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.236

Intersection Setup

Name															
Approach	Northbound				Southbound			Eastbound				Westbound			
Lane Configuration															
Turning Movement	U-tu	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Right	U-tu	Left	Thru	Right
Lane Width [ft]	12.0	12.0	12.0	12.0	12.00	12.00	12.00	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
No. of Lanes in Entry Pocket	2	0	0	1	2	0	1	1	0	0	1	1	0	0	0
Entry Pocket Length [ft]	150.	100.	100.	100.	150.00	100.00	100.00	300.	100.	100.	170.	200.	100.	100.	100.
No. of Lanes in Exit Pocket	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	100.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00				45.00			40.00				40.00			
Grade [%]	0.00				0.00			0.00				0.00			
Curb Present	No				No			No				No			
Crosswalk	Yes				Yes			Yes				Yes			

Volumes

Name															
Base Volume Input [veh/h]	9	210	1395	315	900	1629	158	43	211	1258	293	10	280	569	330
Base Volume Adjustment Factor	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	9	210	1395	315	900	1629	158	43	211	1258	293	10	280	569	330
Peak Hour Factor	1.00	0.92	0.92	0.92	0.9200	0.9200	0.9200	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Other Adjustment Factor	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Total 15-Minute Volume [veh/h]	2	57	379	86	245	443	43	12	57	342	80	3	76	155	90
Total Analysis Volume [veh/h]	9	228	1516	342	978	1771	172	47	229	1367	318	11	304	618	359
Presence of On-Street Parking	No			No	No		No	No			No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	3				3			2				2			
v_di, Inbound Pedestrian Volume crossing major street	2				2			3				3			
v_co, Outbound Pedestrian Volume crossing minor stree	2				2			3				3			
v_ci, Inbound Pedestrian Volume crossing minor street	3				3			2				2			
v_ab, Corner Pedestrian Volume [ped/h]	0				0			0				0			
Bicycle Volume [bicycles/h]	0				0			0				0			

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	140
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	7.00

Phasing & Timing

Control Type	Perm	Prote	Perm	Perm	Protect	Permis	Permis	Perm	Prote	Perm	Perm	Perm	Prote	Perm	Perm
Signal Group	0	1	6	0	5	2	0	0	3	8	0	0	7	4	0
Auxiliary Signal Groups															
Lead / Lag	-	Lag	-	-	Lag	-	-	-	Lag	-	-	-	Lag	-	-
Minimum Green [s]	0	5	5	0	5	5	0	0	5	5	0	0	5	5	0
Maximum Green [s]	0	30	30	0	30	30	0	0	30	30	0	0	30	30	0
Amber [s]	0.0	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0
Split [s]	0	16	40	0	39	63	0	0	26	35	0	0	26	35	0
Vehicle Extension [s]	0.0	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	5	0	0	5	0	0	0	5	0	0	0	5	0
Pedestrian Clearance [s]	0	0	29	0	0	29	0	0	0	26	0	0	0	26	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk			No			No				No				No	
I1, Start-Up Lost Time [s]	0.0	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0
Minimum Recall		No	No		No	No			No	No			No	No	
Maximum Recall		No	No		No	No			No	No			No	No	
Pedestrian Recall		No	No		No	No			No	No			No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	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

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	C
C, Cycle Length [s]	140	140	140	140	140	140	140	140	140	140	140	140
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	12	30	30	35	53	53	28	30	30	29	31	31
g / C, Green / Cycle	0.09	0.21	0.21	0.25	0.38	0.38	0.20	0.21	0.21	0.21	0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.08	0.33	0.24	0.31	0.39	0.12	0.17	0.33	0.22	0.20	0.22	0.28
s, saturation flow rate [veh/h]	3113	4584	1421	3113	4584	1425	1603	4102	1421	1603	2867	1271
c, Capacity [veh/h]	267	982	304	774	1729	537	324	879	304	334	632	280
d1, Uniform Delay [s]	63.33	55.00	54.89	52.59	43.60	30.86	53.81	55.00	54.89	54.58	54.23	54.57
k, delay calibration	0.11	0.11	0.50	0.25	0.50	0.50	0.31	0.11	0.48	0.39	0.11	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.66	245.55	89.13	124.01	28.01	1.57	15.76	251.08	62.88	31.26	12.20	150.98
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.89	1.54	1.12	1.26	1.02	0.32	0.85	1.56	1.04	0.94	0.98	1.28
d, Delay for Lane Group [s/veh]	72.99	300.54	144.02	176.60	71.61	32.43	69.57	306.07	117.78	85.85	66.42	205.55
Lane Group LOS	E	F	F	F	F	C	E	F	F	F	E	F
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	4.46	33.58	17.97	26.55	23.60	4.27	10.66	30.58	15.84	13.66	11.69	21.45
50th-Percentile Queue Length [ft/ln]	111.54	839.61	449.32	663.65	589.99	106.80	266.39	764.60	396.04	341.52	292.26	536.13
95th-Percentile Queue Length [veh/ln]	7.93	52.13	26.52	39.64	32.11	7.66	16.01	47.99	22.92	19.72	17.30	32.83
95th-Percentile Queue Length [ft/ln]	198.14	1303.2	663.10	990.93	802.81	191.55	400.22	1199.7	572.98	493.06	432.44	820.63

Intersection Level Of Service Report
Intersection 2: Westminster Avenue / Mar Les Drive

Control Type:	Signalized	Delay (sec / veh):	30.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.573

Intersection Setup

Name														
Approach	Northbound			Southbound			Eastbound				Westbound			
Lane Configuration														
Turning Movement	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Right	U-tu	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	170.	100.	100.	100.	170.	100.	100.	100.
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			40.00				40.00			
Grade [%]	0.00			0.00			0.00				0.00			
Curb Present	No			No			No				No			
Crosswalk	No			Yes			No				No			

Volumes

Name														
Base Volume Input [veh/h]	40	0	90	80	0	40	30	70	1609	30	57	100	763	30
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	40	0	90	80	0	40	30	70	1609	30	57	100	763	30
Peak Hour Factor	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Total 15-Minute Volume [veh/h]	11	0	25	22	0	11	8	20	452	8	16	28	214	8
Total Analysis Volume [veh/h]	45	0	101	90	0	45	34	79	1808	34	64	112	857	34
Presence of On-Street Parking	No		No	No		No	No			No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0				0			
v_di, Inbound Pedestrian Volume crossing major street	0			0			0				0			
v_co, Outbound Pedestrian Volume crossing minor stree	0			3			0				2			
v_ci, Inbound Pedestrian Volume crossing minor street	0			2			0				3			
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0				0			
Bicycle Volume [bicycles/h]	0			0			0				0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	7.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Perm	Prote	Perm	Perm	Perm	Prote	Perm	Perm
Signal Group	0	8	0	0	4	0	0	2	5	0	0	1	6	0
Auxiliary Signal Groups														
Lead / Lag	-	-	-	-	-	-	-	Lead	-	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	0	5	5	0	0	5	5	0
Maximum Green [s]	0	30	0	0	30	0	0	30	30	0	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0
Split [s]	0	19	0	0	15	0	0	13	53	0	0	72	28	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	5	0	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	0	27	0	0	0	27	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No				No				No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No			No	No			No	No	
Maximum Recall		No			No			No	No			No	No	
Pedestrian Recall		No			No			No	No			No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	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

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	C	L	C	C
C, Cycle Length [s]	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	9	19	6	25	25	24	14	14
g / C, Green / Cycle	0.15	0.32	0.10	0.41	0.41	0.41	0.23	0.23
(v / s)_i Volume / Saturation Flow Rate	0.09	0.14	0.18	0.34	0.34	0.46	0.17	0.17
s, saturation flow rate [veh/h]	1696	973	624	3560	1852	382	3560	1831
c, Capacity [veh/h]	339	405	120	1474	767	135	827	425
d1, Uniform Delay [s]	23.49	15.72	29.96	15.60	15.61	27.76	21.14	21.16
k, delay calibration	0.11	0.11	0.11	0.11	0.22	0.39	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.87	0.48	25.94	1.20	4.46	172.13	1.14	2.23
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.43	0.33	0.94	0.82	0.82	1.30	0.71	0.71
d, Delay for Lane Group [s/veh]	24.35	16.20	55.89	16.80	20.07	199.89	22.29	23.38
Lane Group LOS	C	B	E	B	C	F	C	C
Critical Lane Group	No	No	No	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.91	1.35	2.33	6.14	7.09	8.25	3.45	3.69
50th-Percentile Queue Length [ft/ln]	47.65	33.80	58.23	153.38	177.20	206.35	86.35	92.31
95th-Percentile Queue Length [veh/ln]	3.43	2.43	4.19	10.20	11.45	14.85	6.22	6.65
95th-Percentile Queue Length [ft/ln]	85.76	60.83	104.81	254.93	286.35	371.20	155.43	166.15

Vistro File: N:\...\Westview_HCM_Updated.vistro
Report File: N:\...\2040_PP_PM.pdf

Scenario 18 2040 PP PM Updated
9/28/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Westminster Avenue / Fairview Street	Signalized	HCM 6th Edition	WB Right	1.391	165.7	F
2	Westminster Avenue / Mar Les Drive	Signalized	HCM 6th Edition	WB Left	0.716	26.3	C
3	Fairview Street / 16th Street	Two-way stop	HCM 6th Edition	EB Right	0.160	26.4	D

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Westminster Avenue / Fairview Street

Control Type:	Signalized	Delay (sec / veh):	165.7
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.391

Intersection Setup

Name															
Approach	Northbound				Southbound			Eastbound				Westbound			
Lane Configuration															
Turning Movement	U-tu	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Right	U-tu	Left	Thru	Right
Lane Width [ft]	12.0	12.0	12.0	12.0	12.00	12.00	12.00	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
No. of Lanes in Entry Pocket	2	0	0	1	2	0	1	1	0	0	1	1	0	0	0
Entry Pocket Length [ft]	150.	100.	100.	100.	150.00	100.00	100.00	300.	100.	100.	170.	200.	100.	100.	100.
No. of Lanes in Exit Pocket	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	100.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00				45.00			40.00				40.00			
Grade [%]	0.00				0.00			0.00				0.00			
Curb Present	No				Yes			No				No			
Crosswalk	Yes				Yes			Yes				Yes			

Volumes

Name															
Base Volume Input [veh/h]	6	260	1575	255	560	1447	185	54	230	929	254	10	260	1186	740
Base Volume Adjustment Factor	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	6	260	1575	255	560	1447	185	54	230	929	254	10	260	1186	740
Peak Hour Factor	1.00	0.97	0.97	0.97	0.9700	0.9700	0.9700	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Other Adjustment Factor	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Total 15-Minute Volume [veh/h]	2	67	406	66	144	373	48	14	59	239	65	3	67	306	191
Total Analysis Volume [veh/h]	6	268	1624	263	577	1492	191	56	237	958	262	10	268	1223	763
Presence of On-Street Parking	No			No	No		No	No			No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	3				3			2				2			
v_di, Inbound Pedestrian Volume crossing major street	2				2			3				3			
v_co, Outbound Pedestrian Volume crossing minor stree	2				2			3				3			
v_ci, Inbound Pedestrian Volume crossing minor street	3				3			2				2			
v_ab, Corner Pedestrian Volume [ped/h]	0				0			0				0			
Bicycle Volume [bicycles/h]	0				0			0				0			

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	140
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	7.00

Phasing & Timing

Control Type	Perm	Prote	Perm	Perm	Protect	Permis	Permis	Perm	Prote	Perm	Perm	Perm	Prote	Perm	Perm
Signal Group	0	1	6	0	5	2	0	0	3	8	0	0	7	4	0
Auxiliary Signal Groups															
Lead / Lag	-	Lag	-	-	Lag	-	-	-	Lag	-	-	-	Lag	-	-
Minimum Green [s]	0	5	5	0	5	5	0	0	5	5	0	0	5	5	0
Maximum Green [s]	0	30	30	0	30	30	0	0	30	30	0	0	30	30	0
Amber [s]	0.0	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0
Split [s]	0	16	42	0	24	50	0	0	27	42	0	0	32	47	0
Vehicle Extension [s]	0.0	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0
Walk [s]	0	0	5	0	0	5	0	0	0	5	0	0	0	5	0
Pedestrian Clearance [s]	0	0	29	0	0	29	0	0	0	26	0	0	0	26	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk			No			No				No				No	
I1, Start-Up Lost Time [s]	0.0	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0
Minimum Recall		No	No		No	No			No	No			No	No	
Maximum Recall		No	No		No	No			No	No			No	No	
Pedestrian Recall		No	No		No	No			No	No			No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	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

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	C
C, Cycle Length [s]	140	140	140	140	140	140	140	140	140	140	140	140
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	12	38	38	20	46	46	23	36	36	31	43	43
g / C, Green / Cycle	0.09	0.27	0.27	0.14	0.33	0.33	0.17	0.25	0.25	0.22	0.31	0.31
(v / s)_i Volume / Saturation Flow Rate	0.09	0.35	0.18	0.19	0.33	0.13	0.18	0.23	0.18	0.17	0.43	0.60
s, saturation flow rate [veh/h]	3113	4584	1423	3113	4584	1424	1603	4102	1422	1603	2867	1274
c, Capacity [veh/h]	267	1238	384	445	1500	466	266	1043	361	350	880	391
d1, Uniform Delay [s]	64.00	51.10	45.70	60.00	46.98	36.57	58.38	50.80	47.67	51.71	48.52	48.52
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.34	0.11	0.22	0.30	0.24	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	32.67	146.21	9.53	137.59	22.03	2.66	75.95	3.82	5.56	10.73	178.93	437.72
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.03	1.31	0.68	1.30	0.99	0.41	1.10	0.92	0.72	0.79	1.39	1.95
d, Delay for Lane Group [s/veh]	96.66	197.31	55.24	197.58	69.01	39.23	134.34	54.62	53.23	62.43	227.44	486.24
Lane Group LOS	F	F	E	F	E	D	F	D	D	E	F	F
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	5.88	30.78	9.01	16.22	19.71	5.32	14.90	11.06	8.79	10.15	36.85	60.84
50th-Percentile Queue Length [ft/ln]	146.98	769.47	225.22	405.50	492.64	133.02	372.53	276.55	219.76	253.73	921.22	1520.9
95th-Percentile Queue Length [veh/ln]	9.95	46.15	13.93	25.41	26.99	9.10	22.25	16.52	13.65	15.37	55.94	97.32
95th-Percentile Queue Length [ft/ln]	248.70	1153.6	348.29	635.27	674.65	227.60	556.32	412.92	341.32	384.35	1398.4	2433.0

Intersection Level Of Service Report
Intersection 2: Westminster Avenue / Mar Les Drive

Control Type:	Signalized	Delay (sec / veh):	26.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.716

Intersection Setup

Name														
Approach	Northbound			Southbound			Eastbound				Westbound			
Lane Configuration														
Turning Movement	Left	Thru	Right	Left	Thru	Right	U-tu	Left	Thru	Right	U-tu	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
No. of Lanes in Entry Pocket	0	0	0	0	0	0	1	0	0	0	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	170.	100.	100.	100.	170.	100.	100.	100.
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			40.00				40.00			
Grade [%]	0.00			0.00			0.00				0.00			
Curb Present	No			No			No				No			
Crosswalk	No			Yes			No				No			

Volumes

Name														
Base Volume Input [veh/h]	20	10	40	10	0	40	0	70	1436	30	1	170	1454	60
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	20	10	40	10	0	40	0	70	1436	30	1	170	1454	60
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Total 15-Minute Volume [veh/h]	5	3	11	3	0	11	0	19	382	8	0	45	387	16
Total Analysis Volume [veh/h]	21	11	43	11	0	43	0	74	1528	32	1	181	1547	64
Presence of On-Street Parking	No		No	No		No	No			No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0				0			
v_di, Inbound Pedestrian Volume crossing major street	0			0			0				0			
v_co, Outbound Pedestrian Volume crossing minor stree	0			3			0				2			
v_ci, Inbound Pedestrian Volume crossing minor street	0			2			0				3			
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0				0			
Bicycle Volume [bicycles/h]	0			0			0				0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	7.00

Phasing & Timing

Control Type	Permis	Permis	Permis	Permis	Permis	Permis	Perm	Prote	Perm	Perm	Perm	Prote	Perm	Perm
Signal Group	0	8	0	0	4	0	0	2	5	0	0	1	6	0
Auxiliary Signal Groups														
Lead / Lag	-	-	-	-	-	-	-	Lead	-	-	-	Lead	-	-
Minimum Green [s]	0	5	0	0	5	0	0	5	5	0	0	5	5	0
Maximum Green [s]	0	30	0	0	30	0	0	30	30	0	0	30	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0
Split [s]	0	10	0	0	13	0	0	15	44	0	0	72	46	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	3.0	0.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	5	0	0	0	5	0
Pedestrian Clearance [s]	0	17	0	0	17	0	0	0	27	0	0	0	27	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No				No				No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	2.0	0.0	0.0	2.0	2.0	0.0
Minimum Recall		No			No			No	No			No	No	
Maximum Recall		No			No			No	No			No	No	
Pedestrian Recall		No			No			No	No			No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	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

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C	C	L	C	C
C, Cycle Length [s]	59	59	59	59	59	59	59	59
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	2.00	0.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	4	22	6	21	21	21	22	22
g / C, Green / Cycle	0.06	0.37	0.10	0.36	0.36	0.36	0.38	0.38
(v / s)_i Volume / Saturation Flow Rate	0.04	0.04	0.24	0.29	0.29	0.38	0.30	0.30
s, saturation flow rate [veh/h]	1705	1447	314	3560	1850	484	3560	1831
c, Capacity [veh/h]	179	0	0	1285	668	142	1344	691
d1, Uniform Delay [s]	27.41	0.00	0.00	17.06	17.06	27.37	16.41	16.43
k, delay calibration	0.11	0.11	0.11	0.11	0.14	0.26	0.11	0.15
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.55	0.00	0.00	1.19	2.83	153.15	1.08	2.93
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.42	10000.00	10000.	0.80	0.80	1.28	0.79	0.79
d, Delay for Lane Group [s/veh]	28.95	0.00	0.00	18.24	19.88	180.52	17.50	19.35
Lane Group LOS	C	F	F	B	B	F	B	B
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.08	0.00	0.00	5.41	5.93	7.90	5.46	5.98
50th-Percentile Queue Length [ft/ln]	27.08	0.00	0.00	135.33	148.28	197.38	136.50	149.58
95th-Percentile Queue Length [veh/ln]	1.95	0.00	0.00	9.23	9.93	14.15	9.29	9.99
95th-Percentile Queue Length [ft/ln]	48.74	0.00	0.00	230.72	248.14	353.71	232.30	249.87

Appendix C: Signal Warrants

FEHR & PEERS

Major Street	Westminster Avenue
Minor Street	Mar Les Drive

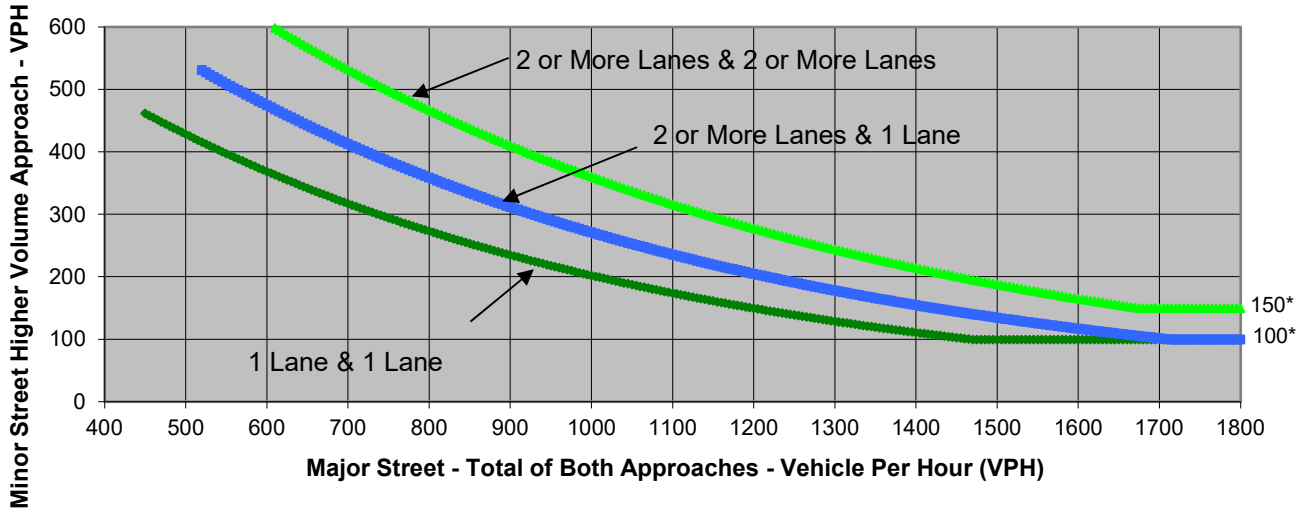
Project	Westview Santa Ana
Scenario	Existing
Peak Hour	AM

Turn Movement Volumes

	NB	SB	EB	WB
Left	39	73	81	125
Through	0	0	1,159	686
Right	85	35	22	22
Total	124	108	1,262	833

Major Street Direction

	North/South
x	East/West



* Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

	Major Street	Minor Street	Warrant Met
	Westminster Avenue	Mar Les Drive	
Number of Approach Lanes	**3**	**1**	**YES**
Traffic Volume (VPH) *	**2,095**	**124**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Project	Westview Santa Ana
Scenario	Existing
Peak Hour	AM

Major Street	Westminster Avenue
Minor Street	Mar Les Drive

Turn Movement Volumes

	NB	SB	EB	WB
Left	39	73	81	125
Through	0	0	1,159	686
Right	85	35	22	22
Total	124	108	1,262	833

Major Street Direction

	North/South
x	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	4

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	89.3
Approach with Worst Case Delay	WB
Total Vehicles on Approach	833

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	**Peak Hour Volume on Minor Approach (vph)**	**Peak Hour Entering Volume Serviced (vph)**
Existing	**20.7**	**124**	**2,327**
Limiting Value	**4**	**100**	**800**
Condition Satisfied?	**Met**	**Met**	**Met**
Warrant Met	**YES**		

FEHR PEERS

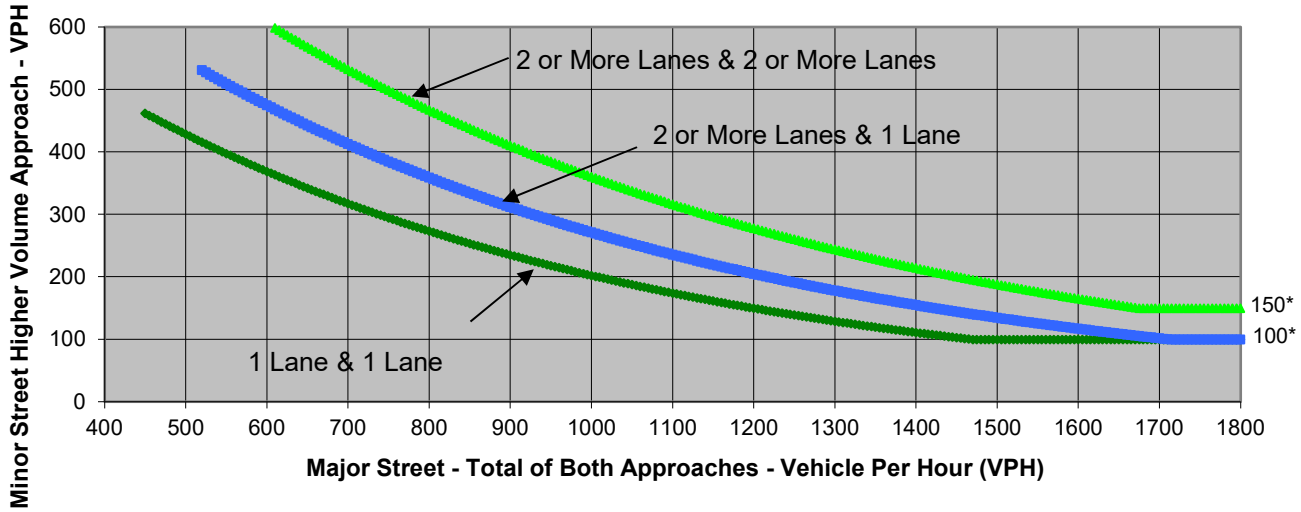
Major Street	N Fairview Street	Project	Westview Santa Ana
Minor Street	W 16th Street	Scenario	Existing
		Peak Hour	AM

Turn Movement Volumes

	NB	SB	EB	WB
Left	1		9	
Through	1,374	1,663		
Right		1	106	
Total	1,375	1,664	115	0

Major Street Direction

x	North/South
	East/West



* Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

	Major Street	Minor Street	Warrant Met
	N Fairview Street	W 16th Street	
Number of Approach Lanes	**2**	**1**	**YES**
Traffic Volume (VPH) *	**3,039**	**115**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Major Street	N Fairview Street
Minor Street	W 16th Street

Project	Westview Santa Ana
Scenario	Existing
Peak Hour	AM

Turn Movement Volumes

	NB	SB	EB	WB
Left	1	0	9	0
Through	1,374	1,663	0	0
Right	0	1	106	0
Total	1,375	1,664	115	0

Major Street Direction

x	North/South
	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	3

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	89.3
Approach with Worst Case Delay	WB
Total Vehicles on Approach	0

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	**Peak Hour Volume on Minor Approach (vph)**	**Peak Hour Entering Volume Serviced (vph)**
Existing	**0**	**115**	**3,154**
Limiting Value	**4**	**100**	**650**
Condition Satisfied?	**Not Met**	**Met**	**Met**
Warrant Met	**NO**		

FEHR PEERS

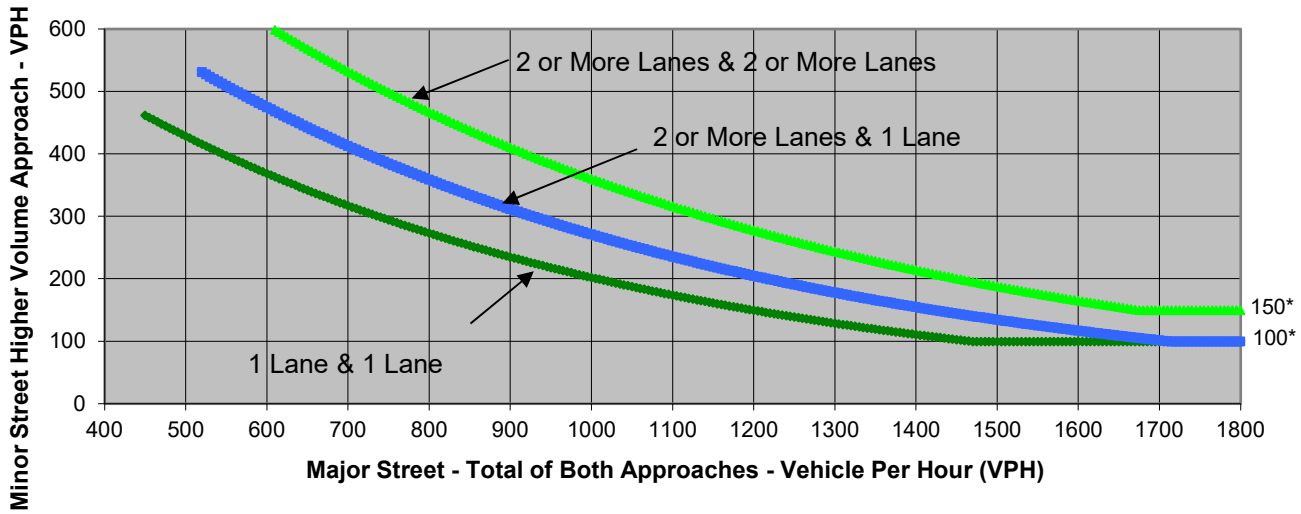
Major Street	Westminster Avenue	Project	Westview Santa Ana
Minor Street	Mar Les Drive	Scenario	Existing
		Peak Hour	PM

Turn Movement Volumes

	NB	SB	EB	WB
Left	18	10	66	158
Through	4	0	976	1,330
Right	35	35	20	45
Total	57	45	1,062	1,533

Major Street Direction

	North/South
x	East/West



* Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

	Major Street	Minor Street	Warrant Met
	Westminster Avenue	Mar Les Drive	
Number of Approach Lanes	**3**	**1**	**NO**
Traffic Volume (VPH) *	**2,595**	**57**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Project	Westview Santa Ana
Scenario	Existing
Peak Hour	PM
Major Street	Westminster Avenue
Minor Street	Mar Les Drive

Turn Movement Volumes

	NB	SB	EB	WB
Left	18	10	66	158
Through	4	0	976	1,330
Right	35	35	20	45
Total	57	45	1,062	1,533

Major Street Direction

	North/South
x	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	4

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	89.3
Approach with Worst Case Delay	WB
Total Vehicles on Approach	1,533

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	**Peak Hour Volume on Minor Approach (vph)**	**Peak Hour Entering Volume Serviced (vph)**
Existing	**38**	**57**	**2,697**
Limiting Value	**4**	**100**	**800**
Condition Satisfied?	**Met**	**Not Met**	**Met**
Warrant Met	**NO**		

FEHR PEERS

Major Street	N Fairview Street
Minor Street	W 16th Street

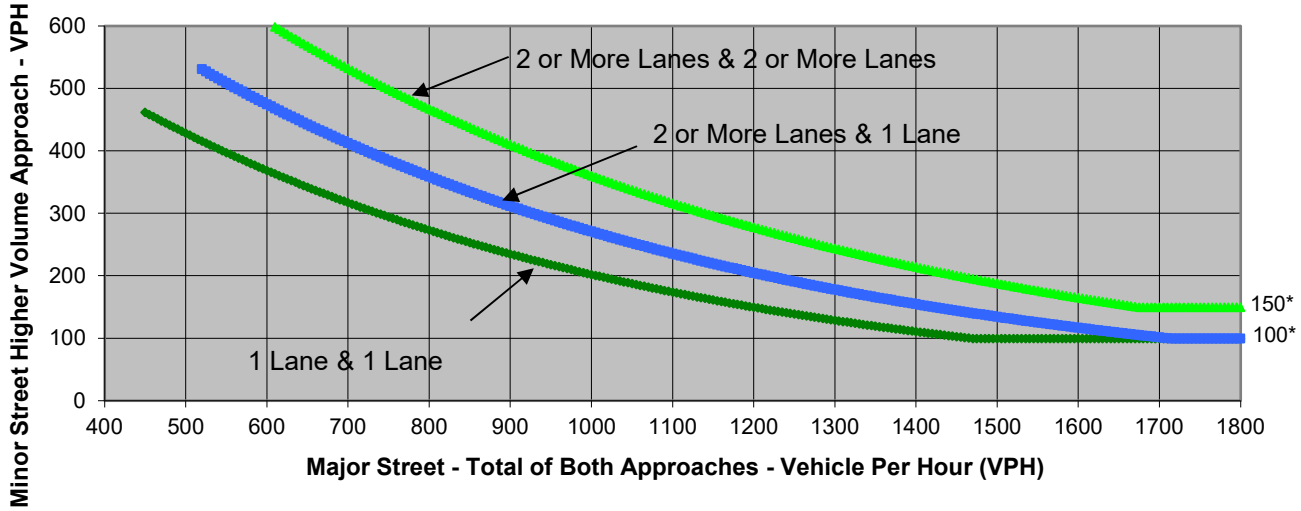
Project	Westview Santa Ana
Scenario	Existing
Peak Hour	PM

Turn Movement Volumes

	NB	SB	EB	WB
Left	9		5	
Through	1,558	1,584		
Right		44	22	
Total	1,567	1,628	27	0

Major Street Direction

x	North/South
	East/West



* Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

	Major Street	Minor Street	Warrant Met
	N Fairview Street	W 16th Street	
Number of Approach Lanes	**2**	**1**	**NO**
Traffic Volume (VPH) *	**3,195**	**27**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Major Street	N Fairview Street	Project	Westview Santa Ana
Minor Street	W 16th Street	Scenario	Existing
		Peak Hour	PM

Turn Movement Volumes

	NB	SB	EB	WB
Left	9	0	5	0
Through	1,558	1,584	0	0
Right	0	44	22	0
Total	1,567	1,628	27	0

Major Street Direction

x	North/South
	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	3

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	89.3
Approach with Worst Case Delay	WB
Total Vehicles on Approach	0

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	**Peak Hour Volume on Minor Approach (vph)**	**Peak Hour Entering Volume Serviced (vph)**
Existing	**0**	**27**	**3,222**
Limiting Value	**4**	**100**	**650**
Condition Satisfied?	**Not Met**	**Not Met**	**Met**
Warrant Met	**NO**		

FEHR PEERS

Major Street	Westminster Avenue
Minor Street	Mar Les Drive

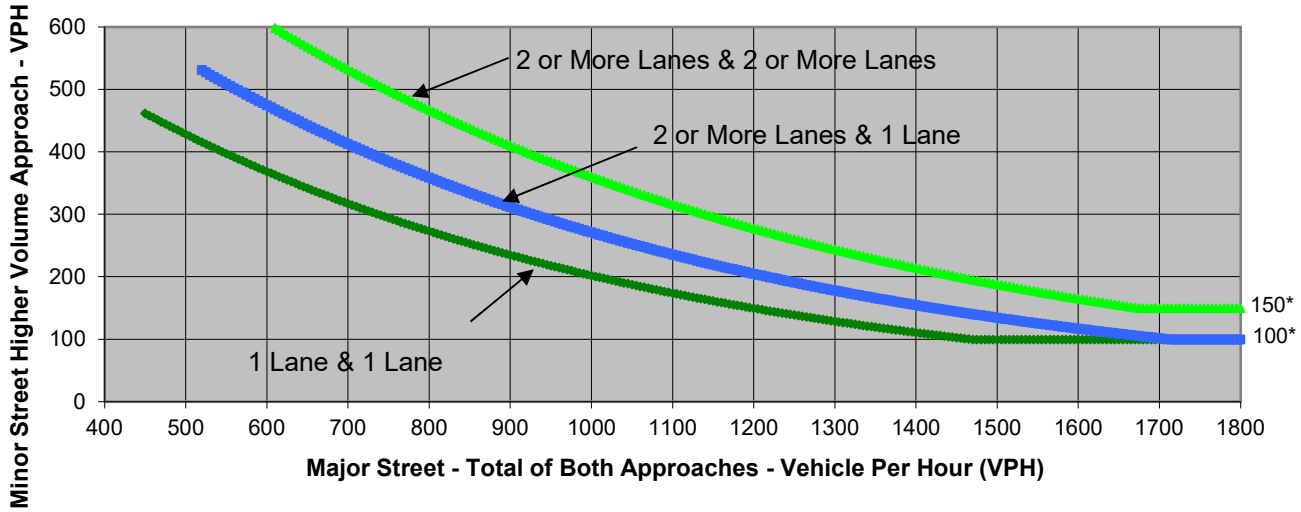
Project	Westview Santa Ana
Scenario	Existing Plus Project Conditions
Peak Hour	AM

Turn Movement Volumes

	NB	SB	EB	WB
Left	39	73	81	129
Through	0	0	1,161	691
Right	85	35	22	22
Total	124	108	1,264	842

Major Street Direction

	North/South
x	East/West



* Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

	Major Street	Minor Street	Warrant Met
	Westminster Avenue	Mar Les Drive	
Number of Approach Lanes	**3**	**1**	**YES**
Traffic Volume (VPH) *	**2,106**	**124**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Project	Westview Santa Ana
Scenario	Existing Plus Project Conditions
Peak Hour	AM

Major Street	Westminster Avenue
Minor Street	Mar Les Drive

Turn Movement Volumes

	NB	SB	EB	WB
Left	39	73	81	129
Through	0	0	1,161	691
Right	85	35	22	22
Total	124	108	1,264	842

Major Street Direction

	North/South
x	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	4

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	89.3
Approach with Worst Case Delay	WB
Total Vehicles on Approach	842

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	**Peak Hour Volume on Minor Approach (vph)**	**Peak Hour Entering Volume Serviced (vph)**
Existing Plus Project Conditions	**20.9**	**124**	**2,338**
Limiting Value	**4**	**100**	**800**
Condition Satisfied?	**Met**	**Met**	**Met**
Warrant Met	**YES**		

FEHR PEERS

Major Street	N Fairview Street
Minor Street	W 16th Street

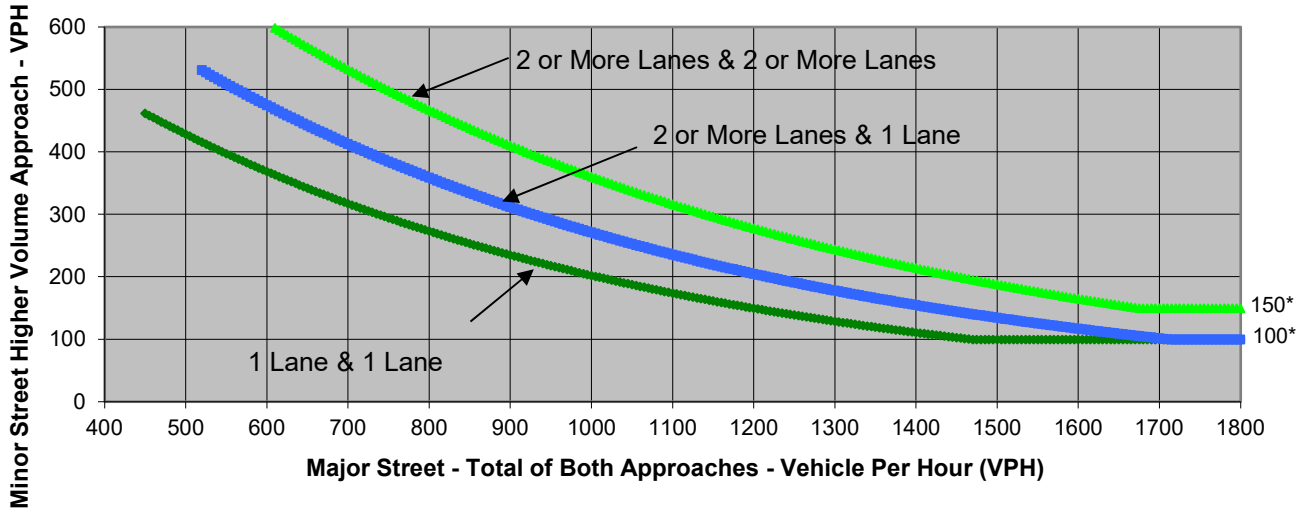
Project	Westview Santa Ana
Scenario	Existing Plus Project Conditions
Peak Hour	AM

Turn Movement Volumes

	NB	SB	EB	WB
Left	3		9	
Through	1,374	1,668		
Right		2	106	
Total	1,377	1,670	115	0

Major Street Direction

x	North/South
	East/West



* Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

	Major Street	Minor Street	Warrant Met
	N Fairview Street	W 16th Street	
Number of Approach Lanes	**2**	**1**	**YES**
Traffic Volume (VPH) *	**3,047**	**115**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Project	Westview Santa Ana
Scenario	Existing Plus Project Conditions
Peak Hour	AM

Major Street	N Fairview Street
Minor Street	W 16th Street

Turn Movement Volumes

	NB	SB	EB	WB
Left	3	0	9	0
Through	1,374	1,668	0	0
Right	0	2	106	0
Total	1,377	1,670	115	0

Major Street Direction

x	North/South
	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	3

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	89.3
Approach with Worst Case Delay	WB
Total Vehicles on Approach	0

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	**Peak Hour Volume on Minor Approach (vph)**	**Peak Hour Entering Volume Serviced (vph)**
Existing Plus Project Conditions	**0**	**115**	**3,162**
Limiting Value	**4**	**100**	**650**
Condition Satisfied?	**Not Met**	**Met**	**Met**
Warrant Met	**NO**		

FEHR PEERS

Major Street	Westminster Avenue
Minor Street	Mar Les Drive

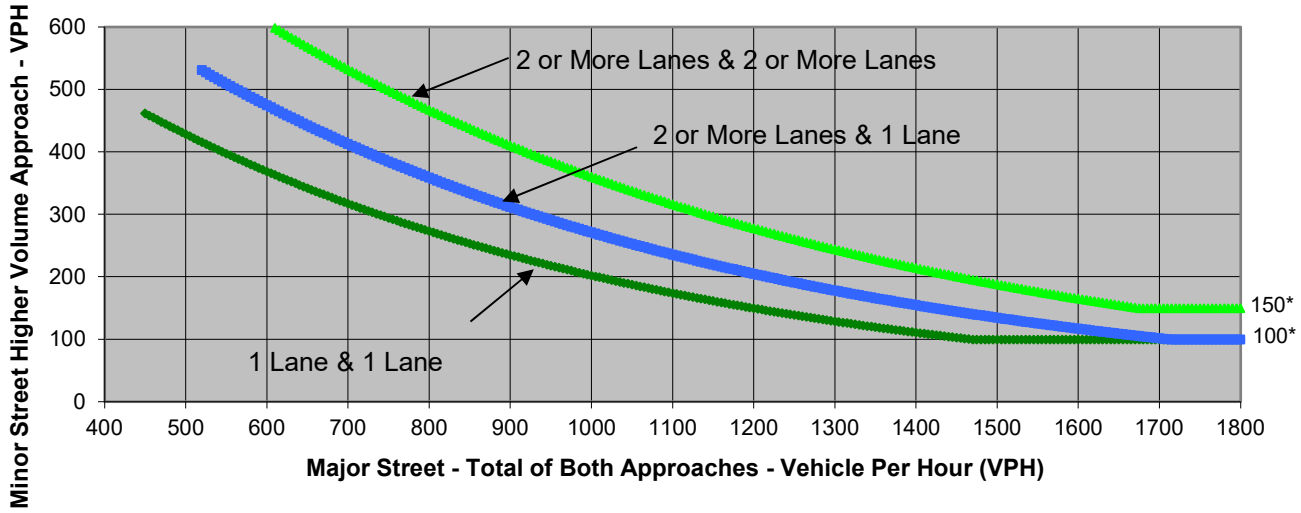
Project	Westview Santa Ana
Scenario	Existing Plus Project Conditions
Peak Hour	PM

Turn Movement Volumes

	NB	SB	EB	WB
Left	18	10	66	168
Through	4		981	1,333
Right	35	35	20	45
Total	57	45	1,067	1,546

Major Street Direction

	North/South
x	East/West



* Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

	Major Street	Minor Street	Warrant Met
	Westminster Avenue	Mar Les Drive	
Number of Approach Lanes	**3**	**1**	**NO**
Traffic Volume (VPH) *	**2,613**	**57**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Major Street	Westminster Avenue
Minor Street	Mar Les Drive

Project	Westview Santa Ana
Scenario	Existing Plus Project Conditions
Peak Hour	PM

Turn Movement Volumes

	NB	SB	EB	WB
Left	18	10	66	168
Through	4	0	981	1,333
Right	35	35	20	45
Total	57	45	1,067	1,546

Major Street Direction

	North/South
x	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	4

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	89.3
Approach with Worst Case Delay	WB
Total Vehicles on Approach	1,546

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	**Peak Hour Volume on Minor Approach (vph)**	**Peak Hour Entering Volume Serviced (vph)**
Existing Plus Project Conditions	**38.3**	**57**	**2,715**
Limiting Value	**4**	**100**	**800**
Condition Satisfied?	**Met**	**Not Met**	**Met**
Warrant Met	**NO**		

FEHR PEERS

Major Street	N Fairview Street
Minor Street	W 16th Street

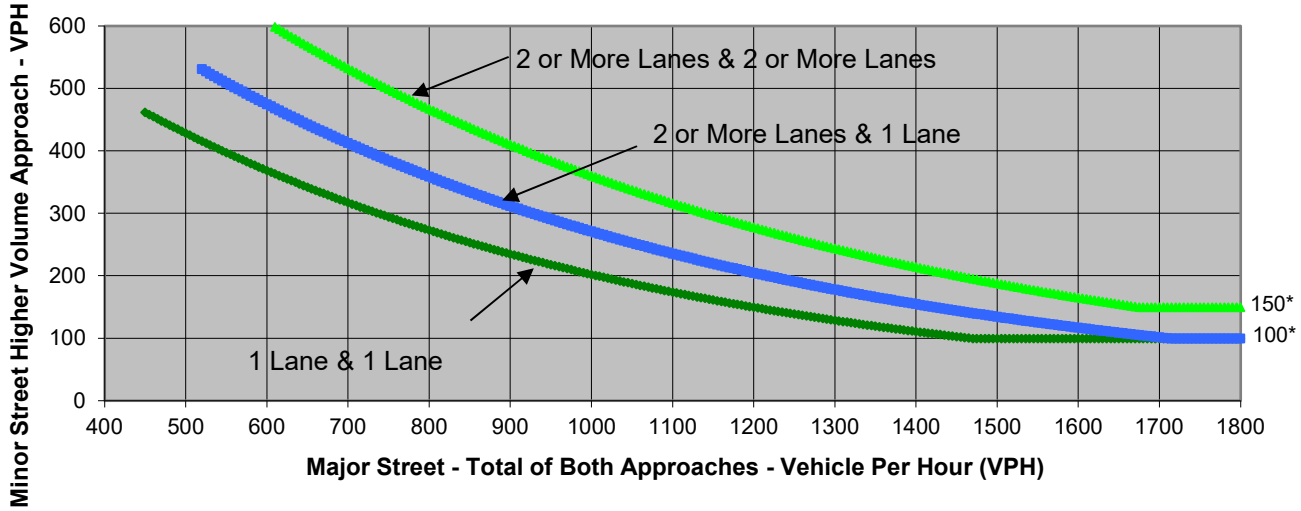
Project	Westview Santa Ana
Scenario	Existing Plus Project Conditions
Peak Hour	PM

Turn Movement Volumes

	NB	SB	EB	WB
Left	14		5	
Through	1,558	1,587		
Right		15	22	
Total	1,572	1,602	27	0

Major Street Direction

	North/South
x	East/West



* Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

	Major Street	Minor Street	Warrant Met
	N Fairview Street	W 16th Street	
Number of Approach Lanes	**2**	**1**	**YES**
Traffic Volume (VPH) *	**27**	**1,602**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Project	Westview Santa Ana
Scenario	Existing Plus Project Conditions
Peak Hour	PM

Major Street	N Fairview Street
Minor Street	W 16th Street

Turn Movement Volumes

	NB	SB	EB	WB
Left	14	0	5	0
Through	1,558	1,587	0	0
Right	0	15	22	0
Total	1,572	1,602	27	0

Major Street Direction

	North/South
x	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	3

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	89.3
Approach with Worst Case Delay	WB
Total Vehicles on Approach	0

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	**Peak Hour Volume on Minor Approach (vph)**	**Peak Hour Entering Volume Serviced (vph)**
Existing Plus Project Conditions	**0**	**1,602**	**3,201**
Limiting Value	**4**	**100**	**650**
Condition Satisfied?	**Not Met**	**Met**	**Met**
Warrant Met	**NO**		

FEHR PEERS

Major Street	Westminster Avenue
Minor Street	Mar Les Drive

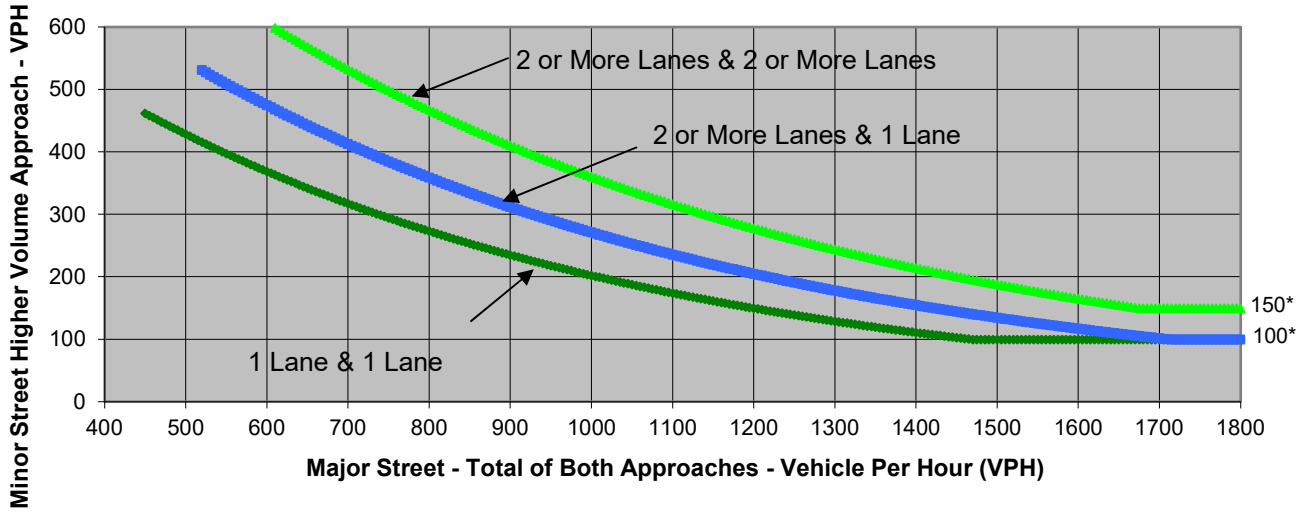
Project	Westview Santa Ana
Scenario	Opening Year
Peak Hour	AM

Turn Movement Volumes

	NB	SB	EB	WB
Left	40	75	90	134
Through	0	0	1,240	746
Right	90	40	25	25
Total	130	115	1,355	905

Major Street Direction

	North/South
x	East/West



* Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

	Major Street	Minor Street	Warrant Met
	Westminster Avenue	Mar Les Drive	
Number of Approach Lanes	**3**	**1**	**YES**
Traffic Volume (VPH) *	**2,260**	**130**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Project	Westview Santa Ana
Scenario	Opening Year
Peak Hour	AM

Major Street	Westminster Avenue
Minor Street	Mar Les Drive

Turn Movement Volumes

	NB	SB	EB	WB
Left	40	75	90	134
Through	0	0	1,240	746
Right	90	40	25	25
Total	130	115	1,355	905

Major Street Direction

	North/South
x	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	4

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	89.3
Approach with Worst Case Delay	WB
Total Vehicles on Approach	905

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	**Peak Hour Volume on Minor Approach (vph)**	**Peak Hour Entering Volume Serviced (vph)**
Opening Year	**22.4**	**130**	**2,505**
Limiting Value	**4**	**100**	**800**
Condition Satisfied?	**Met**	**Met**	**Met**
Warrant Met	**YES**		

FEHR PEERS

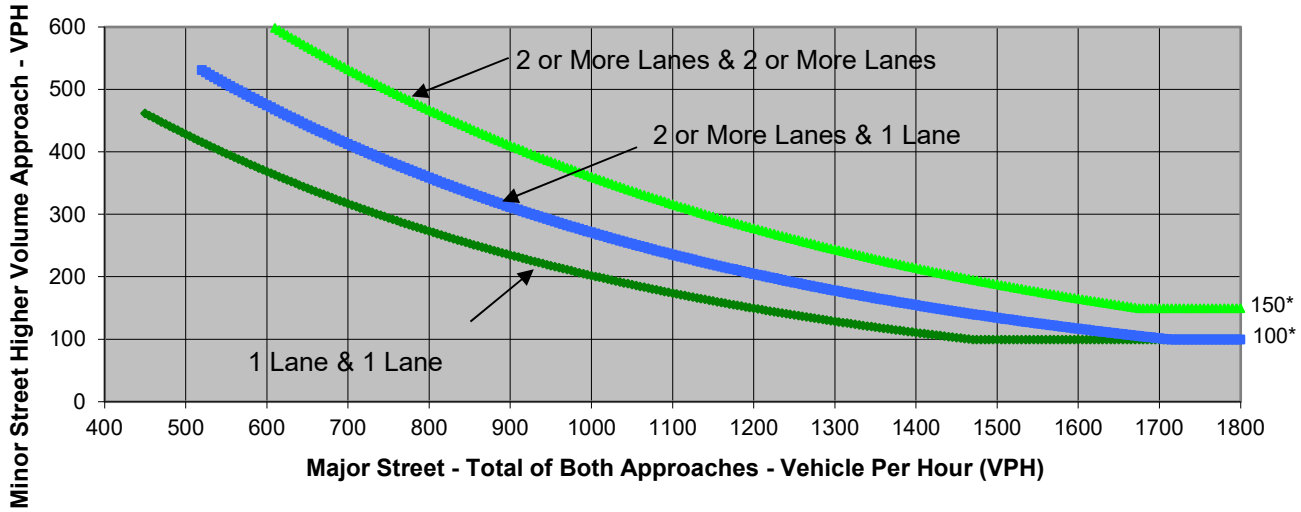
Major Street	N Fairview Street	Project	Westview Santa Ana
Minor Street	W 16th Street	Scenario	Opening Year
		Peak Hour	AM

Turn Movement Volumes

	NB	SB	EB	WB
Left	5		10	
Through	1,478	1,757		
Right		5	110	
Total	1,483	1,762	120	0

Major Street Direction

x	North/South
	East/West



* Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

	Major Street	Minor Street	Warrant Met
	N Fairview Street	W 16th Street	
Number of Approach Lanes	**2**	**1**	**YES**
Traffic Volume (VPH) *	**3,245**	**120**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Major Street	N Fairview Street	Project	Westview Santa Ana
Minor Street	W 16th Street	Scenario	Opening Year
		Peak Hour	AM

Turn Movement Volumes

	NB	SB	EB	WB
Left	5	0	10	0
Through	1,478	1,757	0	0
Right	0	5	110	0
Total	1,483	1,762	120	0

Major Street Direction

x	North/South
	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	3

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	89.3
Approach with Worst Case Delay	WB
Total Vehicles on Approach	0

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	**Peak Hour Volume on Minor Approach (vph)**	**Peak Hour Entering Volume Serviced (vph)**
Opening Year	**0**	**120**	**3,365**
Limiting Value	**4**	**100**	**650**
Condition Satisfied?	**Not Met**	**Met**	**Met**
Warrant Met	**NO**		

FEHR PEERS

Major Street	Westminster Avenue
Minor Street	Mar Les Drive

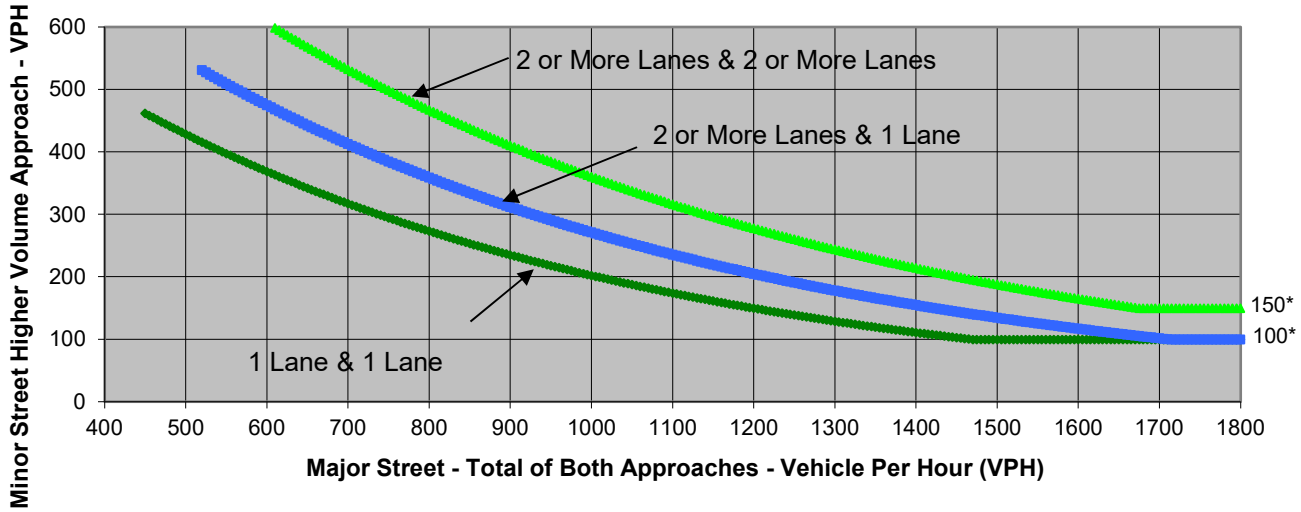
Project	Westview Santa Ana
Scenario	Opening Year
Peak Hour	PM

Turn Movement Volumes

	NB	SB	EB	WB
Left	20	10	70	165
Through	5	0	1,048	1,418
Right	40	40	25	50
Total	65	50	1,143	1,633

Major Street Direction

	North/South
x	East/West



* Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

	Major Street	Minor Street	Warrant Met
	Westminster Avenue	Mar Les Drive	
Number of Approach Lanes	**3**	**1**	**NO**
Traffic Volume (VPH) *	**2,776**	**65**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Project	Westview Santa Ana
Scenario	Opening Year
Peak Hour	PM

Major Street	Westminster Avenue
Minor Street	Mar Les Drive

Turn Movement Volumes

	NB	SB	EB	WB
Left	20	10	70	165
Through	5	0	1,048	1,418
Right	40	40	25	50
Total	65	50	1,143	1,633

Major Street Direction

	North/South
x	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	4

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	89.3
Approach with Worst Case Delay	WB
Total Vehicles on Approach	1,633

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	**Peak Hour Volume on Minor Approach (vph)**	**Peak Hour Entering Volume Serviced (vph)**
Opening Year	**40.5**	**65**	**2,891**
Limiting Value	**4**	**100**	**800**
Condition Satisfied?	**Met**	**Not Met**	**Met**
Warrant Met	**NO**		

FEHR PEERS

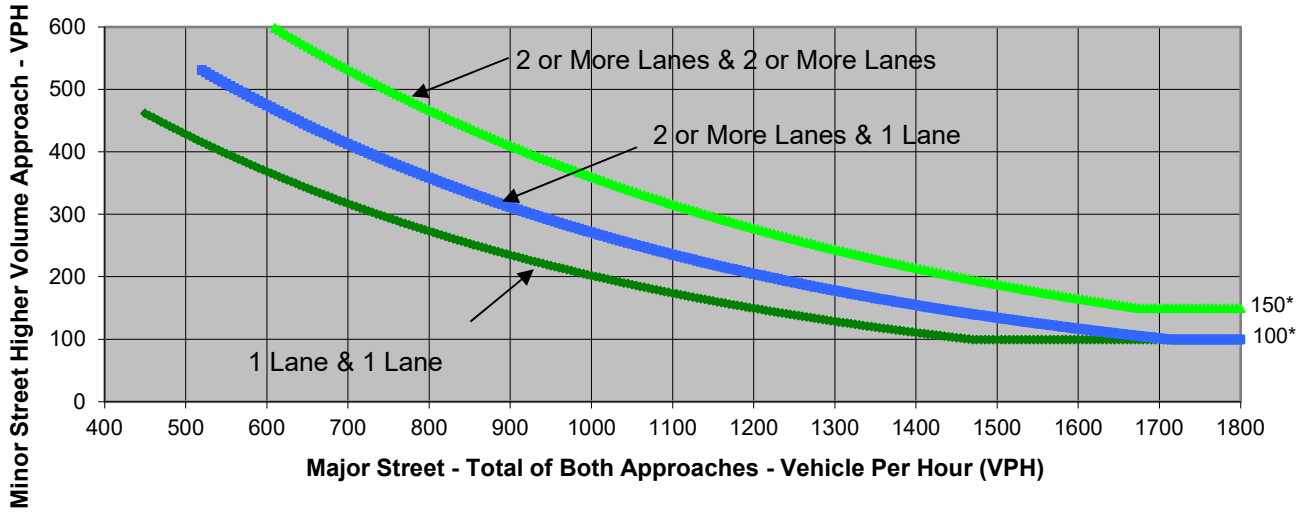
Major Street	N Fairview Street	Project	Westview Santa Ana
Minor Street	W 16th Street	Scenario	Opening Year
		Peak Hour	PM

Turn Movement Volumes

	NB	SB	EB	WB
Left	10		5	
Through	1,643	1,676		
Right		15	25	
Total	1,653	1,691	30	0

Major Street Direction

x	North/South
	East/West



* Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

	Major Street	Minor Street	Warrant Met
	N Fairview Street	W 16th Street	
Number of Approach Lanes	**2**	**1**	**NO**
Traffic Volume (VPH) *	**3,344**	**30**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Project	Westview Santa Ana
Scenario	Opening Year
Peak Hour	PM

Major Street	N Fairview Street
Minor Street	W 16th Street

Turn Movement Volumes

	NB	SB	EB	WB
Left	10	0	5	0
Through	1,643	1,676	0	0
Right	0	15	25	0
Total	1,653	1,691	30	0

Major Street Direction

x	North/South
	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	3

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	89.3
Approach with Worst Case Delay	WB
Total Vehicles on Approach	0

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	**Peak Hour Volume on Minor Approach (vph)**	**Peak Hour Entering Volume Serviced (vph)**
Opening Year	**0**	**30**	**3,374**
Limiting Value	**4**	**100**	**650**
Condition Satisfied?	**Not Met**	**Not Met**	**Met**
Warrant Met	**NO**		

FEHR PEERS

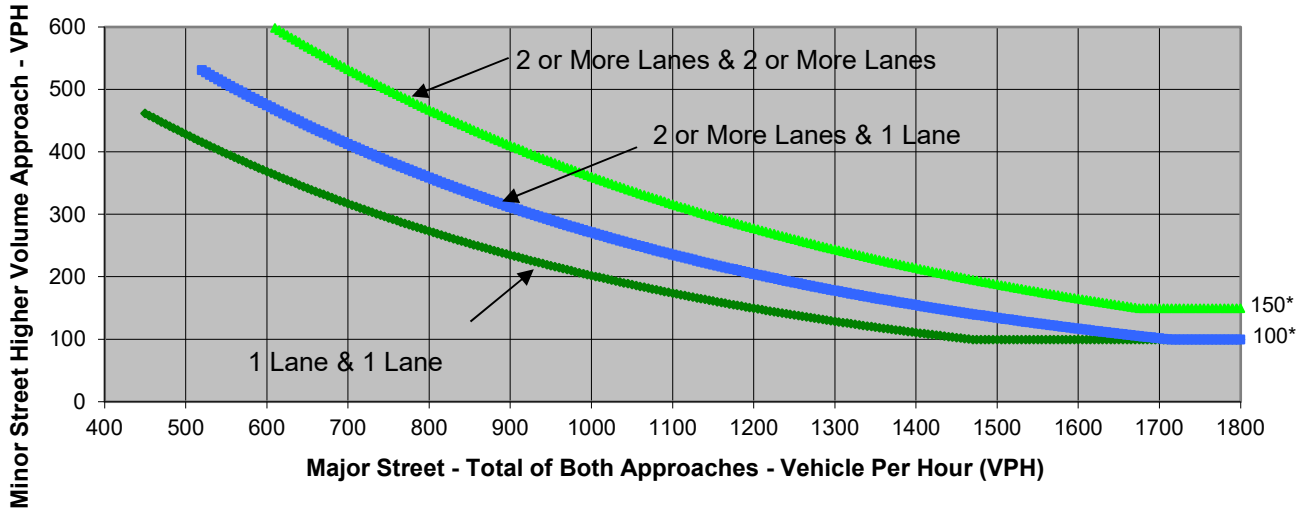
Major Street	Westminster Avenue	Project	Westview Santa Ana
Minor Street	Mar Les Drive	Scenario	Opening Year Plus Project Condition
		Peak Hour	AM

Turn Movement Volumes

	NB	SB	EB	WB
Left	40	75	90	134
Through		0	1,240	746
Right	90	40	25	25
Total	130	115	1,355	905

Major Street Direction

	North/South
x	East/West



* Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

	Major Street	Minor Street	Warrant Met
	Westminster Avenue	Mar Les Drive	
Number of Approach Lanes	**3**	**1**	**YES**
Traffic Volume (VPH) *	**2,260**	**130**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Project	Westview Santa Ana
Scenario	Opening Year Plus Project Condition
Peak Hour	AM

Major Street	Westminster Avenue
Minor Street	Mar Les Drive

Turn Movement Volumes

	NB	SB	EB	WB
Left	40	75	90	134
Through	0	0	1,240	746
Right	90	40	25	25
Total	130	115	1,355	905

Major Street Direction

	North/South
x	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	4

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	89.3
Approach with Worst Case Delay	WB
Total Vehicles on Approach	905

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	**Peak Hour Volume on Minor Approach (vph)**	**Peak Hour Entering Volume Serviced (vph)**
pening Year Plus Project Conditio	**22.4**	**130**	**2,505**
Limiting Value	**4**	**100**	**800**
Condition Satisfied?	**Met**	**Met**	**Met**
Warrant Met	**YES**		

FEHR PEERS

Major Street	N Fairview Street
Minor Street	W 16th Street

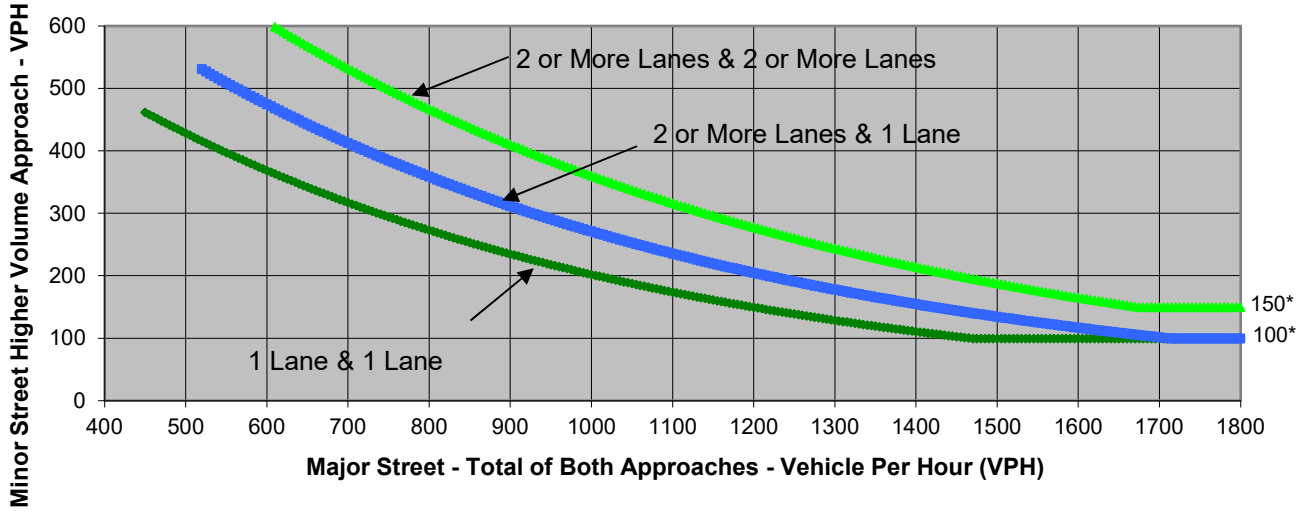
Project	Westview Santa Ana
Scenario	Opening Year Plus Project
Peak Hour	AM

Turn Movement Volumes

	NB	SB	EB	WB
Left	7		10	
Through	1,478	1,762		
Right		6	110	
Total	1,485	1,768	120	0

Major Street Direction

x	North/South
	East/West



* Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

	Major Street	Minor Street	Warrant Met
	N Fairview Street	W 16th Street	
Number of Approach Lanes	**2**	**1**	**YES**
Traffic Volume (VPH) *	**3,253**	**120**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Project	Westview Santa Ana
Scenario	Opening Year Plus Project
Peak Hour	AM

Major Street	N Fairview Street
Minor Street	W 16th Street

Turn Movement Volumes

	NB	SB	EB	WB
Left	7	0	10	0
Through	1,478	1,762	0	0
Right	0	6	110	0
Total	1,485	1,768	120	0

Major Street Direction

x	North/South
	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	3

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	89.3
Approach with Worst Case Delay	WB
Total Vehicles on Approach	0

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	**Peak Hour Volume on Minor Approach (vph)**	**Peak Hour Entering Volume Serviced (vph)**
Opening Year Plus Project	**0**	**120**	**3,373**
Limiting Value	**4**	**100**	**650**
Condition Satisfied?	**Not Met**	**Met**	**Met**
Warrant Met	**NO**		

FEHR PEERS

Major Street	Westminster Avenue
Minor Street	Mar Les Drive

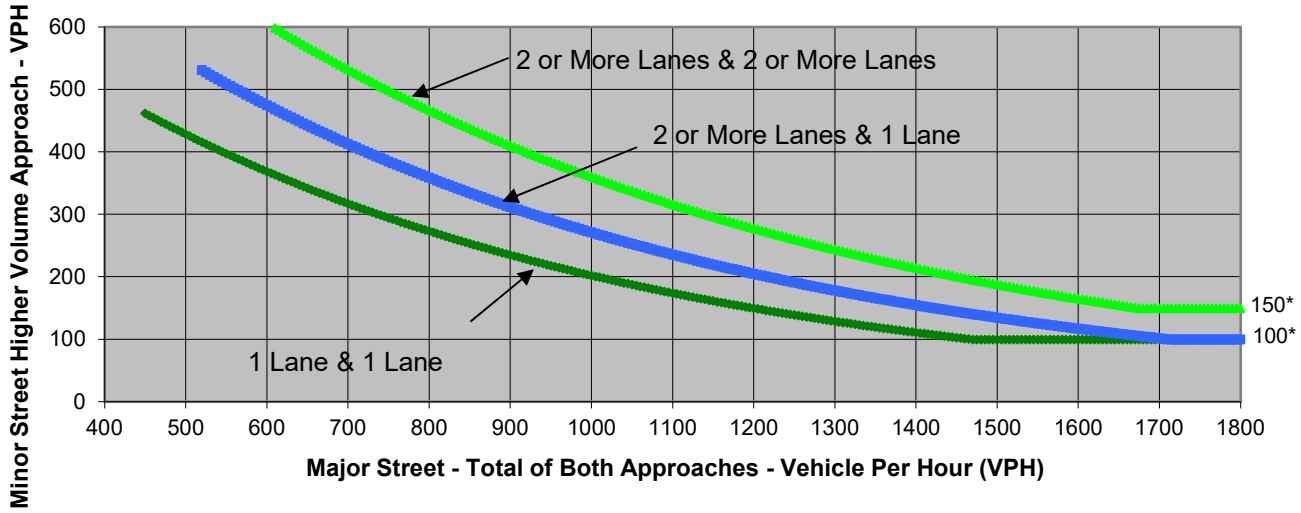
Project	Westview Santa Ana
Scenario	Opening Year Plus Project
Peak Hour	PM

Turn Movement Volumes

	NB	SB	EB	WB
Left	20	10	70	175
Through	5	0	1,053	1,421
Right	40	40	25	50
Total	65	50	1,148	1,646

Major Street Direction

	North/South
x	East/West



* Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

	Major Street	Minor Street	Warrant Met
	Westminster Avenue	Mar Les Drive	
Number of Approach Lanes	**3**	**1**	**NO**
Traffic Volume (VPH) *	**2,794**	**65**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Project	Westview Santa Ana
Scenario	Opening Year Plus Project
Peak Hour	PM

Major Street	Westminster Avenue
Minor Street	Mar Les Drive

Turn Movement Volumes

	NB	SB	EB	WB
Left	20	10	70	175
Through	5	0	1,053	1,421
Right	40	40	25	50
Total	65	50	1,148	1,646

Major Street Direction

	North/South
x	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	4

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	89.3
Approach with Worst Case Delay	WB
Total Vehicles on Approach	1,646

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	**Peak Hour Volume on Minor Approach (vph)**	**Peak Hour Entering Volume Serviced (vph)**
Opening Year Plus Project	**40.8**	**65**	**2,909**
Limiting Value	**4**	**100**	**800**
Condition Satisfied?	**Met**	**Not Met**	**Met**
Warrant Met	**NO**		

FEHR PEERS

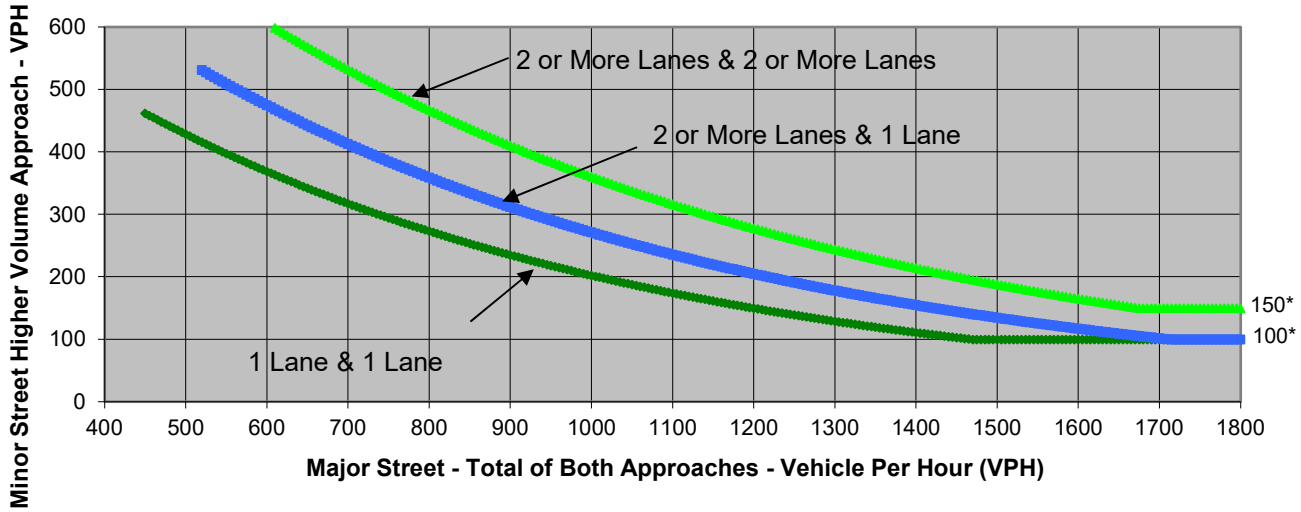
Major Street	N Fairview Street	Project	Westview Santa Ana
Minor Street	W 16th Street	Scenario	Opening Year Plus Project Condition
		Peak Hour	PM

Turn Movement Volumes

	NB	SB	EB	WB
Left	15		5	
Through	1,643	1,679		
Right		19	25	
Total	1,658	1,698	30	0

Major Street Direction

x	North/South
	East/West



* Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

	Major Street	Minor Street	Warrant Met
	N Fairview Street	W 16th Street	
Number of Approach Lanes	**2**	**1**	**NO**
Traffic Volume (VPH) *	**3,356**	**30**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Major Street	N Fairview Street
Minor Street	W 16th Street

Project	Westview Santa Ana
Scenario	Opening Year Plus Project Condition
Peak Hour	PM

Turn Movement Volumes

	NB	SB	EB	WB
Left	15	0	5	0
Through	1,643	1,679	0	0
Right	0	19	25	0
Total	1,658	1,698	30	0

Major Street Direction

x	North/South
	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	3

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	89.3
Approach with Worst Case Delay	WB
Total Vehicles on Approach	0

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	**Peak Hour Volume on Minor Approach (vph)**	**Peak Hour Entering Volume Serviced (vph)**
pening Year Plus Project Conditio	**0**	**30**	**3,386**
Limiting Value	**4**	**100**	**650**
Condition Satisfied?	**Not Met**	**Not Met**	**Met**
Warrant Met	**NO**		

FEHR PEERS

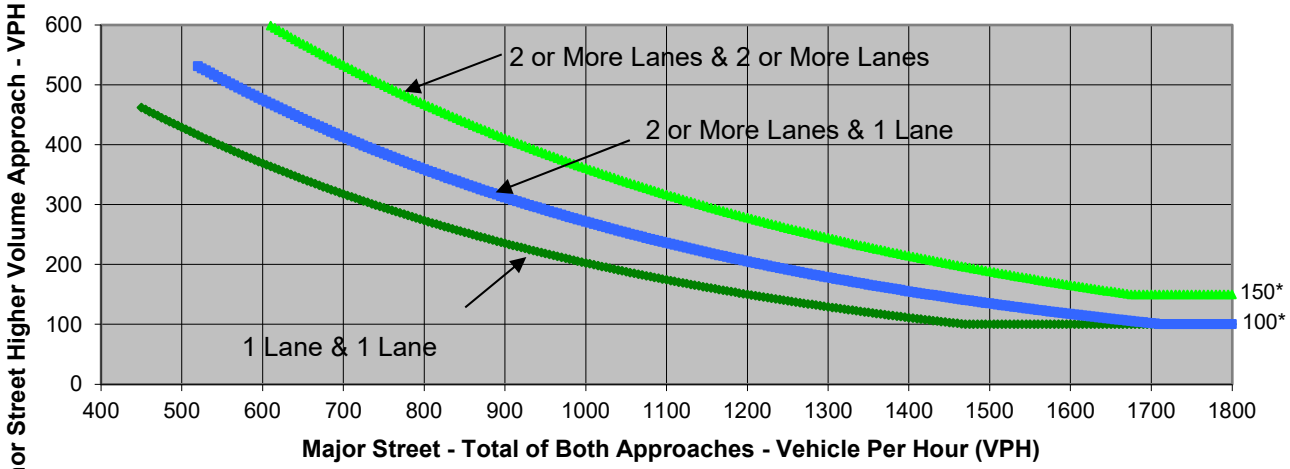
Major Street	N Fairview Street	Project	Westview Santa Ana
Minor Street	W 16th Street	Scenario	Cumulative Year
		Peak Hour	AM

Turn Movement Volumes

	NB	SB	EB	WB
Left				
Through	1,930	2,200		
Right		20	110	
Total	1,930	2,220	110	0

Major Street Direction

x	North/South
	East/West



* Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

	Major Street	Minor Street	Warrant Met
	N Fairview Street	W 16th Street	
Number of Approach Lanes	**3**	**1**	**YES**
Traffic Volume (VPH) *	**4,150**	**110**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Major Street	N Fairview Street	Project	Westview Santa Ana
Minor Street	W 16th Street	Scenario	Cumulative Year
		Peak Hour	AM

Turn Movement Volumes

	NB	SB	EB	WB
Left		0		0
Through	1,930	2,200	0	0
Right	0	20	110	0
Total	1,930	2,220	110	0

Major Street Direction

x	North/South
	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	3

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	75.6
Approach with Worst Case Delay	WB
Total Vehicles on Approach	0

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	**Peak Hour Volume on Minor Approach (vph)**	**Peak Hour Entering Volume Serviced (vph)**
Cumulative Year	**0**	**110**	**4,260**
Limiting Value	**4**	**100**	**650**
Condition Satisfied?	**Not Met**	**Met**	**Met**
Warrant Met	**NO**		

FEHR PEERS

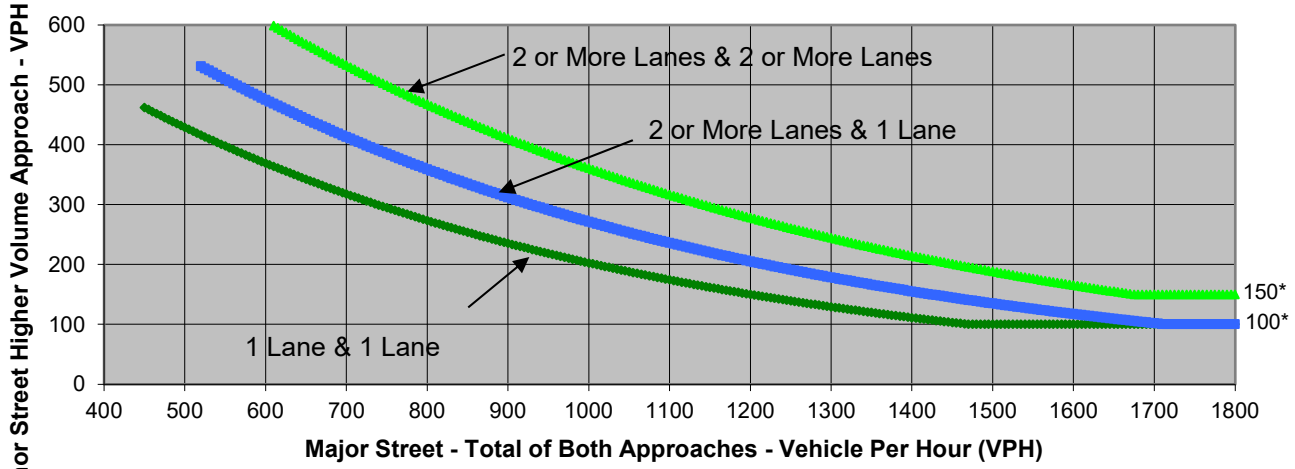
Major Street	N Fairview Street	Project	Westview Santa Ana
Minor Street	W 16th Street	Scenario	Cumulative Year
		Peak Hour	PM

Turn Movement Volumes

	NB	SB	EB	WB
Left	0			
Through	2,100	1,950		
Right		30	30	
Total	2,100	1,980	30	0

Major Street Direction

x	North/South
	East/West



* Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

	Major Street	Minor Street	Warrant Met
	N Fairview Street	W 16th Street	
Number of Approach Lanes	**3**	**1**	**NO**
Traffic Volume (VPH) *	**4,080**	**30**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Major Street	N Fairview Street	Project	Westview Santa Ana
Minor Street	W 16th Street	Scenario	Cumulative Year
		Peak Hour	PM

Turn Movement Volumes

	NB	SB	EB	WB
Left	0	0		0
Through	2,100	1,950	0	0
Right	0	30	30	0
Total	2,100	1,980	30	0

Major Street Direction

x	North/South
	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	3

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	26.5
Approach with Worst Case Delay	EB
Total Vehicles on Approach	30

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	**Peak Hour Volume on Minor Approach (vph)**	**Peak Hour Entering Volume Serviced (vph)**
Cumulative Year	**0.2**	**30**	**4,110**
Limiting Value	**4**	**100**	**650**
Condition Satisfied?	**Not Met**	**Not Met**	**Met**
Warrant Met	**NO**		

FEHR & PEERS

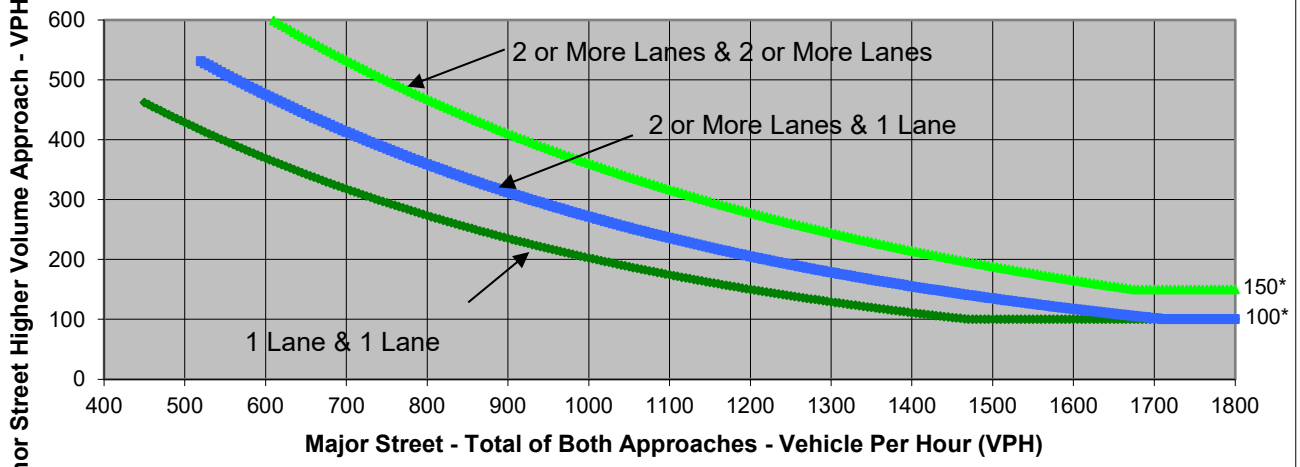
Major Street	N Fairview Street	Project	Westview Santa Ana
Minor Street	W 16th Street	Scenario	Cumulative Plus Project Conditions
		Peak Hour	AM

Turn Movement Volumes

	NB	SB	EB	WB
Left				
Through	1,930	2,190		
Right		20	110	
Total	1,930	2,210	110	0

Major Street Direction

x	North/South
	East/West



* Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

	Major Street	Minor Street	Warrant Met
	N Fairview Street	W 16th Street	
Number of Approach Lanes	**3**	**1**	**YES**
Traffic Volume (VPH) *	**4,140**	**110**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Major Street	N Fairview Street	Project	Westview Santa Ana
Minor Street	W 16th Street	Scenario	Cumulative Plus Project Conditions
		Peak Hour	AM

Turn Movement Volumes

	NB	SB	EB	WB
Left		0		0
Through	1,930	2,190	0	0
Right	0	20	110	0
Total	1,930	2,210	110	0

Major Street Direction

x	North/South
	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	3

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	26.4
Approach with Worst Case Delay	WB
Total Vehicles on Approach	0

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	**Peak Hour Volume on Minor Approach (vph)**	**Peak Hour Entering Volume Serviced (vph)**
Cumulative Plus Project Conditions	**0**	**110**	**4,250**
Limiting Value	**4**	**100**	**650**
Condition Satisfied?	**Not Met**	**Met**	**Met**
Warrant Met	**NO**		

FEHR PEERS

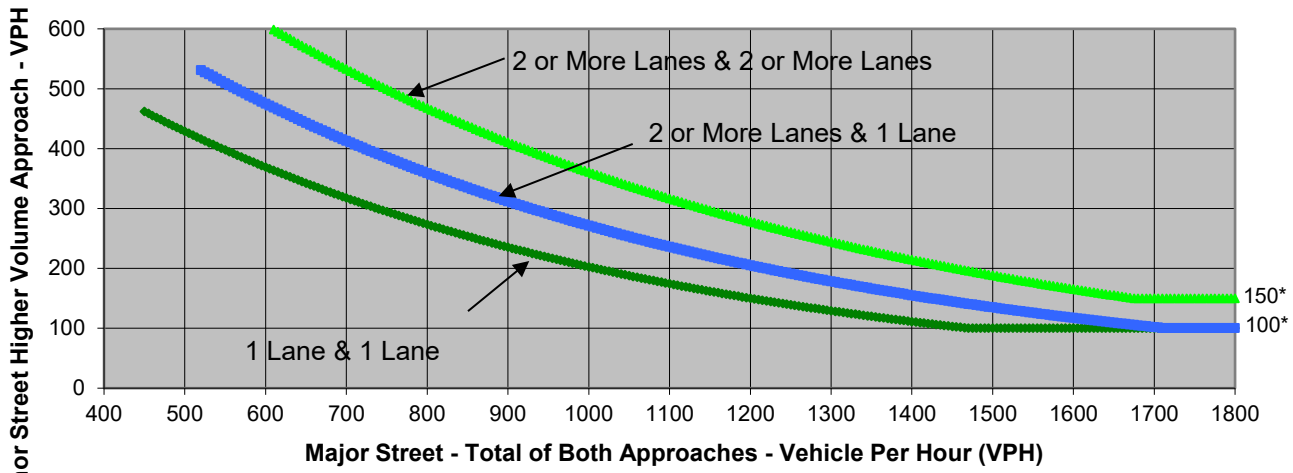
Major Street	N Fairview Street	Project	Westview Santa Ana
Minor Street	W 16th Street	Scenario	Cumulative Year Plus Project
		Peak Hour	PM

Turn Movement Volumes

	NB	SB	EB	WB
Left				
Through	2,096	1,944		
Right		23	30	
Total	2,096	1,967	30	0

Major Street Direction

x	North/South
	East/West



* Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2014

	Major Street	Minor Street	Warrant Met
	N Fairview Street	W 16th Street	
Number of Approach Lanes	**3**	**1**	**NO**
Traffic Volume (VPH) *	**4,063**	**30**	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR PEERS

Major Street	N Fairview Street	Project	Westview Santa Ana
Minor Street	W 16th Street	Scenario	Cumulative Year Plus Project
		Peak Hour	PM

Turn Movement Volumes

	NB	SB	EB	WB
Left		0		0
Through	2,096	1,944	0	0
Right	0	23	30	0
Total	2,096	1,967	30	0

Major Street Direction

x	North/South
	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	3

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	26.4
Approach with Worst Case Delay	WB
Total Vehicles on Approach	0

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	**Peak Hour Volume on Minor Approach (vph)**	**Peak Hour Entering Volume Serviced (vph)**
Cumulative Year Plus Project	**0**	**30**	**4,093**
Limiting Value	**4**	**100**	**650**
Condition Satisfied?	**Not Met**	**Not Met**	**Met**
Warrant Met	**NO**		

Appendix D: Related Projects

Related Projects Trip Generation Summary

		Daily	AM Peak			PM Peak		
			In	Out	Total	In	Out	Total
1	(37) Huynh Commercial Building, 5105 W. First St	29	1	0	1	1	2	3
2	(22) Euclid-Hazard 7-Eleven Service Station, 813 N Euclid Street	439	12	11	23	14	13	27
3	The Line, 3630 Westminster Avenue	556	9	25	34	27	19	46
4	(29) Tiny Tim Plaza Residential Development, 2223 W Fifth Street	186	4	10	13	10	6	17
5	(20) Mountian View Residential, 301 & 305 North Mountain View St	30	1	2	2	4	1	2
6	(8) 5th & Harbor Mixed Use, 421 N. Harbor Blvd	189	3	6	9	9	8	17
7	(40) City Ventures North Harbor Townhomes, 1406 North Harbor Boulevard	56	1	3	3	3	2	4
8	Tacol El Unico (1133 W 17th St)	153	7	6	13	6	5	11
9	520 South Harbor Single-Family Homes	33	1	2	3	2	1	4
10	Westminster & Fairview Commcercial	645	66	11	77	12	64	76
11	Academy Charter HS	139	21	18	38	6	6	11
12	Vista Heritage School Expansion	151	29	25	54	7	7	14
13	Lam Residential	29	1	2	2	2	1	3
14	1st & Harbor Commercial Development	36	4	1	4	1	4	4
15	Budget Inn Conversion	50	1	2	3	2	2	4

Related Project Trip Generation Rates and Trip Generation Estimates

(37) Huynh Commercial Building, 5105 W. First St

Land Use	Units	ITE Code	Quantity	Daily	In	Out	Total	In	Out	Total
Retail	KSF	820	7.7	37.75	62%	38%	0.94	48%	52%	3.81
Retail	KSF	820	7.7	291	4	3	7	14	15	29
Net New Project Trips				**291**	**4**	**3**	**7**	**14**	**15**	**29**

(22) Euclid-Hazard 7-Eleven Service Station, 813 N Euclid Street

Land Use	Units	ITE Code	Quantity	Daily	In	Out	Total	In	Out	Total
Gas Service Station with Convenience Market	KSF	945	3.045	1440.02	51%	49%	75.99	51%	49%	88.35
Gas Service Station with Convenience Market	KSF	945	3.045	4,385	118	113	231	137	132	269
Net New Project Trips				**4,385**	**118**	**113**	**231**	**137**	**132**	**269**

The Line, 3630 Westminster Avenue

Land Use	Units	ITE Code	Quantity	Daily	In	Out	Total	In	Out	Total
Multi-Family (Mid Rise)	DUs	220	228	5.44	26%	74%	0.36	61%	39%	0.44
Multi-Family (Mid Rise)	DUs	230	228	1,240	21	61	82	61	39	100
Net New Project Trips				**1,391**	**23**	**63**	**86**	**68**	**47**	**115**

(29) Tiny Tim Plaza Residential Development, 2223 W Fifth Street

Land Use	Units	ITE Code	Quantity	Daily	In	Out	Total	In	Out	Total
Multi-Family (Mid Rise)	DUs	220	51	5.44	26%	74%	0.36	61%	39%	0.44
Single Family	DUs	210	20	9.44	25%	75%	0.74	63%	37%	0.99
Multi-Family (Mid Rise)	DUs	230	51	277	5	13	18	13	9	22
Single Famitly	DUs	251	20	189	4	11	15	13	7	20
Net New Project Trips				**466**	**9**	**24**	**33**	**26**	**16**	**42**

(20) Mountian View Residential, 301 & 305 North Mountain View St

Land Use	Units	ITE Code	Quantity	Daily	In	Out	Total	In	Out	Total
Multi-Family (Low-Rise)	DUs	220	8	7.32	23%	77%	0.46	63%	37%	0.56
Multi-Family (Low-Rise)	DUs	220	8	59	1	3	4	3	1	4
Net New Project Trips				**59**	**1**	**3**	**4**	**3**	**1**	**4**

(8) 5th & Harbor Mixed Use, 421 N. Harbor Blvd

Land Use	Units	ITE Code	Quantity	Daily	In	Out	Total	In	Out	Total
Retail	KSF	820	10.7	37.75	62%	38%	0.94	48%	52%	3.81
Multi-Family (Mid Rise)	DUs	220	99	5.44	26%	74%	0.36	61%	39%	0.44
Retail	KSF	820	10.7	404	6	4	10	20	21	41
Multi-Family (Mid Rise)	DUs	230	99	539	9	27	36	27	17	44
Net New Project Trips				**943**	**15**	**31**	**46**	**47**	**38**	**85**

(40) City Ventures North Harbor Townhomes, 1406 North Harbor Boulevard

Land Use	Units	ITE Code	Quantity	Daily	In	Out	Total	In	Out	Total
Multi-Family (Low-Rise)	DUs	220	38	7.32	23%	77%	0.46	63%	37%	0.56
Multi-Family (Low-Rise)	DUs	220	38	278	4	13	17	13	8	21
Net New Project Trips				**278**	**4**	**13**	**17**	**13**	**8**	**21**

Tacol El Unico (1133 W 17th St)

Land Use	Units	ITE Code	Quantity	Daily	In	Out	Total	In	Out	Total
Fast Food Restaurant with Drive-Thru	KSF	934	1.62	470.95	51%	49%	40.19	52%	48%	32.67
Restaurant	KSF	932	1.62	763	33	32	65	28	25	53
Net New Project Trips				**763**	**33**	**32**	**65**	**28**	**25**	**53**

520 South Harbor Single-Family Homes

Land Use	Units	ITE Code	Quantity	Daily	In	Out	Total	In	Out	Total
Single Family	DUs	210	35	9.44	25%	75%	0.74	63%	37%	0.99
Single Famitly	DUs	251	35	330	7	20	26	22	13	35
Net New Project Trips				**330**	**7**	**20**	**26**	**22**	**13**	**35**

Westminster & Fairview Commcercial

Land Use	Units	ITE Code	Quantity	Daily	In	Out	Total	In	Out	Total
General Office	KSF	710	66.185	9.74	86%	14%	1.16	16%	84%	1.15
General Office	KSF	710	66.185	645	66	11	77	12	64	76
Net New Project Trips				**645**	**66**	**11**	**77**	**12**	**64**	**76**

Academy Charter HS

Land Use	Units	ITE Code	Quantity	Daily	In	Out	Total	In	Out	Total
School	Students	522	130	2.13	54%	46%	0.58	49%	51%	0.17
School	Students	522	130	277	41	35	75	11	11	22
Net New Project Trips				**277**	**41**	**35**	**75**	**11**	**11**	**22**

Vista Heritage School Expansion

Land Use	Units	ITE Code	Quantity	Daily	In	Out	Total	In	Out	Total
School	Students	520	400	1.89	54%	46%	0.67	49%	51%	0.17
School	Students	520	400	756	145	123	268	33	35	68
Net New Project Trips				**756**	**145**	**123**	**268**	**33**	**35**	**68**

Lam Residential

Land Use	Units	ITE Code	Quantity	Daily	In	Out	Total	In	Out	Total
Single Family	DUs	210	6	9.44	25%	75%	0.74	63%	37%	0.99
Single Famitly	DUs	251	6	57	1	3	4	4	2	6
Net New Project Trips				**57**	**1**	**3**	**4**	**4**	**2**	**6**

1st & Harbor Commercial Development

Land Use	Units	ITE Code	Quantity	Daily	In	Out	Total	In	Out	Total
General Office	KSF	710	36.606	9.74	86%	14%	1.16	16%	84%	1.15
General Office	KSF	710	36.606	357	36	6	42	7	35	42
Net New Project Trips				**357**	**36**	**6**	**42**	**7**	**35**	**42**

Budget Inn Conversion

Land Use	Units	ITE Code	Quantity	Daily	In	Out	Total	In	Out	Total
Multi-Family (Mid Rise)	DUs	220	91	5.44	26%	74%	0.36	61%	39%	0.44
Multi-Family (Mid Rise)	DUs	230	91	495	9	24	33	24	16	40
Net New Project Trips				**495**	**9**	**24**	**33**	**24**	**16**	**40**

Appendix E: General Plan Land Use Trip Generation Estimates

Current Zoning	General Commercial	*Source: City of Santa Ana General Plan, Land Use*
Acres	2.178	*Source: Site Plan*
FAR	0.25	*Assumption based on Industry Standard*
KSF Retail	23.72	*Based on lot size and FAR*

Trip Generation Estimates

Land Use Code	Land Use Name	Size	Unit	Method	Daily	AM Peak			PM Peak		
						In	Out	Total	In	Out	Total
221	Multi-family Mid Rise	85	Dwelling Units	Average	462	8	23	31	23	14	37
820	Retail	23.72	KSF	Average	895	14	8	22	43	47	90
Difference:					***-433***	***-6***	***15***	***9***	***-20***	***-33***	***-53***

Notes:
1. ITE Code 820: Daily = 37.75(X), AM = 0.94(X), PM = 3.81(X)
2. ITE Code 221: Daily = 5.44(X), AM = 0.36(X), PM = 0.44(X)